Effects of participation in a peer-assisted learning programme in clinical examination skills on volunteer tutors’ skills and attitudes towards teachers and teaching.

Sharon Buckley and Javier Zamora.

Contact addresses:

Dr Sharon Buckley,
University of Birmingham,
Medical School Education Unit,
Vincent Drive,
Edgbaston,
Birmingham,
B15 2TT
s.g.buckley@bham.ac.uk

Prof Javier Zamora,
Clinical Biostatistics Unit,
Hospital Ramon y Cajal,
Complutense University of Madrid,
28034-Madrid.
javier.zamora@hrc.es
Abstract

Background
Development of students’ teaching skills is increasingly recognised as an important component of UK undergraduate medical curricula and, in consequence, there is renewed interest the potential benefits of peer-assisted learning. Whilst several studies have investigated the use of peer-assisted learning in undergraduate medical courses, its use in the clinical setting is less well reported. This study explored the effects of participation in a peer-assisted learning programme in clinical examination skills on volunteer tutors’ own skills and on their attitudes towards teachers and teaching.

Methods
Pre and post participation questionnaires, including both Likert type and open response questions, were used. Paired data was compared using the Wilcoxon rank-sum test. All tests were two-tailed with 5% significance level.

Results
Tutors considered that participation in the programme enhanced their skills, increased the likelihood that teaching would be a major part of their career activity and encouraged them to undertake further teacher training. Responses to open questions suggested that attitudes towards teachers and teaching of one third of tutors changed as a result of participation, but this did not translate into statistically significant changes in tutor perceptions of the roles or personal qualities required of a good clinical teacher. Tutors tended to have higher academic attainment than the norm. The majority were motivated by a desire to improve their own skills and were keen combine this with helping their fellow students.

Conclusions
Participation in this peer-assisted learning programme increased the likelihood that volunteer tutors will undertake further teacher training; and that teaching will become an important part of their
professional practice. For maximum benefit, teaching skills programmes should incorporate opportunities formal opportunities for reflection on the nature of teaching and the qualities required of a good clinical teacher. Responses also affirmed the skills benefits associated with peer-assisted learning, this time in the clinical setting. However, where participation is voluntary, these benefits may not accrue to those most in need of skills development.
Background

The UK General Medical Council (GMC) has recently highlighted the importance of including within the undergraduate medical curriculum opportunities for students to develop teaching skills. In particular, it emphasises the need for students to understand the principles of education as applied to medicine, be familiar with a range of teaching and learning techniques, and recognise their obligation to teach colleagues [1]. Within this context, peer-assisted learning is uniquely placed to contribute to meeting these requirements and is increasingly finding a place in undergraduate medical education, with reported benefits to both tutors and taught [2]. However, peer-assisted learning within the clinical setting is less well reported [3] [4] [5], particularly the potential effects of participation in such programmes on volunteer tutors' attitudes towards teaching as part of their future professional activity.

This study explored the effects on volunteer tutors' skills and attitudes of participation in a peer-assisted learning programme in which final year medical undergraduates planned and delivered revision sessions in objective structured clinical examination (OSCE) skills for year 3 MBChB students.

Methods

Our study was based on a prospective method. In 2001, the OSCE tutor programme was opened to all final year undergraduates as part of a six week Student Selected Component in which students organise their own programme of activities. Participation in the programme increased from 10 students in 2001 to 90 students (approximately one third of the final year cohort) in 2004. The 2005-2006 programme was used for our study.

Two students organised the programme, with the support of staff from the Medical School Education Unit. Volunteer tutors were grouped into teams, each of which was responsible for planning and delivering small group revision sessions on the clinical examination of a particular body system. Planning began in February 2005 with a training session on the basics of small group teaching and a
briefing on year 3 assessment requirements. Revision sessions were held in May 2005, in the week prior to the OSCE. On-line sign up records indicate that 271 out of 350 year 3 students took part in the revision sessions.

**Questionnaires**

Volunteer year 5 tutors completed questionnaires at the start of the programme (Feb 2005) and after they had planned and delivered their small group sessions (May 2005).

The pre-OSCE tutor questionnaire used a mixture of questions with responses on Likert type scales and open responses to explore student motivations for taking part in OSCE tutor, their views of teachers and teaching, previous teaching experience and their longer term career aspirations. The post-OSCE tutor questionnaire explored the perceived benefits of taking part, and whether participation had increased the likelihood that they would undertake further teacher training; and revisited tutor perceptions on the roles and qualities required for good clinical teaching and their perceptions of longer term career direction. Likert scales ranged from 1 (not at all important) to 6 (very important); or 1 (strongly disagree) to 6 (strongly agree) as appropriate. Both questionnaires included a voluntary section for respondents to complete their personal details, but anonymous replies were also accepted.

