

# Peer teaching as a means of enhancing communication skills in anaesthesia training: trainee perspectives

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## Abstract

**Purpose** The purpose of this study is to introduce peer teaching of communication skills to first-year anaesthesia trainees in Ireland and to evaluate their perception of this teaching modality.

**Methods** Seventy-nine first-year anaesthesia trainees participated in a novel peer-led communication skills programme over a 2-year period (Y1, Y2). A Likert scaling questionnaire was developed to explore trainee perception of the peer teaching programme.

**Results** Of the 79 respondents (36 in Y1 and 43 in Y2), 99% either agreed or strongly agreed that the peer teachers were successful in their role. Ninety-two percent requested formal peer teaching in other areas of training. The trainees regarded a peer teacher as an appropriate information provider (92%), role model (88%), planner (88%) and facilitator (94%), but less so as an assessor (70%). The most consistently stated strength of peer teaching was the relatability of peer teachers with their lack of experience cited as the main weakness. Eighty percent of participants preferred peer teaching to regular expert teaching.

**Conclusion** This study highlights the positive attitudes of first-year anaesthesia trainees towards a novel peer teaching programme in communication skills. This author recommends that peer teaching is further developed within postgraduate medical programmes to maximise learning for trainees in the student and teacher roles and to redistribute the teaching burden within clinical departments.

**Keywords** Anaesthesia · Anaesthesia training · Communication skills training · Medical education · Peer teaching

## Introduction

Peer teaching is best defined as ‘people from similar social groupings who are not professional teachers helping each other to learn and learning themselves by teaching’ [22]. Also known as peer-assisted learning, peer tutoring and peer-supported learning, the pedagogy of this educational modality emerged from the work of Piaget and Perry, who advocated for socialisation and collaboration as essential components of meaningful learning [18]. Its use has been reported in a wide variety of settings ranging from clinical skills to pre-clinical medicine, basic resuscitation and communication skills with encouraging results obtained [14, 25]. Little of this work pertains to postgraduate education, however, with a particular gap in the area of anaesthesia. This is surprising given that anaesthesia is a specialty renowned for its adoption and promotion of evidenced-based teaching techniques such as simulation.

The benefits of peer teaching are often attributed to the concepts of cognitive and social congruence. Cognitive congruence describes the similar knowledge base held by both teacher and student, which enables the teacher to pitch the conversation at a level appropriate to the learner [13]. A slight cognitive distance has been advocated as providing the best peer teaching experience, although the optimum educational distance remains open to debate [11]. The participants in a peer teaching partnership also share a social congruence with peer teachers providing an accessible scaffold for learning [23].

Doctors, once they receive their medical degrees, are immediately expected to assume the role of educator as well as

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clinician, despite receiving little or no instruction on how to teach [4]. In recent years, medical training and regulatory bodies have called for medical schools to equip their graduates with the skills to teach, as well as to learn [5, 7, 10]. Reports to date suggest, however, that doctors continue to lack formal training in how to educate [9, 17]. The introduction of peer teaching programmes in the early stages of undergraduate medical studies and continuing to promote it at a postgraduate level would allow for the cultivation of a strong teaching culture within medicine [5, 20].

Being a good communicator is a requisite for achieving excellence in anaesthesia [19]. Anaesthetists often find themselves communicating with patients and colleagues in highly critical and stressful situations, where good leadership and communication is paramount [3]. The ability to communicate effectively was previously considered to be an inherent trait [1]. This was reflected in the anaesthetic curriculum, which historically made no explicit acknowledgement of communication skills as a core competency [6]. Furthermore, communication skills have been found to decline over time with qualified doctors offering a less patient-centric approach than their student colleagues [8]. While peer teaching of communication skills has been described and evaluated in undergraduate medicine, the paucity of literature within anaesthesia and postgraduate training generally is a lacuna that deserves to be addressed [15]. This study examines the use of peer teaching of communication skills in anaesthesia training, as a sustainable and economically viable solution to the absence of quality teaching in this area.

## Methods

This study was conducted over a period spanning two academic years, 2014–2016. All first-year specialist anaesthesia trainees (SATs) in Ireland are required to attend a mandatory professional development programme (PDP) mandated by the College of Anaesthetists of Ireland (CAI) during their first year of training. This taught course focuses on the areas of communication skills, professionalism, self-management, risk management and the structure of health systems. The teaching was delivered over 5 PDP sessions, 2 in year 1 (18 students per session) and 3 in year 3 (11, 12, 20 students in each session, respectively). Two peer teachers designed and delivered a 4-h communications skills session as part of this course. In year one of the study, the peer teachers were second-year trainees, 1 year ahead of the participating trainees and in year two they had progressed to their third year of training, with 2 years of additional clinical experience.

