SEARCHING THE WAY TO KEEP STUDENTS AWAKE IN CLASS ROOM

SUMERA BADAR, MUSARRAT-UL-HASNAIN AND ZAHID YASEEN HASHMI
Department of Medical Education, Punjab Medical College, Faisalabad

Abstract

Purpose: Team Based Learning (TBL) is gaining popularity as a small group teaching methodology in Medical institutions. Owing to its property of being less resource intensive it is especially useful in developing countries. Students being most important stakeholders need to be focused on research for implementation of the study was conducted to access the students' perceptions as they compare traditional lectures with new methodology in our context.

Method: A fifteen item five point Likert's scale questionnaire duly prepared by experts and piloted in students, was distributed among students of fourth year at the end of second module of Team based learning in the subject of internal medicine for fourth year MBBS class and collected after completion. Data was analyzed using SPSS 15. Independent t-test was performed and means were compared for TBL and Lecture methodology. Global rating was also compared for both.

Results: Total 174 students responded out of which 53 were males and 121 females. 61 students marked "excellent" category in overall rating with preference to TBL by 51 and lectures by 10. Among 121 marking in" good" category 81 were for TBL and 40 for lectures. All fifteen responses in the questionnaires favoured TBL. Comments included "excellent way of retention" for TBL. There was active participation of students throughout the sessions.

Conclusion: Students favoured TBL as compared to lectures and therefore TBL is a suitable preferred methodology to incorporate active learning in our undergraduate curriculum.

Key words: Team based learning, Traditional lectures, students' perceptions.

INTRODUCTION

The importance of active learning cannot be overemphasized as there is substantial literature to support. In traditional lecture system, students' minds are believed to be empty vessels for filling in by knowledge as opposed to restructuring of knowledge in active class room.[1] It is also considered imperative for the educators to know their students and dully "check in" to be sure about achievement of the objectives of learning.[2] There is better retention, comprehension and enjoyment on the part of students as well as new neural connections are made during the process of active learning thus helping in conceptualization.[3,4]

There are various Small Group Discussion (SGD) methodologies representing active learning and problem based learning is in use for the last four decades in many medical schools of the world.[5] PBL is an open discovery method and requires students to be true self directed learners, while, there are diverse standards as regards education level taken as optimum for admission in medical schools. This results in a great number of students being at low level on the scale of self directed learning.[6] Case based learning is another strategy which differs from PBL in the form that it is teacher led. Due to the difference in self directed learning level of the students as one of major reasons, recently two medical schools have been changed from PBL to CBL and it has been well appreciated by students.[7] In addition to this, PBL is resource intensive requiring a large number of rooms and specially trained facilitators, which, further limits the feasibility in the school already struggling for resources. CBL has same requirements and it only differs from PBL being teacher guided. TBL is an instructional strategy developed by Professor Larry Michaelsen at the University of Oklahoma's Business School, USA, four decades back. He developed it as large class solution and wanted to use classroom time for students to solve the kinds of problems they would face in the business world.[8] It was introduced in medical schools in 2001.TBL is a teacher guided inquiry method in which teams work in collaboration within classroom setting and students. It promotes critical thinking and gives solution for many issues inherent in PBL.[9]

Being relatively a new entry in medical school class, TBL requires concrete evidence for consideration of its wider use. Students being most important stakeholders deserve their opinion inclusion in any innovation in this regard. This study has been conducted to gather students' perceptions through a questionnaire

Table 1: *Independent Samples Test*.