Volunteer tutor characteristics, including gender and academic attainment were compared to that of the whole cohort. All 247 final year students were ranked according to their average mark across the six disciplines that make up the final year programme. The position of each volunteer tutor within the ranking provided an estimate of that student’s academic attainment in comparison to the cohort as a whole.

**Statistical methods**

Pre and post course questionnaire responses are graphically described as percentages of responses within the 1 to 3 points interval or in the 4 to 6 points interval of the 6-point Likert scales. When comparing pre and post course responses, numbers of students whose responses have increased,
decreased or remained unchanged are shown. As long as quantitative data measured with Likert scales showed skewed distributions, comparisons between paired data were done using Wilcoxon rank-sum test. Paired comparisons were defined either between pre and post course questionnaires or between sections of responses within one questionnaire. All statistical analyses were carried out using SPSS v.12.0 (SPSS Inc.). All tests were two-tailed with 5% significance level.

**Results**

Responses were received from 100 individuals, of which 43 could be identified as having completed both questionnaires. This included 82 pre-questionnaires and 62 post-questionnaires.

69% (69) of volunteer tutors were female, compared with 60% (148) of the final year as a whole.

Median ranking for volunteer tutors was 95 compared to 123 for the whole student cohort. 29.5% (26) of volunteers were among the top 50, compared with 15% (37) for non-participants.

58% of respondents had some form of previous teaching experience. Of these, 53.5% had taught fellow students informally earlier in their undergraduate careers and 27.6% had participated in sports or other tutoring in their community.

**Motivations of volunteer OSCE tutors**

The majority of students were motivated by a desire to improve their own skills (Fig 1a), including their own study skills, confidence in speaking to groups, communication and practical teaching skills. Contextual factors such as previous participation in OSCE tutor, the wider pressures on final year medical students and the particular characteristics of the OSCE tutor programme were also important (Fig 1(b)). The majority of respondents were keen to help their fellow students and at the same time revise their own clinical skills, in what can be a very pressured final year.

Wider issues of career direction were less important, with fewer students wishing to enhance their curriculum vitae or further their decisions about longer term career direction (Wilcoxon test p <0.009).
In supplementary open comment questions, fewer than half (48.9%) of respondents described a clear career direction. However, within this context, the majority expected teaching to be an important part of any career route they followed. (Fig 1(c)).

These findings held true for the group as a whole and when responses were analysed by gender, academic attainment, previous teaching experience or whether students were able to identify a clear career direction (data not shown).

**Effect of volunteering on tutors’ perceived skills and attitudes**

Respondents felt that OSCE tutor had enhanced their skills in several areas (Fig 2(a)). Whilst only 50% of pre-course respondents undertook OSCE tutor to enhance their Curriculum Vitae, 82% of post OSCE tutor respondents felt that taking part had done so. Moreover, 83% and 72% of respondents respectively indicated that OSCE tutor had both increased the likelihood that teaching would be a major part of their career and that they would undertake further teacher training. In general, OSCE tutor did not help participants decide their overall career direction (Fig 2b).

In open response questions, one third of respondents indicated that taking part in OSCE tutor had changed their views of teachers and teaching, with the most common change being a greater appreciation of the difficulties involved. However, this did not translate into statistically significant differences in median scores for identical Likert type questions in both before and after questionnaires that explored student views of either the perceived roles of a teacher [6] or the personal qualities required in a good clinical [7] (Fig 3a and 3b).

**Discussion**

Initially well-disposed to the idea of teaching, the majority of volunteer tutors reported that participation in OSCE tutor had increased their willingness to participate in further teacher training and to make teaching a major part of their professional practice. This suggests that such programmes can reinforce positive attitudes towards future teaching responsibilities, clearly a desirable outcome in the current climate of increased emphasis on the teaching role of clinical staff. However, the results also suggest that volunteer tutors’ were relatively unreflective about the roles and qualities required of
clinical teachers. Whilst Likert type scales such as those used in the study can only identify relatively substantial changes in opinion, the limited responses to related open questions support this view. These results, together with the lack of clarity in career direction of many tutors, suggest that, for maximum benefit, undergraduate teaching skills programmes should include formal opportunities for reflection on the teaching process and the qualities required of a clinical teacher, and should be offered in conjunction with work to raise student awareness of medical career options. This could be achieved through shadowing of clinical teaching staff or through case studies of the career paths of well-established clinical teachers.

Peer-assisted learning programmes in medical education can offer identified skills benefits to volunteer tutors and learners alike [2] [8]. Our results reaffirm the value of peer assisted learning programmes in enhancing volunteer tutors’ skills and illustrate that such benefits can occur in the clinical setting. However, the fact that tutors were drawn from among the higher achieving final year students suggests that, where participation in PAL programmes is voluntary, those students most in need of skills enhancement may not benefit. This reflects the findings of similar studies in non-clinical settings [9]. Previous authors have recommended that tutors on peer-assisted learning programmes should be volunteers in order to allow less high achieving students to participate [10]. Our results suggest that such students may need encouragement to take advantage of the opportunities such programmes offer.