The first-year anaesthesia trainees completed a survey at the end of the course, which was adapted from a study by Bulte and utilised a Likert rating scale [2]. Data was collated and analysed. Basic descriptive statistics and Fisher's exact

test were performed using Stata v9.0. A thematic analysis was also performed to identify the most consistently stated strengths and weaknesses of peer teaching.

## Results

Seventy-nine anaesthesia trainees responded to the survey over the 2-year study, 36 in year 1 (Y1) and 43 in year 2 (Y2). This was a 100% response rate.

Tables 1, 2, 3, 4, 5, 6, 7 and 8 provide a clear representation of the study data.

The participants were asked about the appropriate role of a peer teacher, either as an information provider, role model, facilitator, assessor or planner (Tables 1 and 2). The respondents felt that peer teachers were suitable information providers (92% strongly agreeing or agreeing Y1, 92% Y2), role models (81% Y1, 95% Y2), facilitators (89% Y1, 98% Y2) and planners (81% Y1, 95% Y2). This contrasted with the role as assessor which 61% of trainees in Y1 and 79% in Y2 felt was suitable. This difference did not generate statistical significance (assessor vs. information provider  $p = 0.26$ , assessor vs. role model  $p = 0.73$ , assessor vs. facilitator  $p = 0.05$ , assessor vs. planner  $p = 0.73$ ).

In terms of preferences for peer teaching (Tables 3 and 4), the participants widely endorsed the performance of the peer teachers with 97% agreeing or strongly agreeing in Y1 and 100% in Y2 that the sessions had been well executed. Ninety-seven percent of respondents in Y1 and 98% in Y2 felt that peers are suitable as teachers. There was 89% agreement on the appropriateness of communication skills as a topic for peer teaching in Y1. This increased to 100% in Y2. Over the 2-year period, trainees preferred discussing communication skills with fellow trainees (61% Y1, 74% Y2) as opposed to more experienced consultants (42% Y1, 30% Y2), results which did not yield statistical significance ( $p = 0.08$ ). The respondents felt more comfortable contributing to the debate as it was peer-led (61% Y1, 93% Y2). Furthermore, the depth of information provided by the peer teachers was judged to be sufficient, with 92% agreeing or strongly agreeing in Y1 and 95% Y2. A large majority of trainees expressed a desire for more peer teaching in other areas of training (89% Y1, 95% Y2). This was explored in more detail in Y2 of the study which demonstrated a preference for this in relation to technical skills (91%) rather than for nontechnical skills (81%), 69% of respondents in Y1 and 93% in Y2 expressed an interest in becoming a peer teacher. Finally, 22% in Y1 and 63% in Y2 felt that peer teaching was more beneficial for the student than for the teacher.

There was a strong endorsement of the peer teaching course with a 94% recommendation rate in Y1 which rose to 100% in Y2 (Tables 5 and 6). In addition, 61% felt that peer teaching was more useful than their regular teaching with an expert

**Table 1** Appropriate role of peer teacher, Y1, *N* = 36

Role	Not suitable		Neutral		Suitable		Total Y1 (4/5)
	1	2	3	4	5		
Information provider	0	0	2	11	22	33 (92%) <sup>a</sup>	
Role model	0	0	6	7	22	29 (81%)	
Facilitator	0	0	3	10	22	32 (89%)	
Assessor	0	3	9	11	11	22 (61%)	
Planner	0	1	5	15	14	29 (81%)	

<sup>a</sup> % of those who chose 4/5 on the 5-point Likert scale of suitability

teacher in the first year of the peer-delivered course. This increased to 100% in Y2.

Additional analysis was undertaken in year two of the study in order to characterise the underlying demographics in more detail (Table 7). Of the 43 participants in year 2, the majority of participants were SATIs. Two people attending were working within anaesthesia but not on the anaesthesia training scheme. Twenty-six (62%) trainees had less than 1 year experience in anaesthesia, 12 (29%) were working in the specialty for between 1 and 2 years and 4 (10%) had greater than 2 years of experience. Most trainees present at the PDP had graduated in recent years, 13 in 2014, 10 in 2013 and 6 in 2012. Eleven of the participants (26%) graduated earlier than 2011, the year of graduation of the two peer teachers. Thirty-nine (91%) of the trainees had received previous communication skills training, mostly during undergraduate studies but some during other medical or surgical training or during a previous career.

