



Analysis of Different Interactive Teaching Methodology

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Abstract

Introduction: The interactive teaching system is one such tool which aims at improving the conventional lecture. In this study we had compared three types of interactive teaching viz., flipped class room, MCQ (Multiple Choice Question) based interactive teaching and confusion technique by kirpatrick level 1 evaluation. **Methodology:** It was an academic study conducted for a period of 1 year for final year M.B.B.S students' batch of 50 in Obstetrics and Gynaecology department of NEIGRIHMS from March 2018 to March 2019. Out of a total of 12 topics selected for interactive teaching technique, 4 topics were taught in flipped classroom technique, another 4 taught with putting MCQ in the class and remaining 4 topics were taught using confusion technique. Immediate feedback was obtained from students using likert chart. All the data were collected and analysed by Wilcoxon Signed rank test by using SPS Software 22. **Observation:** Flipped classroom technique of teaching was found preferable to MCQ technique (p value < 0.01). Also flipped class room technique was preferred by student to confusion technique (p value < 0.01). On comparison between MCQ and Confusion technique, MCQ was preferred by the students (p value < 0.01). **Conclusion:** Interactive techniques and strategies make the students actively involved in the learning process, retaining more information and hence leaving them satisfied. In our study, flipped classroom method was the most preferred method by the students as a modality of interactive teaching when compared to MCQ based teaching and Confusion technique.

Keywords: Interactive teaching; Flipped classroom; MCQ Based teaching; Confusion technique.

Introduction

Great teachers are nimble, observant and responsive, always keeping an open mind about how to best engage their students and get them excited about learning. That means to consider trying out different interactive teaching styles in the classroom. The attention span of a medical student was found to be optimal till 20 minutes following which it rapidly fades off.^[1] In order to improve the classic lecture, interactivity between participants is a must. The interactive response system is one such tool which aims at improving the conventional lecture. The ability of these tools to engage passive listeners and 'back-benchers' in a classroom has been aptly demonstrated.^[2,3] Learning is an active process and interactive lectures are considered as educational best practice.^[4] Rao and Di Carlo have demonstrated that the interactive-learning technique develops critical-thinking.^[5] Increased interactivity leads to increased student satisfaction and better learning outcomes.^[6,7] Students need to actively participate in lectures to maintain their engagement with the content.^[8] Indeed, structured interactive session is a better lecture format as compared to didactic lectures.^[4] Teachers making use of interactive teaching styles are better equipped to assess how well students master a given subject

material. Applying teaching methods that involve two-way communications enables the teachers to make quick adjustments in processes and approaches. In our study, we had involved flipped class room methods, MCQ and confusion technique as methods of interactive teaching and compared the student satisfaction with Kirkpatrick level 1 immediate feedback evaluation.

Methodology

It was an academic study conducted for a period of 1 year for final year M.B.B.S students' batch of 50 in Obstetrics and Gynaecology department of NEIGRIHMS from March 2018 to March 2019. The students were made to understand their role as study participants and consent was also taken for the same. Out of a total of 12 topics selected for interactive teaching technique, 4 topics were taught in flipped classroom technique, another 4 taught with putting MCQ in the class and remaining 4 topics were taught using confusion technique. All topics were taught by the same teacher. About flipped classroom technique, the teaching materials e.g. video clippings, reference books on Preterm Births, Preeclampsia & Eclampsia, Ovarian Malignancy, and Cancer Cervix were provided to students 1 week before and some question were framed and

discussed in the class. In the MCQ technique, teaching materials e.g. Reference books on Oral Contraception, PID, Oligohydramnios & Polyhydramnios, Ectopic Pregnancy were given to the students to go through 1 month before the class. MCQs were given to the students in between individual lectures in the class. Next technique was confusion technique, where students were grouped 3-4 numbers in each group. Both true and false statements were issued by the teacher on the topics 1 week before the class via email to the class representative. The class representative distributed the statements and it was discussed in class. The topics for confusion technique were Placenta previa, Small for gestational age, Fibroid, AUB. After each class, immediate feedback were taken from the students via Likert chart

and evaluated by Kirkpatrick’s level 1 evaluation. Students’ feedback of the class were taken based on the below questionnaires:

- Holding their attention
- Create interest
- Overcome monotony
- Motivation and guide for self learning

All the data were collected and analysed by Wilcoxon Signed rank test by using SPS Software 22.

