NEAR-PEER TEACHING OF ANATOMY IN LOW PERFORMERS – AN ENHANCING LEARNING EXPERIENCE

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ABSTRACT

Background: Near-peer teaching involves senior students tutoring juniors and is now widely incorporated into medical and dental curriculum. The objective of the study was to assess the effectiveness of near- peer teaching in low performers in Anatomy and also to evaluate the near-peer teacher perceptions towards this programme in their learning process. **Materials and Methods:** Semester 6 students who pursue Otolaryngology, Ophthalmology and Community Medicine were taken as near-peer teachers. Those students who have not passed the previous Anatomy university examination and students of semester 2 who scored less than 35% in Anatomy internal assessment conducted in the period of August 2014 to March 2015 were considered as low performers in Anatomy. 15 near-peer teachers and 10 tutees took part in the study. Effectiveness of near-peer teaching was assessed through the post-test and feedback from low performers about the near-peer teaching. Perception towards this programme in their learning was assessed through a feedback from near- peer teachers. **Results:** Analysis of average pre and post-test scores revealed a mean of 2.1±0.99 and 8.2±0.63 respectively and the difference between the scores was found to be statistically significant using paired t test with the p value < 0.0001. **Conclusion:** Performance of the low performers improved after the near-peer teaching. Near-peer teachers understand the learning difficulties faced by the low performers and the students communicate more effectively with the tutors.

KEYWORDS: Anatomy, low performers, near-peer teachers, feedback.

INTRODUCTION

Peer teaching is an effective approach for learning and is now widely incorporated into medical and dental curriculum **(1)**. This involves students at the same level of learning, teaching his peers. It can be one-to-one teacher-tutee interactions, group peer teaching or problem based learning. Near-peer teaching involves more experienced students acting as tutors, teaching the juniors. Even though the origin of near-peer teaching dates back to the monitorial system of Vedic period (200 BC to AD 500) where brilliant students were in charge of junior classes, the term near–peer was introduced by Whitman only in 1988**(2)**.

The advantage of using near-peer teachers is that it gives an opportunity for the near-peer teacher to reinforce their own learning and improve teaching skills **(3)**.Near-peer teachers understand

the learning difficulties faced by the low performers and the students communicate more effectively with the tutors. Near-peer teaching in Anatomy for the entire batch of I MBBS was first implemented in United Kingdom **(4)**. This study aims to assess the enhancement of learning Anatomy in low performers by near-peer teaching and also evaluate the near-peer teacher perceptions towards this programme in their learning process.

MATERIALS AND METHODS

The study was carried out in the year 2015 in the Department of Anatomy, after obtaining approval from the Institutional Ethical committee. A written informed consent was obtained from both near-peer teachers and low performers in Anatomy. Students who have not passed the previous Anatomy university examination and students of Semester 2 who scored less than 35% in Anatomy internal assessment conducted in the period of August 2014 to March 2015 were considered as low performers in Anatomy. Semester 2 students who have scored more than 35% in Anatomy internal assessment were excluded from the study. Interested semester 6 students who pursue Otolaryngology, Ophthalmology and Community Medicine were taken as near-peer teachers. The type of study was a qualitative study, carried out for 2 months (April & May 2015). Sample size of the study was 25. 15 students from semester 6 played the role of near-peer teachers. 15 low performers were selected, but only 10 were interested and available to take part in the study. Out of the 10, 3 students have not passed the university examination in Anatomy and 7 students have performed below 35% in Anatomy Internal assessment.

The near-peer teachers attended a training session organized by the Anatomy faculty on the following topics - anatomy of ear, nasal cavity, paranasal air sinuses, pharynx and larynx. They were given a check list of points to be emphasized when they play the role of teachers. Classes for low performers were taken after the college hours between 5 pm to 6 pm. A time table of the training and teaching sessions was given to the near-peer teachers and low performers respectively. One-to-one teaching was carried out under observation of the faculty.

Pre-test and post-test were conducted on the topics discussed. Effectiveness of near-peer teaching was assessed through the post-test and feedback (questionnaire) from low performers about the near-peer teaching. Perceptions towards this programme in their learning were assessed through a feedback from near- peer teachers (through open ended questionnaire and 5-point Likert scoring. Pre and post-test scores was analysed using paired t test. Perceptions of the learners and near-peer teachers were expressed as proportions. GraphPad Instat (version 3) was used for statistical analysis.

RESULTS

A total of 15 near-peer teachers attended the training session. All 10 low performers enthusiastically participated in the scheduled classes. Near-peer teachers tutored the low performers in the ratio of 1: 1 on rotation basis depending upon their availability and interest in the concerned topics. Both the tutors and the tutees actively participated in the study. Near-peer teachers were competent in their teaching skills. Tutors slowly started introducing innovative methods in teaching and kept changing their pace according to their tutees response. Tutees were interactive with tutors and cleared their doubts without any fear and hesitation.

