

Evaluation of a compulsory peer-assisted learning and mentoring programme for medical students

E. Danek¹, M Levinson²

6 September 2017, **Corrigendum/author correction** – since publication, the first author has advised the editor that a second author should be added. Information on authorship eligibility has been provided, agreed and signed by both authors. The correction has been made and dated. This version of the paper is now the official record. The original publication date was 4 August 2017.

Abstract

Introduction: The benefits of peer-assisted learning (PAL) in medical education are varied and well-documented. PAL encompasses a diverse spectrum of organisational approaches, and there is limited data relating to the value of specific approaches. At our university, PAL initiatives have traditionally relied on voluntary participation. The aim of this study was to evaluate satisfaction and utility of a PAL and mentoring (PALM) programme run on a compulsory rather than voluntary basis.

Methods: Students participated in a compulsory PALM programme over the course of 1 year, where Year 5 students (Y5S) acted as mentors and tutors to Year 3 students (Y3S). An electronic survey was administered to evaluate student satisfaction.

Results: Fifty-one participants (73%) completed the survey. The response was overwhelmingly positive for most students, with free-text responses and Likert-scale ratings indicating high levels of satisfaction across several parameters, including enjoyment, relevance and helpfulness to learning.

Conclusion: PALM is well received by participants for its usefulness and enjoyment. Compulsory participation does not appear to compromise utility or student satisfaction; rather, this approach enables the programme's widespread benefits to be delivered to all students, including those who may not have participated of their own volition.

Keywords: peer-assisted learning; medical education; near-peer learning; peer tutoring.

1 Cabrini Research Institute, Department of Medicine, Monash University

2 Central Clinical School, Faculty of Medicine, Nursing and Health Sciences, Monash University

Correspondence

Eleanor Danek
Research assistant, MBBS IV
Cabrini Research Institute
Department of Medicine
Monash University
Melbourne
Australia
Tel: 03 9508 3434
Email: etdan1@student.monash.edu

EVALUATION OF A YEAR 3/5 PALM PROGRAMME

Introduction

Developments in medical education reflect growing interest in peer-assisted learning (PAL) to supplement traditional faculty or clinician-led teaching. This has been fuelled both by accumulating evidence regarding the advantages of this approach and by practical considerations, including resource deficits and the need to provide students with teaching experience (Glynn, MacFarlane, Kelly, Cantillon, & Murphy, 2006).

The theoretical basis for PAL emphasises the importance of social and cognitive congruence in creating an effective learning environment with social, professional, affective and academic benefits for both tutors and tutees (Ten Cate & Durning, 2007). In practice, PAL can effectively address knowledge gaps, create a comfortable learning environment conducive to discussion and active participation, and improve knowledge retention, confidence and metacognition among student tutors (Benè & Bergus, 2014; Burgess, McGregor, & Mellis, 2014; Yu et al., 2011). PAL programmes may be extended to include peer-to-peer mentoring to address areas of personal or professional difficulty (peer-assisted learning and mentoring, PALM). There is significant diversity in approaches to structuring PALM programmes, and participation is generally voluntary.

A voluntary PALM for Y5S and Y3S for all clinical schools across the MBBS programme associated with our university was introduced in 2012. A short online training module common to all clinical sites was made available to Y5S prior to their participation. Audit at our site showed that participation rates in the voluntary PALM programme were poor, particularly in Semester 2. In response, a trial of compulsory participation was introduced in 2015.

The aim of this study was to evaluate satisfaction and utility of this PAL and mentoring (PALM) programme, run on a compulsory rather than voluntary basis.

Methods

At the beginning of the year, Year 5 students received briefing emails regarding the programme requirements and the expectation that they were required to run a minimum of three mentoring/teaching sessions per 6-week clinical placement, with the goal of helping to “consolidate history taking and/or examination skills of their third-year student tutor group”. The online training module delivered in previous years was made compulsory for Y5S, however no instruction was given regarding tutorial structure or content, in keeping with the aim of providing an informal, student-led teaching forum. Tutors could choose to run their PALM sessions as lectures, tutorials, bedside teaching, OSCE practice sessions or discussions relating to the hidden curriculum, depending on the particular needs of their Year 3 student group.