Observation

Table 1: Response Feedback

Response	MCQ	Percentage	Confusion Technique	Percentage	Flipped Class Room	Percentage
Fair	22	11.9	28	17.6	4	2.4
Good	70	37.8	84	52.9	60	35.9
Very good	74	40.0	36	22.6	54	32.4
Excellent	19	10.3	11	6.9	49	29.3
Total	185	100.0	159	100	167	100

Table2: Comparison among the responses

		N	Mean Rank	Z- value	Asymp. Sig. (2-tailed) (p- value)
Response from confusion technique - Response from MCQ technique	Negative Ranks	82	41.50	-9.055 (based on positive ranks)	<0.01
	Positive Ranks	0	.00		
	Ties	77			
	Total	159			
Response from flipped classroom technique - Response from MCQ technique	Negative Ranks	0	.00	-6.325 (based on negative ranks)	<0.01
	Positive Ranks	40	20.50		
	Ties	127			
	Total	167			
Response from flipped classroom technique - Response from CONFUSION technique	Negative Ranks	0	.00	-10.867 (based on negative ranks)	<0.01
	Positive Ranks	120	60.50		
	Ties	39			
	Total	159			

We had 185 responses in MCQ based interactive teaching. Out of which, fair was 11.9%, good was 37.8%, very good was 40% and excellent was 10.3%. Total response in flipped classroom technique was 167, out of which fair was 2.4%, good was 35.9%, very good was 32.4% and excellent was 29.3%. In confusion technique, we had 159 responses, for which fair was 17.6%, good was 52.9%, very good was 22.6% and excellent was 6.9%. According to Table 2, mean negative rank=41.50 and mean positive rank=0, z=-9.055 based on positive rank and p< 0.05, considering 5% level of significance. Hence MCQ method of teaching is preferable to confusion technique. When comparison was done between flipped classroom technique and MCQ technique, mean negative rank=0.00 and mean positive rank=20.50, z=-6.325 based on negative rank and p is less than 0.05, considering 5% level of significance. Hence, flipped classroom technique of teaching is preferable to MCQ technique. On analysis of flipped classroom and confusion technique, mean negative rank=0.00 and mean positive rank=60.50, z=-10.867 based on negative rank and p is less than 0.05, considering 5% level of significance. Therefore, flipped classroom technique of teaching is preferable to confusion technique.

On complete analysis we could find that the flipped class room method was the most preferable modality by the students.

Discussion

Conventional lectures have been in use as a teaching method since even before printing was invented^{[9],[10]}. The drawbacks of didactic lectures in a conventional classroom are primarily lack of attention, inadequate development of independent thinking and limited opportunity for the student to self-assess. In conventional lectures students are passive receivers of information and therefore are not involved in the process of learning^[11]. It is clear from the recent research that students need to be taught by interactive lectures and therefore it is not surprising that traditional lectures imparting information are characterized by poor attendance rates.^[11]

In our study we have used flipped classroom, MCQ based study and confusion technique as various modalities of interactive teaching. The students preferred the flipped classroom technique to MCQ based teaching and confusion technique. When analysing student feedback between MCQ based teaching and confusion technique students preferred MCQ based technique.

Content comprehension and knowledge retention can be greatly enhanced if students actively participate into the learning process.^[12,13] Medical school students usually have the ability to learn the information from the textbook on their own, but they need guidance from instructors for solving problems in real clinical practice^[13,14]. This leads to the rationale for using the “flipped classroom” as a potentially effective method for medical education. The flipped classroom is an educational model in which the lecture and homework elements of a course are reversed. In the flipped classroom model, students listen to podcasts or view video-

recorded lectures on their own before attending the class, and use the in-class time for student-centred learning activities such as case scenario analysis^[15]. In the flipped classroom approach, educators do not drive the teaching process, but devote their time to guiding collaborative learning and application of knowledge. Also, students are required to play an active role during the class rather than passively absorbing lecture materials.

Multiple-choice questions (MCQs) are the main method of assessing medical student knowledge. As a result there is a high demand from medical students for formative MCQs. MCQs in between the lectures break the monotony and activate students' interaction. It is less time consuming, exam oriented and also can act as a problem solving tool. Study by Archana et al found that MCQ based teaching was the most preferred method of interactive teaching by the students^[16]. Confusion technique at the end helps to clear doubts. This is useful especially to students who are scared to clarify their doubts in public. It also acts like a small group activity with fun.

Lipson (Stanford /Teaching Common- Confusion a necessary state in learning by John Healy Murray) sees the pattern as such:

Initial state - Resistance - Disruption - Reorganization - Final state^[17].

Our initial clarity comes under attack by new experiences and data. We resist until the point of disruption, when we are forced from our solid ground and into a realm of uncertainty and confusion.

Then we reorganize our thoughts, and retest our ideas, to learn and grow until we can resettle our mind into a final state of new and enhanced clarity. Confusion is a powerful force in education. It can send students reeling towards boredom and complacency. Confusion technique at the end helps to clear doubts.

We have used the above methods of interactive teaching and took the feedback from students in the form of questionnaires. After statistical analysis of the data, we could finally observe that flipped learning method was the most preferred modality of teaching by the students.

Conclusion

Increased arousal and motivation are the essential ingredients for learning, and often are more important for retention than intelligence. Interactive lectures can stimulate interest and help to maintain attention. By using interactive techniques and strategies, students will become more involved in the learning process, retain more information and be more satisfied. So will the flipped learning, this method transforms the classroom into a “dynamic, interactive learning environment” where the educator guides students as they apply concepts and engage creatively in the subject matter. In our study it was the most preferred method by the students as a modality of interactive teaching.

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