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*Research Article*

# The Impact of Teamwork in Peer Assessment: a Qualitative Analysis of a Group Exercise at a UK Medical School

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**Abstract**

*Aims: An important characteristic of group work is the ability of members to evaluate each other's performance. We sought to examine the strategies deployed by students to assess the individual performance and contributions of colleagues. The exercise sought to promote collaboration between members, whilst rewarding individual contributions.*

*Methods: Students worked in small groups to develop posters on a chosen topic. Electronic literature databases were used to search for information, and students completed learning journals to reflect on group interactions. During the poster assessment, students were asked to respond to questions on their topic. Eighty per cent of the marks were awarded for the poster presentation and 20% for individual contributions. Groups discussed members' contributions and awarded marks according to specific criteria. Some groups recorded their discussions, and the transcripts were subsequently analysed to identify strategies employed by students for awarding contribution marks.*

*Results: Of the 180 groups who completed the exercise, 65% awarded unequal marks to individual group members (ranging from 9 to 20 (out of 20; mean 18.9; SD 1.3)).*
*Conclusion: This exercise provided students with practical experience of working in a team, engaging in negotiations with colleagues, and adapting their behaviours to cope with challenging group processes.*

**Keywords**: teamwork, peer assessment, contribution

## Introduction

Teaching and learning in small groups serves two educational purposes: a) development of social learning, and b) the growth of inter-personal skills, including reasoning, problem solving, and leadership (Newble and Cannon, 1991). Small groups can encourage such learning, but 'Problem Based Learning' (PBL) has received most research attention. Dolmans and Schmidt's (2006) recent review found that PBL is preferable to other forms of learning for activating prior knowledge; encouraging knowledge synthesis, theory building and meta-thinking; increasing self-directed study; and applying knowledge. In addition to the cognitive benefits, PBL can increase co-operation and improve intrinsic motivation for the subject matter (Dolmans and Schmidt, 2006).

Teamwork has many potential advantages over individual working, including offering a broader range of perspectives, and encouraging responsibility and motivation (Eva, 2002). The Student Selected Component (SSC) is an important part of undergraduate medical education in the UK. The SSC constitutes between a quarter and a third of the curriculum and offers

students a chance to research a topic of their choice in much greater depth than would be possible through the taught curriculum. In 2005/6, Manchester Medical School, which operates a problem-based (PBL) curriculum, introduced a new SSC for second year students. This included project groups, whose task was to produce scientific posters, as a vehicle for learning about teamwork. By working in project groups, students are able to develop team working skills in a different way to PBL groups, to exercise a range of skills, both written and communication, and using graphic images.

We aimed to facilitate learning skills involving discussion and collaboration; acquiring information about a specific subject area using scientific databases; applying knowledge gathered during clinical exposure to produce a formal presentation; integrating information from the three 'vertical' strands of the programme (Biomedical Sciences; Behavioural & Social Sciences; and, Clinical Medicine) and using computer technology to produce a visual presentation. The reason for awarding group marks was to encourage collaboration rather than competition (Isaacs, 2002). Students were encouraged to report to tutors members who were not contributing fairly. Non-contributors would fail the exercise. Despite this sanction, no students were subsequently excluded. This indicates that all students contributed to a satisfactory standard. However, subsequent reports from students indicate that some were critical of the system used to allocate marks. Feedback from students from a focus group and informal discussions suggested that they perceived the award of equal marks to all members of the group to be unfair, particularly where contributions were perceived to be unequal.

Consequently, the allocation of marks within the current study was intended to reflect each student's contribution. This would help to prepare students 'to reflect on practice' by carrying out an audit of their own work and that of their colleagues, a key requirement of UK medical graduates (GMC, 2003). There are many examples of peer assessment, in which students have assessed the contributions of others in a group-based exercise (Goldfinch and Raeside, 1990; Lejk and Wyvill, 2001). However, these have tended to involve anonymous allocation of marks. We opted to ask students to assess the contributions of other members of the group through face-to-face discussion. The aim of the exercise was to encourage students to recognise their own strengths and weaknesses and those of their peers. We also sought to address the GMC (2003) guidelines which recommend that graduates 'respond constructively to the outcome of appraisal, performance review and assessment'. Consequently, the exercise would provide both important and relevant training for future multidisciplinary teamwork, where peer appraisal is common practice in the workplace.