Each Year 5 student was allocated a tutorial group consisting of two or three Year 3 students (Y3S), for a 6-week period. Y5S completed one or two 6-week mentorship rotations throughout the year, whilst the Y3S participated in the programme consistently throughout the year, for a total of six mentoring rotations each with a different Year 5 student tutor.

EVALUATION OF A YEAR 3/5 PALM PROGRAMME

Attendance was monitored by collecting written feedback, including an attendance log from all participants at the end of each rotation. Y3S provided feedback regarding the attendance of their Year 5 student tutor, and vice versa.

Evaluation

To assess student satisfaction with PALM, a survey was designed by a panel consisting of a student, clinician and clinical site administrator. Questions relevant to our study were selected from a pool sourced from the literature. Kirkpatrick's Four-Level Training Evaluation Model (Kirkpatrick, 1998) was utilised to construct the survey assessing student responses to the programme on the four levels of reaction, learning, behaviour and results. The completed questionnaire was assessed for clarity of content and face validity by asking other members of the extended research team to take the questionnaire and provide feedback.

The final survey consisted of 29 questions. Responses were given on a 5-point Likert scale, using percentages, rating yes/no/mostly or using free text. The survey questions focused on tutorial content and frequency, usefulness, comfort, enjoyment, associated preparation, self-perceived benefits and suggested areas for improvement. Some questions were specific to Y3S or to Y5S, while the rest of the questions were asked of all students.

At the end of the teaching year, all students were asked to complete the survey. Each of the 70 participants was emailed a link to the anonymous online survey, followed by up to four reminder emails. Inclusion in a raffle for movie tickets was offered as an incentive for completion of the survey in order to improve response rates. Individual details supplied could not be linked to the survey responses.

Both qualitative and quantitative data were obtained. Quantitative data was analysed by calculating the means and standard deviations. Qualitative data was grouped according to a content analysis. A member of the research team created categories to describe the data, and in the coding exercise, they allocated each piece of text to these categories. The categories and allocations were reviewed for appropriateness and fit by another member of the research team.

The study was approved by the Monash University Ethics Committee.

Results

The survey was completed by 51 (73%; 23/23 Y3S, 28/47 Y5S) of the 70 participants. The feedback for the programme was overwhelmingly positive (Table 1). Most (92%) of the students agreed or strongly agreed that sessions were both helpful to learning and enjoyable. Most (90%) of the students met the minimum requirement of three sessions per 6-week rotation, while 80% of students exceeded the programme requirements by choice, participating in more than three sessions per rotation.

EVALUATION OF A YEAR 3/5 PALM PROGRAMME

Table 1
 Mean Likert-Scale* Ratings +/- Standard Deviations (n = 51)

Statement	Mean Rating +/- SD		
	Overall	Year 3	Year 5
I found the sessions helpful to my learning	4.3 +/- 0.6	4.5 +/- 0.5	4.2 +/- 0.6
I found the sessions enjoyable	4.3 +/- 0.6	4.4 +/- 0.6	4.2 +/- 0.6
The sessions were useful for discussions of professional behaviour	3.3 +/- 0.8	3.3 +/- 0.8	3.3 +/- 0.8
The sessions were helpful to discuss interaction with patients	3.9 +/- 0.8	4.0 +/- 0.7	3.9 +/- 0.8
I found the sessions boring	1.7 +/- 0.6	1.6 +/- 0.5	1.7 +/- 0.7
I thought the sessions were a waste of time	1.6 +/- 0.7	1.6 +/- 0.5	1.6 +/- 0.8

* 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

PALM sessions consisted of 52% bedside teaching and 36% tutorials, with the remaining time spent on discussion of professional behaviour or lectures. The percentage allocation of time spent on different systems roughly correlated with the system marks allocation on the 2014 MBBS written examination, with an emphasis on the cardiorespiratory and gastrointestinal systems.

All Y3S responded “yes” or “mostly” when asked whether their tutors were well prepared for sessions, were knowledgeable regarding tutorial content and if tutorial content was relevant. All Y3S felt their tutors communicated well and were more comfortable learning with the Y5S when compared to learning with clinicians. All Y3S indicated that they would like to be a Year 5 student tutor and mentor in the future.