A thematic analysis was performed of the feedback gained over the 2-year study identify the strengths and weaknesses of peer teaching. This is presented in Table 8 below. The trainees felt that there were a number of strengths of peer teaching; the teachers were relatable and approachable; it dealt with issues relevant to their stage of training; an informal/relaxed atmosphere was created and there was a notable absence of hierarchy. In terms of the weaknesses highlighted, the participants felt that the teacher’s lack of experience and the unavoidable gaps in their knowledge could perhaps be an issue. Furthermore, they noted that academically weaker trainees would be less suitable as peer teachers and that a trainee with greater clinical experience than the peer teacher may benefit

less. This may occur when a trainee enters the anaesthesia training programme at a later stage in their career, having gained notable expertise in another specialty.

### Discussion

This study highlights results of the first peer-led postgraduate teaching programme in communication skills for anaesthesia trainees. In fact, it is one of the few studies of peer teaching of communications skills pertaining to postgraduate training in any specialty. The study captured a large sample size which is representative of all first-year, Irish specialist anaesthesia trainees over a 2-year period. Its findings correlate well with some of the existing theories of peer teaching.

In this study, a strong cognitive congruence was demonstrated. In Y1 of the study, the peer teachers had 1 year ahead of the participants, while in Y2, this increased to 2 years. This raises the question of the optimum cognitive distance. Interestingly in this study when the cognitive gap increased from 1 to 2 years, the course participants favoured the peer teachers more as role models, facilitators, planners and assessors. Furthermore, in Y2, there was more enthusiasm towards the delivery of the peer-led programme and the further development of peer teaching within anaesthesia. There is a possibility, however, that overall programme performance improved in year two due to the peer teachers being more practiced and experienced in the delivery of the communication skills sessions.

In terms of social congruence, peer teaching offers the student the ability to engage with ready-made role models who

**Table 2** Appropriate role of peer teacher, Y2, *N* = 43

Role	Not suitable		Neutral		Suitable		Total Y2 (4/5)	Mean (Y1, Y2)
	1	2	3	4	5			
Information provider	0	3	1	12	27	39 (91%) <sup>a</sup>	92%	
Role model	0	0	2	12	29	41 (95%)	88%	
Facilitator	0	0	1	17	25	42 (98%)	94%	
Assessor	0	0	9	16	18	34 (79%)	70%	
Planner	0	0	2	22	19	41 (95%)	88%	

<sup>a</sup> % of those who chose 4/5 on the 5-point Likert scale of suitability

**Table 3** Peer teaching preferences, Y1, *N* = 36

Statement	Strongly disagree (SD)	Disagree (D)	Neutral (N)	Agree (A)	Strongly agree (SA)	Total Y1 (A/SA)
Peers performed well in role as teacher	0	0	1	16	19	35 (97%) <sup>a</sup>
Peers can be effective teachers	0	0	1	18	17	35 (97%)
Communication is an appropriate topic for peer teaching	0	0	4	17	15	32 (89%)
Prefer discussing communication with those at a similar level (trainees)	0	5	9	14	8	22 (61%)
Prefer discussing communication with consultants	1	6	15	12	3	15 (42%)
More comfortable contributing as discussion peer-led	0	2	12	14	8	22 (61%)
Depth of information provided sufficient	0	0	3	18	15	33 (92%)
Peer teaching would be useful in other areas of training	0	1	3	20	12	32 (89%)
Interested in becoming peer teacher	1	2	8	12	13	25 (69%)
Peer teaching is more beneficial for the student than teacher	2	11	15	5	3	8 (22%)

<sup>a</sup> % of those who chose agree/strongly agree on a 5-point Likert scale

can address important aspects of the ‘hidden curriculum’. This includes the unwritten rules required to navigate a curriculum such as the most successful resources used by peers themselves to succeed in examinations [20]. As per the thematic analysis, trainees reported a number of strengths of peer teaching, many related to the enhanced socialisation offered by this teaching modality. They described the peer teachers as relatable and approachable and appreciated the informal atmosphere created and peer support available. This feedback offers further insight into the unique social milieu offered by peer teaching, with a more robust support network created than may be found in more traditional teaching structures.