## Methods

### The poster exercise

At the start of the fourth semester, students were briefed about the SSC exercise by the SSC coordinator and advised to consider a specific aspect of a disease rather than to present a broad overview, and to ensure that they include information addressing the three vertical strands of the course (for example, treatments should include not only drugs but relevant behavioural therapy). Students were encouraged to think about the content of a 'good' poster and encouraged to consult previous posters held in the library. They were also encouraged to keep a learning journal and recognise the importance of their individual contributions to the exercise. Each newly formed PBL group was split randomly in half to form two SSC project groups (five or six students in each). Each project group selected a topic from a range of subjects and submitted a title with a short synopsis to their tutor to ensure suitability. Students used a range of data sources, from scientific databases to discussion with healthcare professionals and patient support groups, facilitated by clinical staff. Tutors were available for general guidance, but not specific advice. Students had ten weeks to complete the exercise. They met

regularly with project group members to plan and conduct their research. They were advised to report students who were not contributing sufficiently to the exercise. Tutors monitored students' general progress on the SSC. Students were advised that the ultimate sanction for non-contribution would be failure of the exercise. Assessment was conducted by six trained subject experts. Students were selected at 'random' to defend their poster on assessment day. Posters were marked according to the mean scores awarded for each strand of the course. This comprised 80% of the total mark for each student, the other 20% reflected the individual 'contribution mark'.

### Examiner briefing

A week prior to the assessment, examiners were invited to evaluate (together) a range of posters considered to represent both 'good' and 'bad' examples (based on the previous year's scores) using an assessment grid. Discussion of marks among the examiners helped to 'standard set' the assessment thresholds, which were 50% for Unsatisfactory/Satisfactory (Pass); 75% for Satisfactory/ Honours, and 90% for Honours/ Distinction. These represented higher thresholds than for other assignments, and sought to reflect the hypothesis that a group of students would reach a higher standard than individual students. Four of the ten criteria were based on the presentation of the poster (initial impact, layout, quantity of information and use of figures); these were generic across the three strands. The other six criteria were strand-specific for the three major curriculum strands (use of figures; how the title, abstract and conclusion reflect the content of the poster; depth of information relating to the strand; creativity in approach to the topic; references; lay summary; response to questions). Examiners reviewed all of the posters prior to the assessment to devise questions in advance.

### Peer assessment of contribution

Students assessed the contribution of other members of their project group through face-to-face discussion and by completing evaluation forms one week before the end of the exercise. The whole group met in private, typically in a seminar room at the medical school. Discussions ranged from a few minutes to several hours.

***Table 1*** *Peer assessment marks*

| Student | C1 | C2 | C3 | C4 | C5 | Total | P (%) | Poster | G | Mean I | I | Total mark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 2 | 1 | 1 | 3 | 2 | **9** | 10.7 | 75 | 60 | 15 | 9.6 | **69.6** |
| B | 4 | 4 | 2 | 4 | 3 | **17** | 20.2 | 75 | 60 | 15 | 18.2 | **78.2** |
| C | 3 | 3 | 4 | 2 | 4 | **16** | 19.0 | 75 | 60 | 15 | 17.1 | **77.1** |
| D | 1 | 3 | 2 | 1 | 1 | **8** | 9.5 | 75 | 60 | 15 | 8.6 | **68.6** |
| E | 3 | 4 | 2 | 3 | 4 | **16** | 19.0 | 75 | 60 | 15 | 17.1 | **77.1** |
| F | 3 | 4 | 4 | 4 | 3 | **18** | 21.4 | 75 | 60 | 15 | 19.3 | **79.3** |