Twenty-two free-text responses were received from the Y3S regarding the most beneficial aspect of the programme, and subsequently grouped according to content. The three content categories were “relevance to course curriculum” (expressed by the majority of students), “comfort of the learning environment” and “opportunity to practise bedside skills”. The comments gave particular emphasis to the perception that Y5S were able to provide information relevant to examination preparation. Y5S were “well aware of the curriculum” (participant 42) and “gave a good understanding of what is required in our exams compared to what is required in the hospital” (participant 22). The non-threatening learning environment was also emphasised, with “very approachable” tutors of whom students could feel free to ask “dumb questions” (participant 17).

Almost all (82%) Y5S prepared for each of their sessions, with a median preparation time of 15–30 minutes. Most (89%) of Y5S found sessions helpful to their own learning; 96% were motivated to undertake more teaching opportunities (with 68% actively seeking this), and 93% felt that the sessions improved their understanding of what makes successful teaching. Free-text comments from Y5S related to difficulty with organisation of mutually suitable times, tutorial content and the compulsory nature of the programme. Two students questioned the value of making the programme compulsory, as it may affect the quality of the interaction. Two comments referred to the active participation of Y3S as important for the positivity of the tutor experience and to provide direction in content of the sessions.

EVALUATION OF A YEAR 3/5 PALM PROGRAMME

Discussion

The survey sought to evaluate satisfaction with the PALM programme as a compulsory rather than a voluntary initiative. Previous studies have evaluated voluntary peer-tutoring initiatives (Burgess et al., 2014; Mills, Dalleywater, & Tischler, 2014; Yu et al., 2011). This study offers the advantage that selection bias was reduced due to the compulsory nature of the programme. It should be noted, however, that results may still be subject to selection bias, as not all participants chose to complete the survey.

None of the Y3S and only two of Y5S provided negative comments regarding the compulsory nature of the programme. There are polarising views in the literature regarding compulsory peer tutoring, with opponents arguing that compulsory participation reflects an agenda where the primary aim is to “utilise students as unpaid lecturers” (Wadoodi & Crosby, 2002, p. 242), and that this approach forces students who are socially or academically unsuitable as tutors into this role. This view was mirrored by two Y5S who commented that this may be an issue; however, the majority were unconcerned.

Others argue that mandatory recruitment benefits student tutors who may not have had the motivation or confidence to participate voluntarily, as “assuming the role of a teacher may serve to build confidence, motivation and cognitive development” (Ten Cate & Durning, 2007, p. 551). In our study, most of our student tutors found the teaching experience helpful to their own learning, with it motivating them to seek out more teaching opportunities. Furthermore, the majority of students exceeded the minimum session requirement, suggesting that the compulsory nature of the programme was not the sole incentive for participation; rather, students found the programme enjoyable and helpful despite the compulsion to participate. All Y3S indicated a desire to act as a Year 5 tutor/mentor in the future, suggesting that they could perceive programme benefits to both tutors and tutees.

In previous reports, PALM has consistently scored highly in terms of the student affective responses (Glynn et al., 2006; Mills et al., 2014). The relationship between enjoyment and learning outcomes is supported by Kirkpatrick’s Four Level Training Evaluation Model (Kirkpatrick, 1998) where “satisfaction” is identified as the initial tier in the progressive transfer of training to behavioural change and positive return. However, more recent research suggests that “enjoyment” is limited as a predictor of learning outcomes. A meta-analysis of 34 articles, seeking to review Kirkpatrick’s framework, found that “liking does not equate to learning or performing” (Alliger, Tammenbaum, Bennett, Traver, & Shotland, 1998, p. 353). Nevertheless, affective reactions were found to correlate closely with perception of utility, which in turn more accurately predicts behaviour. Furthermore, affective reactions are useful in reflecting organisational factors such as organisational support for the training programme.

Perception of utility is widely recognised as an important factor influencing the efficacy of educational programmes. Alliger et al.’s (1998) meta-analysis concluded the importance of utility reactions in estimating “potential transfer” (p. 353). In the absence of objective outcome data, satisfactory transfer of knowledge and skills for the participants in our study is strongly suggested by the high ratings for usefulness

EVALUATION OF A YEAR 3/5 PALM PROGRAMME

to learning. The correlation between tutorial content and written examination mark allocations supports the principle that assessment drives learning, especially as the content of the teaching and learning sessions was not proscribed beyond an emphasis on clinical skills.

