

Perception of medical students on usefulness of interactive lectures: Can it be a welcome change?

Nithyalakshmi J^{*1}, Muthukumar S² and Mohanakrishnan K¹

¹Department of Microbiology, Sri Muthukumaran Medical College and Research Institute, Chikkarayapuram, Kunrathur Road, Near Mangadu, Chennai, India

²Department of Physiology, Sri Muthukumaran Medical College and Research Institute, Chikkarayapuram, Kunrathur Road, Near Mangadu, Chennai, India

*Correspondence Info:

Dr. Nithyalakshmi Jayakumar

Associate Professor

Department of Microbiology,

Sri Muthukumaran Medical College and Research Institute,

Chikkarayapuram, Kunrathur Road, Near Mangadu, Chennai. India

E-mail: nithya.smmcri@gmail.com

Abstract

Background: Interactive lecture is a student centred teaching technique incorporating, multimodal strategies to create more engaging classroom settings. In our medical college, traditional lecture approach has been the core teaching method. So, we intended bringing in a change to passive way of learning by introducing first interactive lecture in Microbiology. The objective of our study was to evaluate perception of students on the usefulness of interactive lecture over traditional lecture.

Methods: A session on Laboratory Diagnosis of Hepatitis B virus was selected. Anonymity of the responses was ensured to the students. Students were given overview about the study design and purpose of the study. Those who are willing to participate were enrolled for the study. A total of 112 students given consent were included. It was planned to provide traditional lecture on the selected topic followed by interactive lecture on the same topic for all 112 students. At the end of both the session, cross sectional survey was conducted using a pre validated questionnaire to assess the usefulness of interactive lecture given. Responses were to be provided on five point Likert scale with a score of **1** = strongly disagree, **2** = Disagree, **3** = Neutral, **4** = Agree and **5**= strongly agree. Frequencies of responses were analyzed by merging SDA & DA (Strongly disagree and Disagree) and SA & A (Strongly agree and Agree) as two groups. Percentage of responses was compared.

Results: In general, 96% of them perceived interactive lecture was useful and reported that they strongly recommend it to their friends who weren't there. Out of 112 students, 94(84%) reported interactive lecture was interesting when compared to traditional format.

Conclusion: When planned meticulously interactive teaching can definitely can save time and energy. Our study emphasizes the need of interactive lecture in core curriculum for better understanding of the subject.

Keywords: Interactive lecture; medical students; perception; revised medical curriculum

1. Introduction

In undergraduate medical education, teaching has major impact on learning outcomes in terms of generating effective professionals. Though there are different types of teaching (lectures, tutorials, seminars, panel discussion, brain storming, case studies, and role play) traditional didactic lecture has dominated the medical curriculum where students are more passive listeners than active learners [1].

Traditional lecture refer to any large group presentation when done effectively, the lecture can transmit new information in an efficient way; organize concepts and thinking and motivation for learning [2]. While lecture seems to be the ideal method of teaching, various studies had shown that it was less effective when medical education goal

demand the application of facts, development of thinking skills or the modification of attitudes as students absorb least amount of information that way [3,4].

On the other hand, interactive lecture is a student centred teaching technique incorporating, multimodal strategies to create more engaging classroom settings. Educational research has also shown that students who are actively involved in the learning activity will learn more compared to students listening to a conventional lecture [5]. Bonwell and Eison describes active learning as an instructional strategy which includes different set of activities that share the common goal of involving students in doing things and more importantly thinking about the things they are doing [6].

In our medical college, traditional lecture approach has been the core teaching method. So, we intended bringing in a change to passive way of learning by introducing first interactive lecture in Microbiology.

The primary goal of this study to determine how the engaging lecture was perceived by the students in terms of its qualitative indexes such as effectiveness, comprehension, motivation to study further and confidence with the content delivered. The objective of our study was to evaluate perception of students on the usefulness of interactive lecture over traditional lecture.

2. Methods

2.1 Study subjects

MBBS students (Second year)

At the time of study, there were 156 students in second MBBS attending Microbiology lectures. Students were given overview about the study design and purpose of the study. Those who are willing to participate were enrolled for the study.

2.2 Sample size

A total of 112 students given consent were included.