*C1–C5 are marks awarded for each criterion; P is the percentage of the total 'contribution marks'; the mark awarded for the poster is 75, therefore the poster mark for each student is 60 (80% x 75); the mean individual mark (I) is 15 (20% x 75); the individual marks are derived from P x (total individual marks = 90); the total mark is the individual mark (I) added to the group mark (G).*

The criteria for assessing contributions were: a) attendance at meetings; b) effective communication and contribution to discussion; c) production of work within a specified deadline; d) evidence of research on the topic; and e) contribution to poster design. More detailed descriptors were provided and students were rated between one and four for each criterion on a 'Likert' scale (from 'occasionally' to 'always'). The total marks awarded to each student were divided by the total marks for the group to give a percentage contribution (see Tablele 1). Consequently, an award of maximum marks for each student would not benefit any member of the group. The marks available for contribution were dependent on the mark awarded for the poster, based on the method first described by Goldfinch and Raeside (1990).

Before discussion, some students admitted to being apprehensive about confronting others over their lack of contribution, or about being confronted themselves. On some occasions, the SSC coordinator observed discussions to act as adjudicator.

### Peer Assessment of Posters

Each student assessed two pre-assigned posters, using the same mark scheme employed by the examiners. Each poster was then compared to fourteen others. The results of these comparisons were entered onto a 'league table', and the two posters with the most favourable comparisons were declared the winning posters (Rushton, 2005). Moreover, students were asked to give positive and negative comments for each of the two posters. Peer assessment marks did not contribute to the overall SSC marks.

### Reflection

Students were expected to complete learning journals, reflecting on their experiences of working in a group. These could subsequently be used as evidence of contribution to the exercise in the event of disagreement between students. Following the assessment, students used the project group experience as part of their Personal and Professional Development (PPD) portfolios and attended a staff facilitated session with their portfolio groups to reflect upon their experiences of the SSC. This session focused on the students' experiences of team working and the educational value of the SSC process, and was used as a vehicle for learning about structured reflection.

### Evaluation

Students agreed to attend a focus group to discuss their experiences, while others discussed their views with the SSC co-ordinator. Previously, six groups agreed to record their group discussion using a digital voice recorder. These recordings were transcribed independently to ensure anonymity, and ethical approval was granted by the University Ethics Committee.

## Results

### Examiner assessment

In the four years since the peer exercise was introduced, the majority of students developed posters that were ranked highly by both internal and external examiners.

Furthermore, all groups submitted their posters on time, and only one student failed to attend the assessment session without a valid reason. Only two posters were graded as unsatisfactory, with the rest satisfactory (≥ 50%) or honours (≥ 75%). As a result, a total of nine students failed. In the last three years, the average scores awarded by examiners, representing the three curriculum 'strands' were similar (Figure 1). However, there was no correlation between the biomedical science, behavioural and social science, and clinical medicine marks awarded for the poster. This is not surprising as six of the ten criteria assessed were strand-specific and, in most cases, students addressed one strand more than the other two. For example, 'Obesity – it's not my fault, it's my genes' focused largely on the biomedical science component, whereas 'Epilepsy – driving me crazy' focused largely on ethics and coping strategies, and therefore related more closely to the behavioural and social science component of the assessment.