Peer-assisted learning and mentoring offers specific advantages as a result of cognitive and social congruence (Marton, McCullough, & Ramnanan, 2015; Nelson et al., 2013; Ten Cate & Durning, 2007). The theory of cognitive congruence states that student tutors are better able than senior staff to understand and address knowledge gaps in their peer tutees (Ten Cate & Durning, 2007). This could certainly account for the strong perceptions of utility conveyed by our study participants. Social congruence is conducive to fostering motivation and enthusiasm, and to creating a more comfortable learning environment (Ten Cate & Durning, 2007). In such an environment, students are more likely to actively participate and less likely to conceal knowledge gaps for fear of appearing ignorant, enabling tutors to shape their teaching to address the specific needs of their tutees (Marton et al., 2015; Yu et al., 2011). Indeed, the high comfort level indicated by students in this study correlates well with perceptions of utility. The programme also provided a forum for the students to discuss the hidden curriculum. Previous studies have demonstrated that students value the opportunity to share difficult experiences in small peer groups (Mills et al., 2014; Yu et al., 2011).

Study strengths and limitations

There are a number of inherent limitations in the study design. The relatively small cohort of participants from one site may limit the validity and generalisability of the results, but the first issue is partly offset by a high response rate. A response rate below 100% introduces potential selection bias within the study population, but our rate of 73% is high for a self-completed survey. Finally, we did not have an objective measure of the effectiveness of the programme.

Conclusions

The results of this study are consistent with the preponderance of existing literature and evidence in favour of peer-assisted learning initiatives, with positive student perceptions of usefulness, relevance, enjoyment and comfort. It would appear that the compulsory nature of the programme did not compromise satisfaction; rather, it gave students who may not have participated of their own volition the opportunity to reap the various benefits of the programme.

References

- Alliger, G. M., Tamnenbaum, S. I., Bennett, W., Jr., Traver, H., & Shotland, A. (1998). *A meta-analysis of the relations among training criteria* (DTIC Document). Brooks Air Force Base, TX: Air Force Materiel Command.
- Benè, K. L., & Bergus, G. (2014). When learners become teachers. *Family Medicine*, 46(10), 783–787.

EVALUATION OF A YEAR 3/5 PALM PROGRAMME

- Burgess, A., McGregor, D., & Mellis, C. (2014). Medical students as peer tutors: A systematic review. *BMC Medical Education*, 14(1), 115.
- Glynn, L. G., MacFarlane, A., Kelly, M., Cantillon, P., & Murphy, A. W. (2006). Helping each other to learn: A process evaluation of peer assisted learning. *BMC Medical Education*, 6(1), 18.
- Kirkpatrick, D. (1998). *Evaluating training programs* (2nd ed.). San Francisco, CA: Berrett-Koehler.
- Marton, G. E., McCullough, B., & Ramnanan, C. J. (2015). A review of teaching skills development programmes for medical students. *Medical Education*, 49(2), 149–160.
- Mills, J. K., Dalleywater, W. J., & Tischler, V. (2014). An assessment of student satisfaction with peer teaching of clinical communication skills. *BMC Medical Education*, 14(1), 217.
- Nelson, A. J., Nelson, S. V., Linn, A. M., Raw, L. E., Kildea, H. B., & Tonkin, A. L. (2013). Tomorrow's educators . . . today? Implementing near-peer teaching for medical students. *Medical Teacher*, 35(2), 156–159.
- Ten Cate, O., & Durning, S. (2007). Dimensions and psychology of peer teaching in medical education. *Medical Teacher*, 29(6), 546–552.
- Wadoodi, A., & Crosby, J. R. (2002). Twelve tips for peer-assisted learning: A classic concept revisited. *Medical Teacher*, 24(3), 241–244.
- Yu, T.-C., Wilson, N. C., Singh, P. P., Lemanu, D. P., Hawken, S. J., & Hill, A. G. (2011). Medical students-as-teachers: A systematic review of peer-assisted teaching during medical school. *Advances in Medical Education and Practice*, 2, 157–172.