		Levene's Test for Equality of Variances		*t-test for Equality of Means*						
		F	*Sig.*	*t*	*df*	*Sig.(2-tailed)*	*Mean Difference*	*Std. Error Difference*	*95% Confidence Interval of the Difference*	
		Lower	*Upper*	*Lower*	*Upper*	*Lower*	*Upper*	*Lower*	*Upper*	*Lower*
I come prepared in class	Equal variances assumed	.268	.605	2.639	346	.009	.368	.139	.094	.642
	Equal variances not assumed			2.639	345.997	.009	.368	.139	.094	.642
Class session stimulates my interest in subject	Equal variances assumed	36.583	.000	10.309	346	.000	1.305	.127	1.056	1.554
	Equal variances not assumed			10.309	335.206	.000	1.305	.127	1.056	1.554
It helps in better retention of knowledge	Equal variances assumed	52.073	.000	11.014	346	.000	1.368	.124	1.124	1.612
	Equal variances not assumed			11.014	308.741	.000	1.368	.124	1.123	1.612
Class session promotes respect for others	Equal variances assumed	11.898	.001	9.096	346	.000	1.080	.119	.847	1.314
	Equal variances not assumed			9.096	342.535	.000	1.080	.119	.847	1.314
Class session meets my expectations	Equal variances assumed	.979	.323	6.403	346	.000	.879	.137	.609	1.149
	Equal variances not assumed			6.403	345.498	.000	.879	.137	.609	1.149
I am more involved in class session	Equal variances assumed	28.154	.000	10.464	346	.000	1.316	.126	1.069	1.563
	Equal variances not assumed			10.464	334.245	.000	1.316	.126	1.069	1.563
I enjoy the session	Equal variances assumed	35.908	.000	10.803	345	.000	1.439	.133	1.177	1.701

	Equal variances not assumed			10.798	332.787	.000	1.439	.133	1.177	1.701
It is useful in exam preparation	Equal variances assumed	18.089	.000	8.059	346	.000	1.109	.138	.838	1.380
	Equal variances not assumed			8.059	342.514	.000	1.109	.138	.838	1.380
Class session encourages student participation	Equal variances assumed	52.732	.000	12.456	346	.000	1.557	.125	1.312	1.803
	Equal variances not assumed			12.456	323.438	.000	1.557	.125	1.311	1.803
Diverse point of view is also considered in session	Equal variances assumed	54.082	.000	12.755	346	.000	1.609	.126	1.361	1.857
	Equal variances not assumed			12.755	315.971	.000	1.609	.126	1.361	1.857
Class session explains concepts clearly	Equal variances assumed	23.440	.000	9.441	346	.000	1.213	.128	.960	1.465
	Equal variances not assumed			9.441	335.947	.000	1.213	.128	.960	1.465
Session facilitates discussion during class	Equal variances assumed	21.807	.000	12.580	346	.000	1.598	.127	1.348	1.847
	Equal variances not assumed			12.580	337.764	.000	1.598	.127	1.348	1.848
Questions and comments are encouraged	Equal variances assumed	31.141	.000	12.853	346	.000	1.557	.121	1.319	1.796
	Equal variances not assumed			12.853	333.673	.000	1.557	.121	1.319	1.796
Class session is boring	Equal variances assumed	4.258	.040	-5.946	346	.000	-.839	.141	-1.117	-.562
	Equal variances not assumed			-5.946	341.150	.000	-.839	.141	-1.117	-.562
I attend the session only for the sake of attendance	Equal variances assumed	3.158	.076	-3.408	346	.001	-.517	.152	-.816	-.219
	Equal variances not assumed			-3.408	345.154	.001	-.517	.152	-.816	-.219

Table 2:

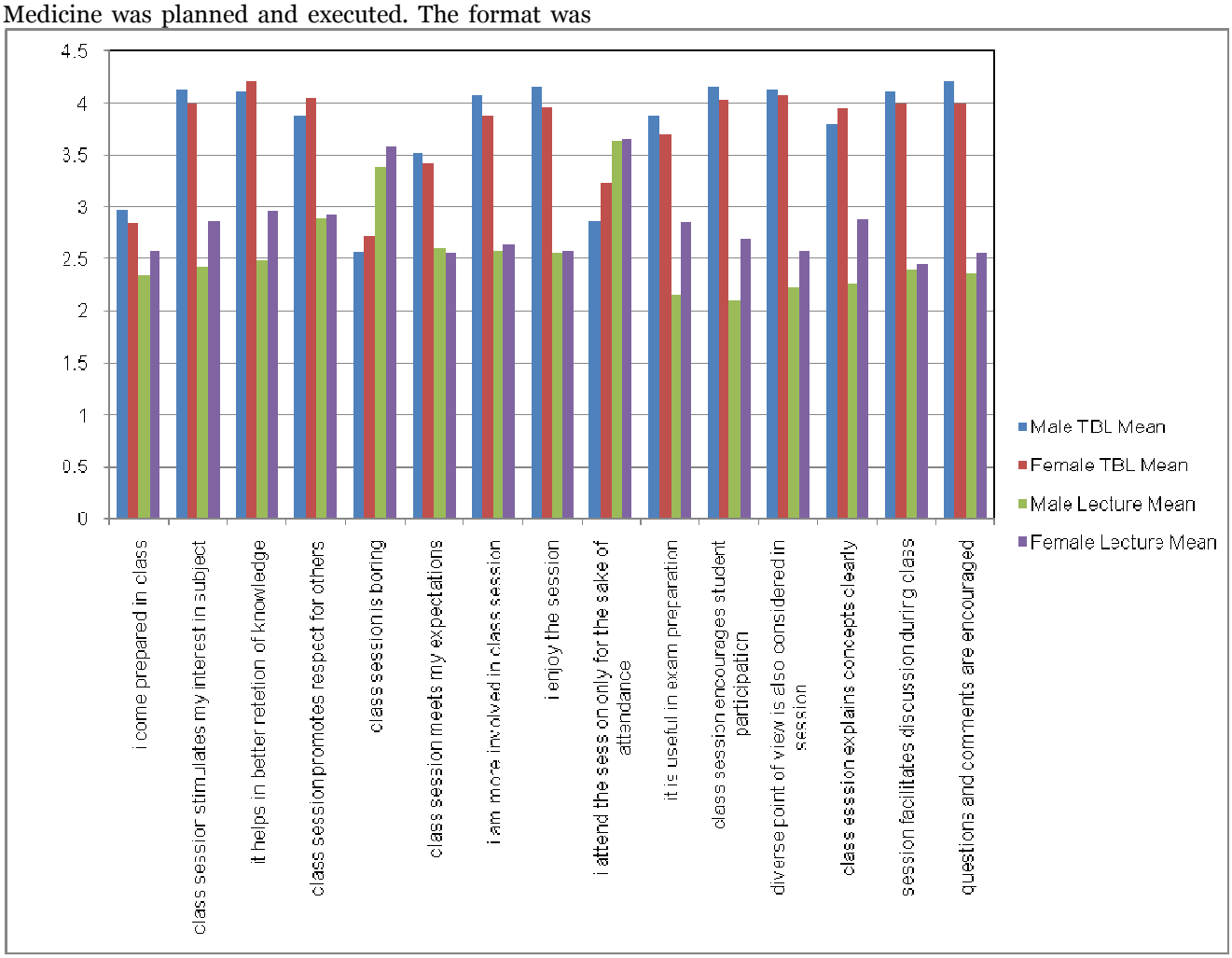
	TBL vs. Lecture	*N*	*Mean*	*Std. Deviation*	*Std. Error Mean*
I come prepared in class	TBL	174	2.87	1.302	.099
	Lecture	174	2.51	1.298	.098
Class session stimulates my interest in subject	TBL	174	4.03	1.069	.081
	Lecture	174	2.73	1.282	.097
It helps in better retention of knowledge	TBL	174	4.18	.936	.071
	Lecture	174	2.81	1.345	.102
Class session promotes respect for others	TBL	174	3.99	1.051	.080
	Lecture	174	2.91	1.162	.088
Class session meets my expectations	TBL	174	3.45	1.256	.095
	Lecture	174	2.57	1.305	.099
I am more involved in class session	TBL	174	3.94	1.057	.080
	Lecture	174	2.63	1.278	.097
I enjoy the session	TBL	174	4.02	1.120	.085
	Lecture	173	2.58	1.352	.103
It is useful in exam preparation	TBL	174	3.75	1.217	.092
	Lecture	174	2.64	1.347	.102
Class session encourages student participation	TBL	174	4.07	1.000	.076
	Lecture	174	2.51	1.311	.099
Diverse point of view is also considered in session	TBL	174	4.09	.979	.074
	Lecture	174	2.48	1.346	.102
Class session explains concepts clearly	TBL	174	3.90	1.089	.083
	Lecture	174	2.69	1.297	.098
Session facilitates discussion during class	TBL	174	4.03	1.088	.082
	Lecture	174	2.43	1.274	.097
Questions and comments are encouraged	TBL	174	4.05	1.016	.077
	Lecture	174	2.49	1.234	.094
Class session is boring	TBL	174	2.68	1.235	.094
	Lecture	174	3.52	1.392	.106
I attend the session only for the sake of attendance	TBL	174	3.13	1.450	.110
	Lecture	174	3.65	1.380	.105