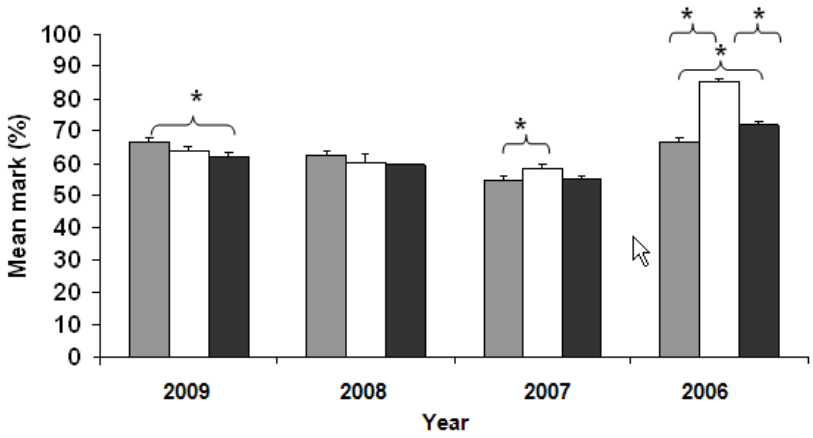


***Figure 1*** *Shows the mean examiner marks for each strand by year, where grey bars represent the 'biomedical sciences' marks, white bars represent 'behavioural and social sciences' and black bars represent 'clinical medicine'. Error bars are standard errors of the mean. N = 58-62. * denotes that values are significantly ($p<0.05$) different from each other.*

## Contribution marks

Some of our groups reported problems with non-contributors before the end of the exercise. These tended to be students who had a poor attendance record in mandatory learning sessions such as PBL. Occasionally, students were asked to account for poor attendance or performance, whilst at other times the group met the SSC coordinator. These meetings seemed to enable the group to proceed subsequently without further action by the coordinator. Sometimes, students assigned low scores to poor contributors (as 'punishment' for their poor contribution).

Several students claimed that they were uncomfortable about having to assign contribution marks; however, everyone participated in the process. A few students claimed that they were pressured to reach agreement on allocating higher marks to those who did not 'deserve' them. Some students also claimed that they had benefited from the experience:

> *"I enjoyed the experience of us all trying to discuss everyone's marks." (Student 1)*

In the three years (total 180 groups) in which a contribution mark was assigned, 65% of groups were able to discriminate between individual members' levels of contributions. The individual contribution marks ranged from 9 to 20 (out of 20; mean 18.9; SD 1.3). Ultimately, this has had little bearing on the classification of final marks for individual students. In one group, whose poster was awarded a mark of 49%, three students obtained a satisfactory score, whilst the other three students' marks fell to an unsatisfactory level. In another group, where the poster mark achieved a satisfactory/honours score, some students received a satisfactory mark whilst others obtained honours.

## Strategies for awarding contribution marks

Several groups were keen to avoid conflict. Consequently, they encouraged group members to reflect on their weaknesses to 'soften' the impact of a low mark:

> *'I think the way to avoid as much conflict as possible would be for the person being assessed to actually say where they think they have gone wrong first. That pre-empts anyone else saying it and anyone getting annoyed.' (Student 2)*

Students in each group were willing to play down their contributions:

> *'I think I could go down a bit because …I've not written as much as maybe I could've done on all the topics…I didn't email you my stuff for deadlines.' (Student 3)*

However, this was often followed by a justification for their low contribution:

> *'No-one ever said to me "you're not providing enough journals" or that "it's unsuitable", or that I needed to provide more journals for my part of the poster.' (Student 4)*

An alternative strategy was for groups to encourage each member to demonstrate how they contributed positively to the exercise:

> *'Can everyone say something that they think they did good first?' (Student 5)*

Some students were keen to state reasons for why they deserved high marks for their contribution:

> *'I think I communicated ok… I took the initiative and always sent emails so I think I communicated in that sense.' (Student 6)*

An alternative approach was for all group members to discuss others' contributions before allowing them to respond to the discussion:

> *'I suggest that we do one person at a time, discuss it, but that person doesn't discuss it with us, and at the end they can either agree and if they disagree, give evidence of why they disagree.' (Student 7)*

Students were very open and direct with their views, and readily criticised the contributions of others:

> *'I just think that your communication throughout was not as good as everyone else so I don't think you should get the same mark as everyone else.' (Student 8)*

Not surprisingly, this strategy often evoked conflict:

> *'All I'm saying is that if I get three for that then student F shouldn't get three. I have an issue with that.' (Student 9)*

Students also sought to defend the contributions of others:

> *'You really helped me understand because I didn't understand some of the metabolism.' (Student 10)*

They voiced disapproval when criticism was perceived to be unfair:

> *'I've talked whenever I felt like I needed to talk and I've listened to everyone and if I don't agree with something I'll say it.' (Student 11)*

### The project group as a positive learning experience

Students reflected on the exercise constructively, offering structured feedback. Most students were very positive about the experience, and claimed that they had learned how to work more effectively in a team. They recognised that different skills were required to PBL tutorials:

> *"…those who didn't really contribute in PBL just because there were so many people, would contribute in their SSC group." (Student 12)*

Students appreciated that their roles had changed over the course of the exercise, as they interacted with other members of the group. An important development was that students identified key strategies to motivate other students and delegate the work load more equitably:

> *"If you really did have something to say about someone's work …… learning to criticise it without being too harsh, I think that is something [important]." (Student 13)*

### Unintended learning experiences

The focus group during the first year of the exercise revealed that the group 'lacked direction' without a facilitator to offer guidance. Students did not want other students to fail, but resented

the lack of punishment for poor contributions. Some increased their workload to compensate for other members' lack of effort. This interdependence between group members was perhaps motivated by a concern that the group may lose marks if individuals failed to address questions through lack of knowledge. Students were unclear about the depth and breadth of information required for their group assessment, and sought reassurance from tutors.

### Peer assessment

The process of peer assessment was discriminatory, and produced clear 'winners' and 'losers'. However, several students were reluctant to mark their peers' posters if the authors were present. There was also concern about how some students seemed to undervalue the exercise, particularly when marking friends' posters. In the last two years, examiners' and students' marks have, generally, been very similar (in 2009, examiners' marks were $64.2 \pm 0.9$ and students' marks were $64.0 \pm 0.7$ (mean $\pm$ s.e.m.; $n > 100$) and in 2008 these marks were $62.4 \pm 0.7$ and $62.5 \pm 0.8$ respectively), although students did not assess individual responses to questions. There was no significant correlation (Pearson coefficient; $r = <0.2$; $p = 0.106$) between student marks and examiner marks in either year, but there was some agreement about which posters were the best and which were the worst.

### Student opinions

Some students complained that the contribution criteria did not account for different work patterns by different teams. The exercise did not discriminate sufficiently between students, in cases where similar scores were awarded. However, students claimed that if the assessment were anonymous, they still would not have allocated different marks.

## Discussion

The Intended Learning Outcomes (ILOs) of the peer assessment were designed to equip students with knowledge and skills to: exchange ideas and disseminate knowledge within a group; develop research skills by using scientific databases; obtain information through discussions with healthcare professionals; and, use their knowledge of the 'vertical' curriculum strands to construct a logical, well researched, and concise poster. Consequently, in the original exercise, only the final poster was formally assessed, facilitating collaboration between peers rather than competition. For such an exercise to be judged 'fair', it had to assume that all participants would contribute in equal measure to the project. Although students were asked to report non-contributors to the SSC co-ordinator, students were reluctant to do this. This was partly because they were unsure at what point to report problems, or they believed that problems could be resolved 'in-house'. Several students also admitted undertaking additional work to compensate for non-contributors. The peer assessment helped students develop their practical and reflective skills in *managing* non-contributors, and deciding when poor performers should be reported externally. Whilst the allocation of high marks to 'poor' contributors is clearly a limitation of the process, the fact that some students changed their behaviour to persuade individuals to contribute to the exercise, is a positive step in their professional development. Students were unhappy about poorly contributing students, and believed that, in future, action was required to 'weed out' those that failed to take responsibility for the task. The inclusion of a contribution mark to the poster exercise helped with the following objectives: a) to reward students for contributing to the exercise, whilst punishing weaker students for their poor contributions; b) to encourage students to distribute the workload evenly within the group; and, c) to encourage reflection on their contributions as well as those of other members of the group. The results of previous poster assessments indicate that students completed the task successfully and achieved their ILOs. However, both examiners and students agreed that the biggest challenge facing students was to create a poster that was concise, evidence-based and logical. The desire to include too much information perhaps led to this difficulty.