Pre and post test was conducted for anatomy of ear, nasal cavity and larynx. Pre-test score in

anatomy of ear ranges between 0 and 4 with mean 2.3 ± 1.34, whereas post test score was between 7 and 10 with mean value of 8.5 ± 1.08. Pre and post test scores in anatomy of nasal cavity ranged between 0 to 3 and 6 to 9 respectively. The mean of pre and post- test was 1.3 ±0.95 and 8.1 ± 1.1 respectively. Pre-test score in anatomy of larynx varied between 0 and 5 with mean 2.2 ±1.4, whereas post test score was between 7 and 9 with mean value of 7.8 ± 0.63. Pre and post-test scores of tutees in three near peer teaching sessions is depicted in figure 1. Table 1 shows the average pre-test and post-test scores of near-peer tutees. Analysis of average pre and post-test scores revealed a mean of 2.1±0.99 and 8.2±0.63 respectively and the difference between the scores was found to be statistically significant using paired t test with p value < 0.0001. The performance of the low performers definitely improved after the teaching programme.

Feedback obtained from the near peer teachers revealed that they enjoyed their role and found the programme to be effective in refreshing their anatomical knowledge, correlating it with clinical aspects and improving their teaching skills. They found it to be useful in utilising their time to teach their juniors and developed many simple ways in teaching anatomy. Tutors kindled the interest of learning in tutees and the tutees extracted the most from the tutors. Tutors also motivated the tutees in self-directed learning giving feedbacks to the tutees about their improvement at the end of each session. Tutees responded very well and thanked the tutors for their patience in repeating certain concepts. There was no ego between the tutors and tutees. The tutees enjoyed their learning and eagerly waited for their session, showed improvement in their performance, changed their attitude towards learning and were no longer low performers. Feedback obtained from the near peer teachers

and tutees with 5–point Likert scoring is shown in Table 2.

The tutees felt that if such programmes would have been introduced much early, they would have cleared their exams. The students were excited to participate in the study and agreed that they could interact well with the near peer teachers to clarify their doubts. Repetition and recollection of the concepts enabled them to understand it better and retain it. They suggested implementing the teaching programme at an early stage and to continue the same for succeeding batches. Questionnaire with the responses of both near peer teachers and low performers is tabulated in Table 3 indicating the percentage of responses wherever applicable.

DISCUSSION

According to Pondicherry University Curriculum, medical students undergo a period of 4 ½ academic years divided into 9 semesters 6 months each. Phase I (preclinical) has 2 semesters, Phase II (paraclinical) has 3 semesters, Phase III part I (Pre-final) has 2 semesters **(6&7)** and Phase III part II (Final year) has 2 semesters. Semester 6 students who pursue Otolaryngology, Ophthalmology and Community Medicine were taken as near-peer teachers. Few I year students find it difficult to understand Anatomy in a short span of time. It takes time for them to adjust since they are in the transition period from school to college life. Students from rural areas lack in communication skills and try to be in a shell without sharing much with their peers, seniors or teachers. They don't approach the faculty to clarify their doubts. Though most of the students understand the method to study anatomy by the end of second semester, few students lag behind and present as low performers. There may be multiple reasons for not performing well but the most common

reason is lack of motivation and reluctant to share their difficulty in learning.

Near- peer teachers, who are seniors, can communicate more effectively with the low performers, share their experiences and guide them in learning anatomy. They understand the problems of juniors as they have undergone the same and guide them to overcome it. They found some learners challenging and even devised their own changes and improvements to their teaching methods. According to Cate et al, near peer teaching has academic results comparable to faculty teaching **(5)**. Hughes et al have conducted a randomised control trial and found similar results **(6)**. Opportunity to play a role of teachers has made them to revise the subject well and gain confidence in teaching skills. Preparing for teaching involves extensive research on the material studied, processing it to make it simpler, interesting and informative, thereby improving their communication skills **(7)**. This also boosts them to be a good mentor and role model for their juniors. This atmosphere creates a positive attitude in both learner and teacher, increasing confidence in each other and in them **(8)**. The learners achieved better academic performance and were satisfied with the efforts of their near-peer partner and showed greater motivation towards their own learning. This exercise changed their perspective and attitude towards learning **(9)**. Since the near peer teachers and the low performers are benefitted in their learning, implementation of this programme can be considered.

In spite of their busy clinical postings and classes, both tutors and tutees managed to find common time space for the sessions after college hours. The results of the study cannot be extrapolated to all low performers because of the small group chosen, non-randomised selection of participants and limited topics. High levels of enthusiasm among the near-peer teachers &

tutees chosen from the most interested and self-motivated students in their respective groups may also be a limiting factor. Every doctor (in Latin means teacher) is both a learner and teacher. He has to perform his duty as an educator to his students, peers, and society **(10)**.