Whether communication skills were a suitable topic for peer teaching was explored in some detail. The respondents

endorsed communication skills as an appropriate topic for peer teaching (89% Y1, 100% Y2). Notably, the participating trainees preferred discussing communication skills with their peers as opposed to more experienced practitioners (trainees vs. consultants; Y1 61% vs. 42%, Y2 68% vs. 36%) This is in the setting of a much greater emphasis on communication skills training as per medical licencing bodies internationally. Indeed, in Y2, all trainees have participated in previous communication skills training, some on a number of occasions. This was mostly during undergraduate programmes (*N* = 32), however, with a decreased focus on these skills during their postgraduate careers to date. Communication skills teaching, such as this peer-led programme, could address this paucity of postgraduate training, facilitating the

**Table 4** Peer teaching preferences, Y2, *N* = 43

Statement	Strongly disagree (SD)	Disagree (D)	Neutral (N)	Agree (A)	Strongly agree (SA)	Total Y2 (A/SA)	Mean (Y1, Y2)
Peers performed well in role as teacher	0	0	0	10	33	43 (100%) <sup>a</sup>	99%
Peers can be effective teachers	0	0	1	9	33	42 (98%)	98%
Communication is an appropriate topic for peer teaching	0	0	0	11	32	43 (100%)	95%
Prefer discussing communication with those at a similar level (trainees)	0	5	6	10	22	32 (74%)	68%
Prefer discussing communication with consultants	1	5	24	11	2	13 (30%)	36%
More comfortable contributing as discussion peer-led	0	0	3	21	19	40 (93%)	77%
Depth of information provided sufficient	0	0	2	18	23	41 (95%)	94%
Peer teaching would be useful in other areas of training	0	0	2	13	28	41 (95%)	92%
I would like more peer teaching for nontechnical skills	0	3	5	22	13	35 (81%)	N/A
I would like more peer teaching for technical skills	0	1	3	12	27	39 (91%)	N/A
Interested in becoming peer teacher	0	1	2	15	25	40 (93%)	81%
Peer teaching is more beneficial for the student than teacher	0	2	14	13	14	27 (63%)	43%

<sup>a</sup> % of those who chose agree/strongly agree on a 5-point Likert scale

N/A not applicable

**Table 5** Peer teaching experience and recommendations, Y1, N = 36

Statement	PDP 1:Y1	PDP 2:Y1	Total Y1
Would you recommend this peer teaching course			
Yes	17	17	34 (94%)
No	1	1	2
Which form of teaching is more useful:			
Peer teaching	13	9	22 (61%)
Regular teaching	2	6	8
Neutral	3	3	6

transition from a theoretical undergraduate focus to the practical principles required for effective clinical practice.

There was a considerable appetite amongst the course participants for more peer teaching prospectively (89% Y1, 95% Y2). Interestingly, when explored further in Y2, there was a stronger stated preference in relation to technical skills rather than nontechnical skills. The reason for this is unclear, but the author suspects that this is reflective of the nature of anaesthesia itself as a procedure-driven specialty [3]. Even though much of the available evidence for peer teaching relates to nontechnical skills, three studies to date have indicated that peer teaching theory can indeed be applied to technical skills training [12, 21, 24]. Notably, this may require a higher level of expert oversight to ensure peer teacher competence prior to their engagement in training others.

Peer teachers have been shown to successfully fulfil numerous different roles [2]. These range from educational planner to facilitator, information provider and role model. The role of assessor, however, was found to be less acceptable to our trainee cohort. This is not surprising, given that examinations in undergraduate and postgraduate medical training still rely heavily on expert assessors. Furthermore, given the summative, high-stakes nature of these examinations, trainees are often the most vigilant stakeholders in the assessment administration process and reluctant to endorse change. With Irish anaesthesia training moving towards a competency-based

**Table 6** Peer teaching experience and recommendations, Y2, N = 43

Statement	PDP 1:Y2	PDP 2:Y2	PDP 3:Y2	Total Y2	Mean (Y1, Y2)
Would you recommend this peer teaching course					
Yes	11	12	20	43 (100%)	97%
No	0	0	0	0	
Which form of teaching is more useful	^				
Peer teaching	10	12	20	42 (98%)	80%
Regular teaching	0	0	0	0	
Neutral	0	0	0	0	