### Peer assessment of posters

The peer assessment was intended to develop students' critical appraisal skills (Jaques, 1991). Peer assessment has been described as 'an arrangement for peers to consider the level, value, worth, quality or successfulness of the products or outcomes of learning with others of similar status' (Topping *et al*., 2000). It offers students a valuable insight into how other groups organise information, whilst highlighting the strengths and weaknesses of their own contributions. The lack of recognition attributed to peer assessment was reported by Hinett (1995), who compared assessment practices at a UK and US University. She reported that British students had come from a 'didactic' learning environment and were mainly concerned with achieving high marks in assessments. Boud (1986) claimed that 'while peers may be unwilling to provide a formal assessment of their peers' contributions, they may be more willing to participate when required to offer specific feedback of a *'descriptive'* nature for the benefit of their peers'. Indeed, despite reservations about having to assess the contributions of their peers, students were able to provide evaluations which matched those of more experienced examiners. Several studies have shown that students may be reluctant to formally assess the work of peers without prior experience of conducting similar evaluations (*see also:* Brown *et al*., 1998; Sivan, 2000), though these skills are increasingly a major requirement of medical training and clinical practice in the UK. They will help to prepare students for the NHS in which teamwork, self-reflection and peer assessment are qualities that are increasingly expected of health professionals.

In this exercise, students and examiners appeared to share views about what constitutes the best and worst posters, though there was no significant association between the two. The lack of association between students' and examiners' assessments suggests either different interpretations of the marking scheme (for example, students are less experienced in reading scientific literature and are therefore likely to have different ideas about what constitutes relevant information), or a lack of experience in examining posters (this is the first time students have attempted to produce scientific posters). The examiners all have experience of presenting scientific posters at academic conferences, and may have applied different standards to their marking scheme.

### Peer assessment of contribution

Peer assessment serves multiple aims within a group exercise. Eraz *et al*., (2002) described the positive impact on group performance, with increased cooperation and sharing of workload. Albanese and van Fleet (1985) found that monitoring and sanctioning of group members reduced the incentive to 'free ride', indicating that the method of peer assessment has a significant impact on outcomes. Evidence suggests that the anonymous rating of peers may lead students to evaluate themselves more favourably than their peers (Bamberger *et al*., 2005). Ross and Sicoly (1979) found that there is a tendency for individuals to overestimate their contributions relative to others. Fusilier (1980) found medical students to be less averse to giving low performance ratings when peers could not identify them as 'raters'. This could be both positive (if they would otherwise be reluctant to mark down peers they were close to) and negative (if they used the situation for their own benefit). In contrast, Krause and Popovich (1996) found that students assessed *themselves* less favourably than their peers. Arnold *et al*. (2005) compared the perceptions of students towards different methods of peer assessment and found that when anonymity was removed, students became reluctant to give other students negative feedback, presumably because it could disrupt teamwork and interpersonal relationships. Conversely, some students claimed that anonymous evaluations lacked credibility, whilst face-to-face discussions would help to prepare them for the clinical workplace. In this study, students were willing to give specific negative feedback (*e.g.* student 8 above) as well as positive feedback (Student 10).

Most participants were willing to discriminate between students in their assessments. This ability to assign low scores to students who were judged to have contributed poorly, and recognising weaknesses, indicates a maturity which should serve them well in their professional careers. The findings show that groups employed different approaches to assigning marks, although the overall aim was to help minimise conflict where possible (*e.g.* Student 2). Students were willing to mark themselves down if they thought that they had not contributed as much as others (*e.g.* Student 3). They were also supportive of other students, particularly if they under-rated themselves. On a few occasions where there was conflict, everyone in the group freely expressed their opinions.

