



Assessment of effectiveness of small group teaching among Medical Students

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ABSTRACT

Introduction: Small group teaching has grown in popularity in medical education as it offers a dynamic and collaborative setting for learning. It improves the retention of knowledge and students thinking. Conflicting reports in literature regarding effectiveness of small group teaching vs didactic lectures. **Aim and objectives:** 1.To assess the effectiveness of small group tutorials versus didactic lectures 2.To know the Students' and faculties' perceptions regarding small group tutorials. **Methods:** Eighty final year MBBS students with informed consent were divided randomly into two groups. Two topics on head injury were taken in two sessions. In which pre and post assessment was done based on MCQs. In first session, one group was subjected to didactic lecture and the other group to tutorials followed by the cross-over in the second session. The same group of teachers took the didactic lectures and tutorials respectively. Perception of faculty based on likert scale taken. The data analysed in SPSS software using paired t-test. **Results:** There is a significant statistical difference in the pre-test and the post-test scores of each modality of teaching on the application of paired t-test (p-value <0.01). The gain (difference in pre and post test scores) through the two TL methods was also found to be statistically significant. Small group tutorial teaching was agreed upon by students and faculties more effective. **Conclusion:** The educational effectiveness of small group teaching as compared to didactic lecture was statistically significant and the perception of students and faculties was in favour of it.

KEY WORDS: Tutorials; Faculty perception; Medical education

AIM AND OBJECTIVES

1. To compare the effectiveness of small group teaching and didactic lectures.
2. To study the perception of the students and faculties for preferring small group teaching or didactic lectures

MATERIALS AND METHOD

The present study was carried out at Rohilkhand Medical College and Hospital, Bareilly. Approval for the study was obtained from the Institutional Ethical Committee.

Study population

9th semester students attending Surgery classes.

Study Duration

3 months

Study Design

RCT with cross-over

Sample size

80 students who participated in the study and gave informed consent.

Methodology

Out of total 101 M.B.B.S. Final year students, 80 students who gave informed consent participated in the study and were randomly divided into two groups A and B by computer generated random numbers. Two topics on head injury were covered in two sessions by the teachers trained in basic medical education.

In session 1, group A was taught topic 1 by didactic lecture and group B, divided into 4 subgroups was taught through tutorials. In the session-2, cross-over was done and the students of group A were divided into 4 subgroups for tutorial while group B was given didactic lecture. Didactic lecture and tutorials were taken by the same teachers in each session.

Pre and Post test were conducted in each session using 10 MCQs prepared by a teacher not involved in the study and the same test was given as both the pretest and the posttest. The data was analyzed by using the SPSS software. The Pre and Post Test scores of didactic lectures were compared and the same was repeated for the tutorials using the paired t-test.

The paired "t" test was used to compare the gain (Differences between pretest and posttest scores) of lectures and tutorials and the "p" values <0.05 was considered as significant in this study.

A subjective feedback from the students (80) and faculty (13) was taken and data on their perception through questionnaires using Likert scale (1-5) was taken (strongly

agreed -1 ; agreed-2; neutral-3;disagree-4; strongly disagree-5)

RESULTS

The small group tutorials introduced among the students was assessed and compared with that of didactic lectures and their perception was taken on the Likert scale .