It was planned to provide traditional lecture on the selected topic followed by interactive lecture on the same topic for all 112 students. Discussion was carried out with the Eminent Professors in our Department of Microbiology, regarding the selection of the topic for this pilot study. A session on Laboratory Diagnosis of Hepatitis B virus was selected. Anonymity of the responses was ensured to the students.

During the interactive lecture, session was planned to last for 10 -15 min followed by activities. At appropriate interval different types of interactive activities were designed to break the monotony of traditional lecture in engaging format. All of these activities were included using guidelines and suggestions from various literatures on active learning techniques.

Activities that suite the chosen topic, such as Paper Case discussion, Think, Pair and Share, MCQ, Rhetorical questions, Demonstration, 1 min paper, incomplete handouts and Summary were included. Problem based learning was adopted at the beginning by introducing a clinical case scenario related to Hepatitis B virus.

In Think, Pair and Share, Students were allowed to discuss with their friends sitting next to them before they conclude their opinion for the questions asked. Rhetorical questions were asked in the middle of the lectures which are intended to stimulate thought without requiring answer. MCQs were asked to them at the beginning and at the end of a session as a ‘check up’ on the content learnt (Pre Test and Post Test).

At the end of both the session, cross sectional survey was conducted using a pre validated questionnaire to assess the usefulness of interactive lecture given [7]. The questionnaire included 10 items that probed about the effectiveness of interactive lectures in comparison with didactic lecture in learning of Microbiology and 2 open ended questions that demanded their analytical skill to assess their perception.

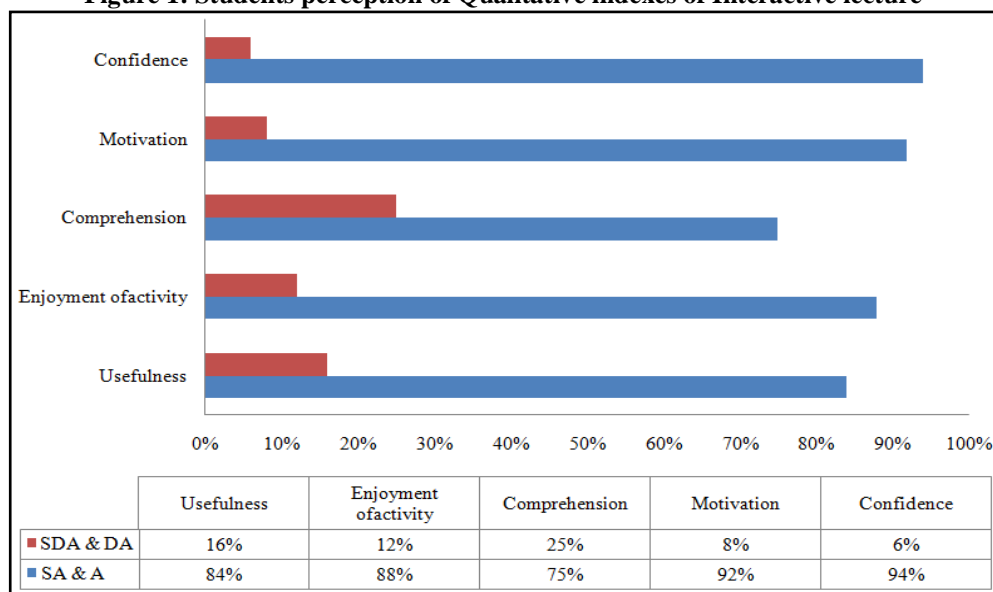
Responses were to be provided on five point Likert scale with a score of 1 = strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5= strongly agree. Frequencies of responses were analyzed by merging SDA & DA (Strongly disagree and Disagree) and SA & A (Strongly agree and Agree) as two groups. None of them opted for neutral response. Percentage of responses was calculated.

3. Results

This model has unique advantage that as the same group of professional medical students was exposed to two different teaching formats simultaneously. Hence, qualitative index of engaging lecture with traditional lecture can be compared effectively.

Responses were obtained using 5 point Likert scale.

Figure 1: Students perception of Qualitative indexes of Interactive lecture



84% of the students reported that interactive lectures were useful and more interesting when compared to traditional format. This could be explained by the fact that it creates a better atmosphere so that students apply the knowledge immediately what they have learnt and correct their mistakes at the point of learning.