after going through experience of real TBL sessions in the subject of Medicine.

SUBJECTS AND METHODS

A descriptive model of research was chosen for this study.

Setting: Addressing active learning concern and considering a very large class size i.e. 325, Team based Learning was considered to be adopted by Department of Medical Education. After approval of the Principal, a pilot programme of two TBL sessions in the subject of Medicine was planned and executed. The format was



original TBL was followed with pre-reading , IRAT, tRAT, mini lecture and application phase with 4 "S" was followed without modification with only exception of replacing immediate feedback by facilitators rather than using IF – AT forms. All students present at the end of second TBL session were included in the study without any exclusion. However, incomplete questionnaires were excluded.

Measures: A fifteen item five point Likert's Scale Questionnaire was prepared with an input from Basic and Clinical faculty focusing on different aspects of lecture based instruction. Students' views were also incorporated. After development, it was piloted on the students and necessary modifications were made to bring it in final shape. The five points included "strongly disagree", "disagree", "don't know", "agree" and strongly agree". This questionnaire had two sections containing TBL and Lecture part requiring students separate rating according to their individual perceptions. Global rating was also included for both methodologies as six-

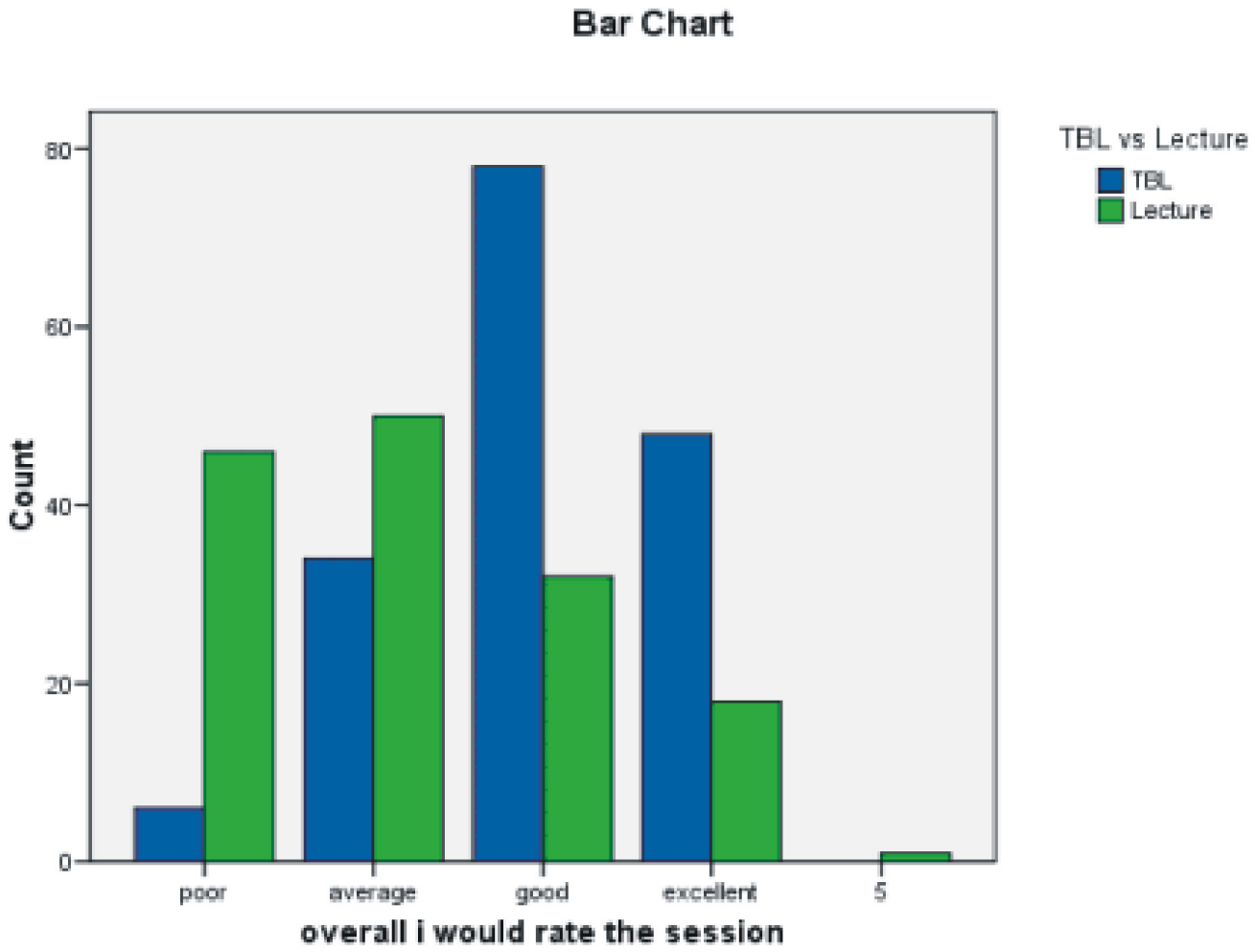
teenth item. Questionnaires were distributed in the class and collected after completion within classroom.

Analysis: Data was analyzed using SPSS version 15. Independent samples t-test was applied to compare means of both methodologies. Means of responses of both male and female students were also compared separately for the TBL and lecture. Overall rating on a global scale was determined.