31.2% of the students strongly agreed that small group sessions are more active way of learning and 42.5% agree for the same but just 10% disagree about it. Excluding 7.4% and 20% neutral, rest of the students felt that small group sessions motivated them to use additional learning resources. Also, 77.6% agreed that small group session are stressful while the rest were neutral (21.3%) and only 1.2% disagreed while 78.8% of the students thought it to be waste of time while rest (18.8%) were neutral and only 2.4% disagreed to it. Except 5% who disagreed, 73.8% of the students found that small group teaching is focused and 21.2% were neutral about it. As far as the accuracy of information in small group teaching is concerned, 62.5% agreed to it while 23.8% were neutral, 13.7% disagreed to it. Retention of knowledge was maximum (80.1%) followed by 17.5% who were neutral and only 2.4% disagreed to it. Only 1.2% did not show preference to small group teaching while 75.0% agreed to it and 23.8% were neutral towards it. In relation to small group teaching being non-essential for preparation of exam, 67.5% of the students agreed to it while 27.5% were neutral and 5% did not agree to it. In relation to the perception of the faculty towards small group sessions, 53.9% found that small group sessions facilitate self-learning while 38.5% were neutral towards it and only 7.6% disagreed to it. Also, 76.9% had better understanding of learning objectives while 23.1% were neutral and none disagreed to it. Except for 15.3% who were neutral rest strongly agreed to the development of interest in the topic and none disagreed to it. Similarly, except for 30.8% who were neutral rest strongly agreed to the small group teaching being more scientific and none disagreed to it.

As far as the contribution of small group teaching in the strengthening of student's intrinsic motivation is concerned,

38.4% were neutral and rest (61.6%) agreed to it and none disagreed to it. Also, small group teaching giving systematic approach or attempt to apply in educational process was agreed upon by 68.4% students while 30.8% were neutral and none disagreed to it.

It can very well be concluded that there is a significant statistical difference in the pre-test and the post-test assessment scores of each modality of teaching on the application of paired t-test ($p\text{-value} < 0.01$). Also, the gain (difference in pre and post test scores) through the two TL methods was also found to be statistically significant.

DISCUSSION

In the present study the small group tutorials introduced among the students was assessed and compared with that of didactic lectures and their perception was taken on the Likert's scale and it was observed that in this study the majority (73.7%) of the students accepted the fact that the small group sessions adopted for teaching were proved better as compared with the large group teaching methods like large class room didactic lectures. Similar findings were observed by a study [12] published in the medical teacher summarized that small group teaching sessions are better than large groups. The reference study [13] had shown that the small group teaching sessions can be further improved by adding various relevant assessment tools for evaluation of the students during and at the end of small group discussions.

It was concluded in the present study that the majority of the students accepted the small group of the sessions as more active way of learning as compared with the didactic lectures of the large class rooms. In a study carried out by Hedge et al, 2011 it was observed that in small group teaching sessions active participation along with autonomous learning is desired [13]. However another study carried out by Harden & Laidlaw, 2012, explored next level about the small group teaching and added that it is most difficult and highly skilled teaching technique and they suggested that it should be planned carefully [14].

Table1. Assessments of didactic and interactive teaching methods

Mode of teaching	Quantity	Mean Marks	Std. Deviation	Std. Error Mean
Didactic lecture	Pre-test	80	9.03	3.272
	Post-test	80	15.76	2.990
	Gain	80	6.76	2.645
Interactive Tutorials	Pre-test	80	6.41	1.953
	Post-test	80	16.58	2.479
	Gain	80	10.15	2.761

Table2. Comparison of the assessments of didactic and interactive teaching methods

Mode of teaching	Pre-test scores	Post- test scores	Statistical significance	Pre-test/Post-test difference	Statistical significance
Didactic lecture	9.03±0.36	15.76±0.33	0.00	6.76±0.29	0.01
Interactive Tutorials	6.41±0.21	16.58±0.27	0.03	10.15±0.30	