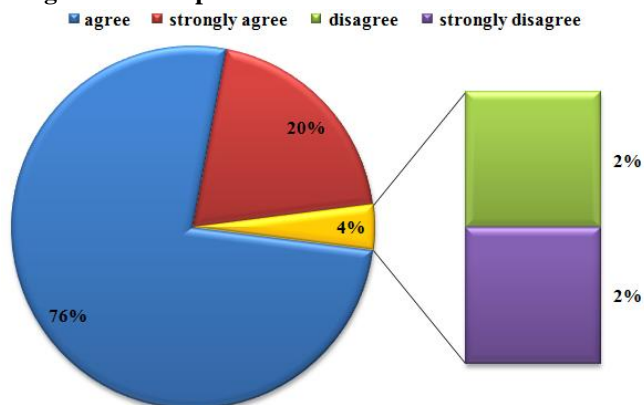
88% of them mentioned that they enjoyed the activities during the session. This might be due to the fact that it helps them to stay awake and demanded to pay attention for its execution.

Interestingly, 25% of the students denied that their content comprehension is better with interactive lecture. One among them indicated that it appeared to be distracting and he is not sure about the content knowledge he gained, after various activities. Still 75% of the students perceived it as a more active way of learning the core knowledge and felt that they had better understanding of the material than traditional lecture.

With reference to motivation to further study, one hundred and three students (92%) agreed that interactive session motivated them to study further by utilizing various resources. Handouts were prepared according to the topic in such a way it included spaces left for the students to fill up and thought provoking activities for them to search and find out. Thus, incomplete handouts issued to them during the session allow them to spend less time outside the classroom about the topic discussed, at the same time motivated them strongly to study further to solve the puzzle.

105 students (94%) reported that interactive session builds their confidence by focusing on the core knowledge with understanding of content of microbiology in a better way. This is further supported by their comments after brain storming exercises "By asserting our opinions with relevant references in brain storming exercises we felt that we would be able to perform well on the exam".

Figure 2: Perception on Interactive lecture usefulness



In general, 96% of them perceived interactive lecture was useful and reported that they strongly recommend it to their friend who wasn't there. However, 4% of them indicated that they find it difficult to switching from one approach to another in short span of time.

4. Discussion

Lectures can be very effective tool to transmit the factual knowledge when used efficiently. This teaching style has unique advantage of providing the students lecturer overview of the material by integrating information from various sources. By focusing exposure of students to course material lecturer can take the benefit of clarifying the complex information out of their experiences. On the other hand, when application of acquired knowledge or critical thinking is warranted especially in Microbiology course in which it is essential to apply the facts to different fields such as, Medicine, Surgery, OG, etc. various studies had shown lectures may be less effective.

Despite his inherent limitations, Traditional lectures continue to be an important component of our Medical curricula across the globe. At this juncture though complete replacement of lectures with active learning teaching is quite difficult, many studies have emphasized the potential outcome of integrating active learning methods and traditional lecture format as "Engaging Lectures" [8].

This pilot study was planned to elucidate the perception of this teaching method with professional medical students as it can influence the effective outcome of accepting the change in teaching methodology in near future. The same group of professional medical students was exposed to two different teaching formats simultaneously, so that evaluation of qualitative index of engaging lecture with traditional lecture can be done effectively.

Students have reported that they perceived engaging lecture to be more useful in the course. They also indicated that they found it more interesting and engaging. In addition, they also recognized that the new format they had been exposed for the section (Laboratory diagnosis of Hepatitis B virus) was very appropriate as it helped them to comprehend the content in a short span of time. Indeed, a study by Michael K et al., had shown that active teaching methods must be used if students are expected to digest large volume of material [9].

All these observations suggest student's positive perception of active learning technique and their right attitude towards it.

Heissheimer et al., in his study reported that active learning sessions enhance the students' enjoyment inside the four walls of lecture hall [10]. In our study, student responses to describe their enjoyment about the session just exposed, also supported the same as 88% of them liked it very much. This might be due to the fact that engaging lecture by breaking the monotony of passive power point lecture it allows them to cherish the moment, thereby improving their attention incredibly However, 22% Of them expressed negative perceptions of engaging lecture in terms of enjoyment. They felt that such a classroom take away from proper lecturer guidance.