^1 respondent failed to answer

**Table 7** Demographic information, Y2, N = 43

Demographics	PDP 1:Y2	PDP 2:Y2	PDP 3:Y2	Total
No. of participants	11	12	20	43
Grade				
SAT 1	11	11	19	41
Non-scheme	0	1	1	2
Experience in anaesthesia			^	
<1 year	7	9	10	26
1–2 years	3	1	8	12
2–3 years	1	0	0	1
3–5 years	0	1	1	2
>5 years	0	1	0	1
Year of graduation	^			
2014	3	5	5	13
2013	2	2	6	10
2012	1	1	4	6
2011	1	0	0	1
2010	1	2	4	7
2009	2	0	0	2
2008	1	0	0	1
2007	0	0	0	0
2006	0	0	1	1
2005	0	1	0	1
Previous communication skills training				
Yes	11	11	17	39
No	0	1	3	4
Nature of training				
RCPI course	2	1	1	4
RCSI course	3	0	0	3
GP training	0	0	0	0
Other scheme training	1	2	4	7
MPS course	0	0	0	0
Undergraduate training	9	10	13	32
Informal consultant teaching	0	0	1	1
Previous career	1	1	1	3

^1 respondent failed to answer

**Table 8** Strengths and weaknesses of peer teaching

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Peer teachers relatable</li> <li>• Forum created where it is easier to discuss issues</li> <li>• Relevant/appropriate to first-year trainees</li> <li>• Teachers approachable</li> <li>• Informal/relaxed atmosphere created</li> <li>• Teachers at a similar level to trainees; adult-adult conversations</li> <li>• Increased insight/understanding of peer teachers</li> <li>• Lack of hierarchy</li> <li>• Teachers enthusiastic</li> <li>• Peer support</li> <li>• May be most up to date</li> </ul>	<ul style="list-style-type: none"> <li>• Less experience than expert teachers</li> <li>• Some gaps in knowledge</li> <li>• Weaker students would not be suitable peer teachers</li> <li>• Some participants more experienced than teachers</li> <li>• Less authority than consultants</li> </ul>

curriculum similar to the UK training pattern, trainees will be required to engage in a more formative style of assessment. Peer teaching, arguably more relevant in this context, could have a valuable role to play in this resource-heavy examination technique. This is likely to be acceptable to the studied cohort of junior anaesthesia trainees who offered a strong preference for peer teaching over regular expert teaching (61% Y1, 98% Y2). This has significant implications for the educational administrators within anaesthesia training bodies in terms of future academic programme delivery.

The lack of experience of peer teachers is a consistently cited criticism of peer teaching [16, 18]. Indeed, this was a concern shared by this project's participants appearing as the most frequently stated weakness in the post-course evaluation. The degree to which a peer teacher's limited expertise impacts on the success of peer teaching is unclear. Certainly in this study, any negative impact seems to be largely unfounded given that the peer teaching course received a robust overall approval (94% Y1, 100% Y2). This is echoed by other studies which have found an equivalency in learning outcomes between peer teaching and regular, expert teaching [12, 21]. Furthermore, questions have been raised about the suitability of certain trainees to the role, particularly those who are less academically able. Appropriate training and careful selection of the most suitable trainees is necessary to safeguard the quality of peer teaching in postgraduate training.

This study has a number of limitations. It pertained to first-year Irish anaesthesia trainees alone who may affect its applicability to more senior trainees and possibly to other specialties. The professional development programme was a mandatory course with completion required for advancement along the anaesthesia training programme. This presented a large cohort of trainees, in a discrete setting for engagement in peer teaching. Transfer of this novel teaching method to the clinical setting, however, may be challenging. Tackling the conflicts and constraints presented by the clinical environment would likely require energetic leadership to succeed. Finally, the participants demonstrated a preference for more peer teaching during their training. This was higher in relation to technical skills than nontechnical skills. Based on this study, concerned with nontechnical skills alone, the suitability of peer teaching of technical cannot be guaranteed.

## Conclusion

This study is the one of the first to look at peer teaching of communication skills in postgraduate medical training. It highlights the positive attitude of a large number of first-year anaesthesia trainees towards peer teaching and the suitability of communications skills as a topic for this teaching modality. It adds further weight to the existing literature supporting the use of peer teaching in medical education and offers additional

evidence to broaden its scope within the postgraduate setting. It offers a solution to the challenge of offering quality postgraduate training in communications skills to an increasing number of medical graduates. Furthermore, in the setting of the current evolution of anaesthesia training towards a competency-based model, the time is right to incorporate peer teaching as a core competency of the anaesthesia curriculum.

## Compliance with ethical standards

**Informed consent** Informed consent was obtained from all individual participants included in the study.

**Ethical approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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