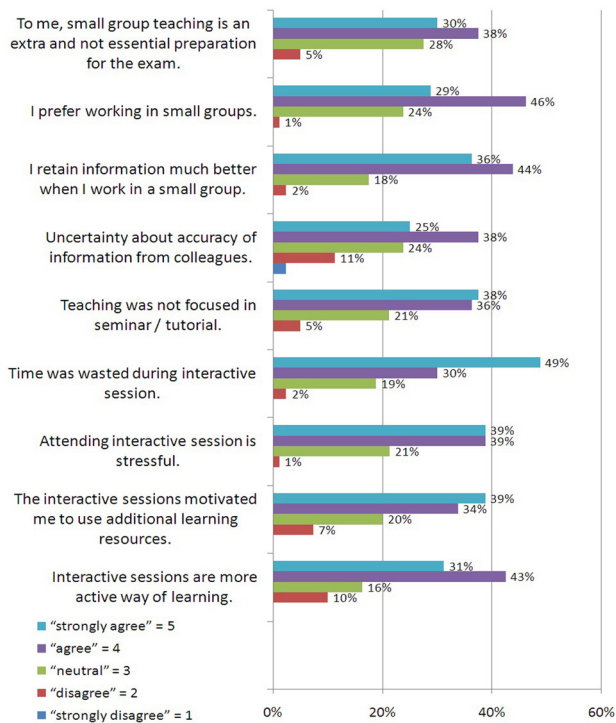


Fig 1. The descriptive statistics of perception of students about small group teaching on Likert scale

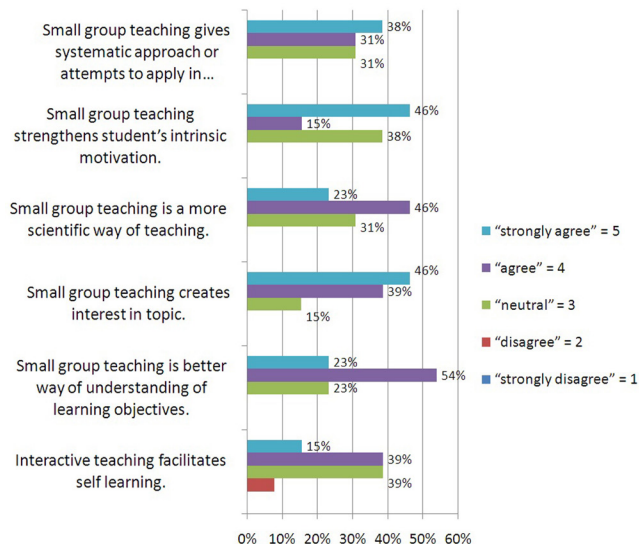


Fig 2. The descriptive statistics of perception of faculty about small group teaching on Likert scale

Although the majority (73.7%) of the students in the present study agreed that the small group sessions are more active way of learning yet again the majority of the students (77.6%) agreed that small group teaching sessions are stressful too. Similarly a study carried out Henry Walton concluded both pros and cons of the small group teaching sessions and according to which small group sessions can increase understanding, increase abilities of assembling the information but at the same time small teaching sessions can

discourage some participants to express themselves, make them dependent on more active participants, and it was also observed in the same study that the small group discussions can create boredom around them and make the teaching stressful too. 78.8% of the students thought it to be waste of time[15]. In the index study majority of the students (73.8%) various advantages like they found that small group teaching is focused and 62.5% found that the information provided during these sessions is accurate. Retention of knowledge was agreed upon by maximum (80.1%), 75.0% shown preference to small group teaching, 67.5% of the students agreed that small group teaching was non-essential for preparation of exams, 53.9% found that small group sessions facilitate self-learning, 76.9% had better understanding of learning objectives. Various studies from world-wide supported these statements and agreed that these advantages are truly associated with the small group discussions[15-17].

CONCLUSION

Small group teaching in medical education is agreed upon by the students as a more active way of learning which motivated them to use additional learning resources and helped to retain the information except for a very few of them. On the contrary, students found it very stressful, waste of time, non-focussed teaching in seminar/tutorial and uncertainty of the accuracy of information from colleagues.

As far as the perception of the faculty is concerned, maximum faculty agreed that small group teaching facilitates self-learning, is a better way of understanding of learning objectives, creates interest in topic, is a more scientific way of learning, strengthens student's intrinsic motivation and gives systematic approach or attempts to apply in educational process.

RECOMMENDATIONS

Small group teaching can be beneficial for enhancing the discussion of new ideas and novel concepts, for examining issues related to medical teaching and presenting alternatives in order to encourage the application of new concepts thereby fostering problem solving and communication skills.

This provides an additional way of assessing student's attitudes and beliefs to the teachers. Thereby it is strongly recommended to train the faculty for interactive methods of teaching and learning.

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