**Conclusions**

Within the limitations of this large, but volatile student group, these results suggest that participation in a clinically-based peer-assisted learning programme can reinforce positive attitudes towards teaching and teacher training amongst volunteer tutors; and highlight the importance of including formal opportunities for reflection in undergraduate teaching skills programmes. They reaffirm the skills benefits associated with peer-assisted learning, this time in the clinical setting. However, where tutoring is voluntary, students most in need of skills enhancement may not take advantage of the opportunities available.
Authors contributions

SB conceived of the study, participated in its implementation and jointly drafted the manuscript with JZ.

JZ analysed the data, prepared the figures and jointly prepared the manuscript with SB.

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SB is employed by the University of Birmingham as a Medical Education Developer and completed this study as part of her normal duties. JZ is employed by the Complutense University of Madrid and completed the work during an extended visit to the Birmingham Women's Hospital NHS Trust.
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Figure 1a and b: Motivations of volunteer tutors. (a) skills enhancement (b) context

Fig 1(a). Motivations of volunteer tutors: skills enhancement.

- **Own learning skills**: 15% scores 1 to 3, 85% scores 4 to 6
- **Practical teaching skills**: 9% scores 1 to 3, 91% scores 4 to 6
- **Understanding of educational principles**: 26% scores 1 to 3, 74% scores 4 to 6
- **Confidence in speaking to groups**: 24% scores 1 to 3, 76% scores 4 to 6
- **Communication skills**: 20% scores 1 to 3, 80% scores 4 to 6
- **Organization/planning skills**: 35% scores 1 to 3, 65% scores 4 to 6

Fig 1(b). Motivations of volunteer tutors: career.

- **Teaching will be an important part of my career**: 9% scores 1 to 3, 91% scores 4 to 6
- **Experience of teaching will help me decide my career direction**: 57% scores 1 to 3, 43% scores 4 to 6
- **Teaching will be important whatever my career route**: 96% scores 1 to 3, 4% scores 4 to 6
- **Enhance curriculum vitae**: 51% scores 1 to 3, 49% scores 4 to 6
Fig 1(c). Motivations of volunteer tutors: context.

- Desire to help fellow students: 97%
- Focus on practical skills, not theory: 69%
- Organised by students for students: 84%
- Good way of revising own clinical skills: 95%
- Straightforward way of completing SSM8: 53%
- Desire to emulate the good teaching you have had: 94%
- Previous teaching experience encouraging you to do more: 82%
- Participation in OSCE tutor as a year 3 student: 81%
Figure 2. Effects of the OSCE tutor programme. (a) skills enhancement. (b) career aspirations

Fig 2(a). Effects of the OSCE tutor programme: skills enhancement.

- Own learning skills: 26% (1 to 3) and 74% (4 to 6)
- Practical teaching skills: 8% (1 to 3) and 92% (4 to 6)
- Understanding of educational principles: 21% (1 to 3) and 79% (4 to 6)
- Confidence in speaking to groups: 7% (1 to 3) and 93% (4 to 6)
- Communication skills: 13% (1 to 3) and 87% (4 to 6)
- Organization/planning skills: 19% (1 to 3) and 81% (4 to 6)

Fig 2(b). Effects of the OSCE tutor programme: career aspirations.

- Made it more likely that I will undertake further teacher training: 28% (1 to 3) and 72% (4 to 6)
- Helped me decide my future career direction: 71% (1 to 3) and 29% (4 to 6)
- Made it more likely that teaching will be a major part of my career: 15% (1 to 3) and 85% (4 to 6)
- Enhance my curriculum vitae: 18% (1 to 3) and 82% (4 to 6)
Figure 3. Effect of OSCE tutor programme. (a) on perceptions of the importance of different teaching roles. (b) On the personal qualities required of a clinical teacher.

Fig 3 (a) Effects of the OSCE tutor programme on tutor perceptions of the importance of different teaching roles

- **Assessor**: 12
- **Facilitator**: 11
- **Role model**: 10
- **Resource provider**: 13
- **Information provider**: 6
- **Planner**: 22

Fig 3 (b) Effects of the OSCE tutor programme on tutor perceptions of the qualities required of a good clinical teacher

- **Ability to assess student progress fairly**: 9
- **Ability to use assessment to give feedback to students**: 11
- **Practical teaching skills**: 9
- **Understanding of research method**: 12
- **Understanding of the principles of education as applied to medicine**: 12
- **Ability to promote professional attitudes and values**: 12
- **Sensitivity**: 7
- **Commitment**: 6
- **Enthusiasm**: 3

Legend:
- Increased
- Unchanged
- Decreased