CONCLUSION

Learning for teaching promotes in-depth reading, increases their grasp and retention of the material studied. Near-peer teaching can go a long way in toning their teaching skills and prepares them for their role as educators. It bridges the gap between student and teacher who now interact with more motivation towards their learning. Near- peer teaching offers a better learning environment as the tutor tutee ratio is 1:1 with the presence of faculty as facilitator making it still better.

ACKNOWLEDGEMENTS

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Figure 1: Pre and post-test scores of tutees in three near peer teaching sessions
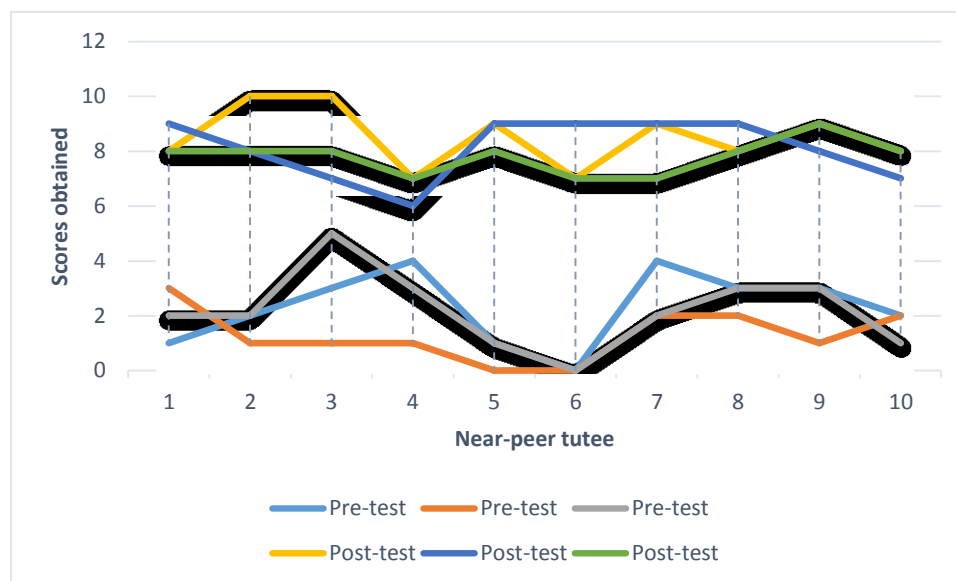
Table 1: Average pre-test and post-test scores of near-peer tutees

Near-peer tutee	Average pre-test score*	Average post-test score*
1	2.00	8.33
2	1.67	8.67
3	3.00	8.33
4	2.67	6.67
5	0.67	8.67
6	0.00	7.67
7	2.67	8.33
8	2.67	8.33
9	2.33	8.67
10	1.67	7.67
Mean	1.94	8.13
Standard deviation	0.97	0.63

*The scores given are average scores obtained by the learners in three near-peer teaching sessions.

Table 2: Feedback with 5–point Likert scoring

Feedback	Percentage (%)				
Questions for low performers	**Strongly agree**	**Agree**	**Can't say**	**Disagree**	**Strongly Disagree**
Training given by the near-peer teacher was satisfactory	100	0			
There was adequate opportunity for interaction/doubt clarification during the session	90	10			
I enjoyed learning by this method	80	20			
Questions for near-peer teachers	**Strongly agree**	**Agree**	**Can't say**	**Disagree**	**Strongly Disagree**
Training given by the faculty was satisfactory	87	13			
I revised the Anatomy of ENT before I took the session for my near-peer	100	0			
I enjoyed as a near- peer teacher	93	7			

Table 3: Questionnaire with responses of near peer teachers and low performers

Questions	Response	
	Near peer teachers	Low performers
Did this program benefit you? - Yes / No	Yes (100%)	Yes (100%)
If yes, to the previous question, in what way did it benefit you? If no, why?	Revise well, gained confidence	Better remembrance, easy understandable
Was the programme effective in imparting knowledge to the learners?	Yes (100%)	Yes (100%)
What were the challenges encountered?	Make them understand in a simple way, Repeat the concepts again	Getting used to each teachers way of teaching
What factors facilitated learning in the near-peer teaching sessions?	In-depth learning	Motivation given by teachers instilled self confidence
What are the strengths / positive points of this programme?	Revise	Clarify doubts, interact well
Should we continue similar near-peer teaching in our Institute? Why?	Yes (100%)	Yes, Benefit the poor performers (100%)
Can we implement near-peer teaching for regular batch students also?	Difficult to implement, time constrain (80%)	Yes (100%)
Are you interested to take up the role of near-peer teacher again?	Yes (100%)	
How do you compare near-peer teaching with the traditional teaching?		one-one teaching (1)