Ethical Considerations: As the study was part of evaluation of innovation process dully instructed by the Principal, therefore Ethical Review Board of the institution issued an exemption letter for it. Verbal consent of students was sought. Students' names were not included to make the questionnaire anonymous.

RESULTS

Total Number of 174 students returned the questionnaire. There were 53 (30.5%) male and 121 (69.5%) female students. Independent t-test results are shown in Table 1 and Table 2. The difference of means in "I come prepared in the class" was not statistically significant (2.85 – 2.51 p > 009) while all other responses were statistically significant. Chart 1 explains the global rating of TBL and Lecture sessions. In global rating



part 61 (35% of total) students marked "excellent" having preference of 51 (83.6%) for TBL and 10 (16.3%) for Lectures. Among 121 markings in "good" category 81 (66.5%) were for TBL and 40 (33.5%) for Lectures. Comments included "excellent way of retention" for TBL. The male and female response was similar in both areas as shown in Chart 2.

DISCUSSION

The study results show that students prefer TBL than lectures in 14 of 15 aspects of the studied attributes applicable to both instructional methodologies. Students' responses about motivation, pre readings, encouraging question / comments are in favour of TBL as compared to lectures. These Findings are consistent with other studies.[10,11] This effect has been further verified by a review of multiple studies showing that TBL provided positive learning experience for students.[12]

The question about preparation before the class, has been answered with response in close proximity. This could be result of the bias on the part of students based on desire to make us believe that they come prepared to the class. The questions stating "class session is boring" and "I attend the class only for the sake of attendance" required negative responses which were well identified by the students as shown by difference in means (2.68 and 3.52).