Some students claimed that the marking scheme for contribution was not sufficiently discriminatory. There was also frustration that the contribution marks had little bearing on the overall marks; this is because there were only a few posters which were assigned marks close to the pass/fail thresholds, and perhaps because students believed that this process of evaluation was more important than the outcome. Whilst medical students at Manchester are used to working in groups, a tutor facilitates PBL sessions. Evidence suggests that this approach assists both personal and social development, as well as 'integrating a diverse population of students into a new academic environment' (McLean *et al*., 2006). Some groups adopted a leader early on to guide them, whereas others lacked a natural leader. Students also realised that they needed to change their behaviour for the group to succeed. Group work activities emphasised the tendency for students to apply different standards to tasks. Some students claimed that they would have preferred the final scores to have a more direct bearing on individual performance. However, for many the positive experience of working in a team outweighed the possible reduction in the overall standard. These findings support those of McLean et al (2006), who found that group work exposed students to diverse learning styles, promoting a better appreciation of complex concepts and social dynamics.

Albanese (2000) found that students are better equipped to identify the sources of other students' misunderstandings, highlighting the possibility for cooperation rather than competition during learning. Our exercise provided a learning climate conducive to independent learning, as the group was allowed to select the topic for research, thus making the subject more interesting and enjoyable for the learners. This approach to learning promotes conceptual processing skills (Benware and Deci, 1984), perceived competence (Deci *et al*., 1981), enhanced creativity (Koestner *et al*., 1984) and an ability to cope positively with setbacks (Ryan and Connell, 1989). While some students worked more productively than others, with the knowledge that the final mark would be based on the group's efforts as a whole, some students adopted a highly strategic approach to group work in which they offered minimal contribution. In other words, by making the effort to attend meetings with the group, and ensuring occasional contribution to discussion, they were guaranteed to pick up some marks in these two criteria when contribution marks were allocated. This would enable them to be pass the assessment. Students do not always respond positively to peer-pressure, and it is important to ensure that the 'safety net' of external adjudication by an academic tutor is always available.

**Students' perceptions of face-to-face feedback**

The general consensus was that students found the process of discussing and justifying their contribution marks valuable in enabling them to build confidence in critical appraisal and rational argument, as well as using the opportunity to develop negotiation skills. Students valued the experience and recognised its relevance to future clinical practice, particularly in relation to conflict resolution in Foundation Year training, where teamwork is a central feature of clinical practice. The face-to-face discussions helped students to develop 'case presentation' skills, by articulating their 'case' to their peers, and presenting evidence derived from their collective experiences of working on the SSC poster exercise; this was evidence

to which all team members were privy, because they all had views about how each student had performed. This, in turn, encouraged honesty and objective assessment of each other's contribution, as all students gained first hand experience of collaborating and working together. Everyone was aware of who contributed the most and least to the overall exercise. Although the process was stressful at times for the students, it encouraged them to confront some of their misgivings about the process, express their opinions in a measured way, and explore personal weaknesses during open discussion. The knowledge that all 'team members' experienced similar challenges during the course of the SSC exercise led to a greater sense of collegiality. Although this exercise might encourage confrontation between team members, it can also lead to greater understanding of each other's views, concerns, and experiences. It also resulted in multiple perspectives on an individual student's contribution and performance.

Although we do not have direct quotations from individual students on their perceptions of the group discussion, the feedback that we obtained suggests that the exercise was organised effectively across the board, and offered them a unique opportunity to use their initiative, with no interference from tutors. A key requirement of the GMC is that students develop the skills and aptitudes enabling them to work as part of clinical teams (GMC, 2003). As such, we believe that this exercise provides valuable early exposure to teamwork for students, and an opportunity to develop critical appraisal and negotiation skills, which will inform much of their future work as doctors.

## Conclusion

We have described a novel approach to teaching and learning that is theoretically informed and promotes the integration of knowledge, assessment, person management skills, reflection on learning, and attitudes to governance. This method was popular with staff and students, and is an example of good practice that could be deployed by other medical schools. Our exercise addressed the central issues integral to both teamwork and guided reflection, and could subsequently be used within clinical practice. It also helped to expose our medical students to the principles of clinical governance and interdependent working, whilst providing them with experience of learning about motivation techniques and developing conflict resolution skills.

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