By immediate application of learned facts, students comprehend the content more efficiently. This can be considered as the potential benefit of switching to student centered approach. Thus, this collaborative nature of engaging lecture activities could help the students to raise their confidence level about the content. Our responses also represented the same as most of them (94%) felt more confident to perform well in the exam.

Our response analysis which stated incomplete handouts given to them during session with space left for them to fill, found to be more helpful to read their own notes on their own time. Comments on the same revealed that majority of them agreed that they need to devote less time to study outside the classroom. This was further supported by a similar study in China in which 89.4% of the respondents admitted that they prefer interactive session in terms of comprehension [11]. In contrast to our findings, Williams et al reported that first year medical students had learnt less in interactive session compared to lectures [12].

Furthermore, for these lifelong learners who are expected to learn independently and apply their critical skills to solve the issues, need of the hour is high grade of motivational index. This was further supported by a recent Meta-analysis which stated that motivation to read further has been the best predictor of students' performance. As interactive sessions encourages teamwork and provide positive reinforcement to the students it helps to develop their confidence [13]. Almost all students (92%) have agreed to the hypothesis that engaging lectures are highly motivating. Our results prove that it is possible to adopt interactive mode of teaching under a conventional curriculum amidst the challenges. The medical students have perceived interactive lectures useful preferably for subject confidence and motivation to read further. Interactive lecture when planned meticulously can definitely save time and energy.

5. Conclusion

We emphasize the need to incorporate this teaching methodology in the core curriculum of basic sciences to improve the qualitative experiences and performance levels by students.

References

- [1] Rathankar UP, Sjeetal DU, Preethi GP, Rojeshwari S, Pemminati S, Shiraprakash G, et al. Is small group teaching among the undergraduate dental students really effective? *JCDR*. 2011; 5(4):822 – 5.
- [2] Frederick, P. The lively lecture - 8 variations. *College teaching*, 1986; 34: 43 – 50.
- [3] Newble, D and Cannon, R. A hand book for Medical teachers. 1994 (Boston, Kluwet, Academic).
- [4] White G. Interactive lecturing. *The clinical teacher* 2011; 8 (4) 230 – 235.
- [5] Yvonne steinert & Lnda S. Snell Faculty of Medicine, McGill University, Canada. Interactive lecturing: strategies for increasing participation in large group presentations. *Medical Teacher*, 1999; 21(1).
- [6] Bonwell, C. C., & Eison, J. A. (1991). Active learning: Creating excitement in the classroom. ASHE-ERIC Higher Education Report No. 1. Washington, D.C.: The George Washington University.
- [7] Cynthia J. Miller, Jacquee McNear, and Michael J. Metz. A comparison of traditional and engaging lecture methods in a large, professional – level course. *Adv Physiol Educ* 2013; 37:347 – 355.
- [8] Hessheimer HM, Rogo EJ, Howlett B. Use of questioning during lectures in a dental hygiene course. *J Dental Educat* 2011; 75:1073 -1083.
- [9] Huang AH, Carrol RG. Incorporating active learning into a traditional curriculum. *Adv Physiol Educ* 1997; 18: 14-23.
- [10] Michael K, Where's the evidence that active learning works? *Adv Physiol Educ* 2006; 30:159-167.
- [11] Willams S. Sa B, Nunes P, Stevenson K, Williamas S, Bidyadhar S, et al. Communicationg with first year medical students to improve Communication Skills teaching in The University of the West Indies. *Int J Med Educ* 2010; 1:5-9.
- [12] Rehman R. Iqbal A, Syed S, Kamran A Evaluation of integrated learning program of undergraduate medical students. *Pak J Physiol* 2011; 7(2):37-41.
- [13] Abubakir M. Saleh, Namir G. AL – Tawil and Tariq S. AL – Hadithi. Didactic Lectures and Interactive Sessions in Small Groups: A Comparative Study among Uudergraduate Students in Hawler College of Medicine. *British Journal of Education, Society & Behavioural Science* 2013; 3(2): 144 – 153.