Retention is the most desirable element in any kind of learning and TBL has been considered a good methodology by students helping retention of knowledge. This is also consistent with earlier studies.[13,14]

Involvement in class, stimulation of interest, encouragement in participation, discussion facilitation and welcoming questions denote engagement of the students in the session and these attributes show significant difference between average means of TBL and lecture. These results endorse the literature indicating engagement of students in the former methodology.[15,16]

Limitations: Although there is no remarkable difference between different contexts as regards the findings of this study about students' perceptions for TBL but this research has been done in one institution and further studies are required to confirm this result in our context. Besides two different methods have been

compared as traditional lecture is passive and TBL is an active method. To assess the actual efficiency, it needs comparison with other active teaching methods like SGD, PBL and CBL.

It is ***concluded*** that students favoured TBL as compared to lectures and therefore TBL is a suitable preferred methodology to incorporate active learning in our undergraduate curriculum.

REFERENCES

1. McManus DA. The two paradigms of education and peer review of teaching. Journal of Geo-science Education, 2001; 49: 423-434.
2. Jeffries PR, Norton B. Selecting learning experiences to achieve curriculum outcomes. In D.M. Billings and J.A. Halstead (Eds.), Teaching in nursing: A Guide for faculty (2nd ed., pp. 187-212). St. Louis, MO, 2005: Elsevier Saunders.
3. Petty G. Teaching today a practical guide. Nelson Thomas, 2009.
4. John D. Bransford, Ann L. Brown, and Rodney R. Cocking. How People Learn: Brain, Mind, Experience and School. National Research Council; National Academies Press in 1999 and 2000.
5. Neville AJ. Problem – based learning and medical education forty years on. A review of its effects on knowledge and clinical performance. Med Princ Pract., 2009; 18: 1–9.
6. Hasnain MU, Faizi KS, Badar S. Level of competence in clinical skills of Medical Officers working in accident and emergency departments of District Headquarters hospitals. Annals of PMC, 2011; 5 (2): 140-144.
7. Srinivasan M, Wilkes M, Stevenson F, Nguyen T, Slavin S. Comparing Problem – Based Learning with Case – Based Learning: Effects of a Major Curricular Shift at Two Institutions. Acad Med., 2007; 82: 74–82.
8. Parmelle D. Team Based learning: Moving forward in curriculum innovation: a commentary. Medical Teach, 2010; 32: 105-107.
9. Parmelle DX, Michaelsen LK, Cook S, Hudges P. Team Based Learning; A practical guide: AMEE guide no. 65 Web Paper Medical teacher, 2012; 34: e275-287.
10. Lindsay K, Davidson. A 3 – year experience implementing blended TBL: Active instructional methods can shift student attitudes to learning. Medical Teach, 2011; 33: 750-53.
11. Vasan NS, DeFouw DO, Compton S. A survey of student perceptions of team – based learning in anatomy curriculum: favorable views unrelated to grades. Anat Sci Educ., 2009; 2 (4): 150-5.
12. Burgess, Annette W, McGregor, Deborah M, Mellis, Craig M. Applying Established Guidelines to Team – Based Learning Programs in Medical Schools: A Systematic Review. Academic Medicine, 2014; 89 (4): 678-688.
13. Pamela M. Moye*, Nicole L. Metzger, Matesic D. Modified team – based learning (MTBL) and long – term retension in a large classroom setting. J Pharm Educ Res, 2012; 3: 2.
14. Michael J, Mcinerney, Fink LD. Team – Based Learning Enhances Long-Term Retention and Critical Thinking in an Undergraduate Microbial Physiology Course. Microbiology Education, 2003; Vol. 4.
15. Sisk RJJ. Team – based learning: systematic research review. Nurs Educ., 2011; 50: 665-9.
16. Abdel Khalek N1, Hussein A, Gibbs T, Hamdy H. Using team – based learning to prepare medical students for future problem – based learning Med Teach., 2010; 32 (2): 123-9.