Student perceptions of effective small group teaching

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PURPOSE The goal of this study was to assess student perceptions of effective small group teaching during preclinical training in a medical school that promotes an integrated, systems-based undergraduate curriculum. In particular, students were asked to comment on small group goals, effective tutor behaviours, pedagogical materials and methods of evaluation.

METHODS Six focus groups were held with 46 Year 1 and 2 medical students to assess their perceptions of effective small group teaching in the ‘Basis of Medicine’ component of the undergraduate curriculum. Ethnographic content analysis guided the interpretation of the focus group data.

RESULTS Students identified tutor characteristics, a non-threatening group atmosphere, clinical relevance and integration, and pedagogical materials that encourage independent thinking and problem solving as the most important characteristics of effective small groups. Tutor characteristics included personal attributes and the ability to promote group interaction and problem solving. Small group teaching goals providing included opportunities to ask questions, to work as a team, and to learn to problem solve.

CONCLUSION This study highlighted the benefits of soliciting student impressions of effective small group teaching. The students’ emphasis on group atmosphere and facilitation skills underscored the value of the tutor as a ‘guide’ to student learning. Similarly, their comments on effective cases emphasised the importance of clinical relevance, critical thinking and the integration of basic and clinical sciences. This study also suggested future avenues for research, such as a comparison of student and teacher perceptions of small group teaching as well as an analysis of perceptions of effective small group learning across the educational continuum, including undergraduate, postgraduate and continuing professional education.

KEYWORDS education, medical, undergraduate/ *methods; problem-based learning/ *methods; students, medical; attitude of health personnel; group processes; focus groups; curriculum.

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INTRODUCTION

Small group teaching has become an increasingly important component of undergraduate medical education. Problem-based learning (PBL) relies almost entirely on small group teaching methods, and many schools with more traditional curricula have incorporated a significant number of small group teaching sessions into undergraduate programmes for medical students. However, despite the increased use of small group teaching in medical education, relatively little is known about student perceptions of small group goals, effective teaching practices, and methods of evaluation in the small group setting.

Several studies have looked at student perceptions of effective tutors in PBL curricula. In addition, 1 study has examined student and faculty perceptions of group dynamics in PBL tutorials, and several others have examined student conceptions of learning during different PBL experiences. The major focus of all these studies was on tutor characteristics in PBL curricula, and little attention was given to other aspects of small group functioning, including the value of specific pedagogical materials and resources (e.g. written cases). Furthermore, most of these studies relied on the use of written instruments
Key learning points

This study aimed to assess student perceptions of small group teaching in an integrated, systems-based curriculum.

Students identified tutor characteristics, a non-threatening group atmosphere, clinical relevance and integration, and pedagogical materials that encourage independent thinking and problem solving as the most important characteristics of effective small groups.

Students articulated a clear vision of group goals that included the opportunity to ask questions and verify comprehension, to work as a team and learn from each other, to apply content to clinical situations, and to learn to problem solve.

The students’ emphasis on group atmosphere and tutor characteristics underscored the value of the tutor as a ‘guide’ to student learning.

Student comments on effective cases emphasised the importance of clinical relevance, the promotion of critical thinking and problem solving, and the integration of basic and clinical sciences in the development of case material.

Focus groups can be a useful method of assessing student impressions of effective small group teaching in order to inform curriculum planning and faculty development programming.

• What makes for an effective small group tutor?
• What makes for an effective case?
• What makes for effective small group evaluations?

We wanted to move beyond the assessment of tutor characteristics to include student perceptions of small group goals, pedagogical materials and methods of evaluation. In addition, we wanted to examine the value of using a qualitative research methodology to obtain student perceptions in a non-PBL curriculum.

Educational context

The Faculty of Medicine at McGill University offers a 4-year undergraduate curriculum. This curriculum was revised in the autumn of 1994 to promote an integrated, systems-based approach to preclinical training. Although the faculty did not adopt a PBL curriculum, there was a strong commitment to decreasing the number of large class lectures and to increasing small group teaching, so that at least 50% of student contact time would occur in a laboratory or small group setting. There was also a clear attempt to integrate the basic and clinical sciences early in the students’ training.

The preclinical curriculum, entitled the ‘Basis of Medicine’, occupies the first 18 months of the undergraduate curriculum. It consists of 9 systems-based units (e.g. molecules, cells and tissues; gas, fluids and electrolytes; endocrinology, metabolism and nutrition) that focus on normal structure and function, with a progression to abnormal structure and function, disease prevention and therapy. In addition, 1 unit focuses on patients and their families, and permits the early introduction of students into the clinical setting.

During the Basis of Medicine, students spend approximately 50% of their time in small groups designed to complement and reinforce the lecture content. Clinical cases are used to guide students through the small group process, and groups meet approximately 2 to 4 times per week, depending on the individual unit. The groups of students remain stable over several months, but the tutors change according to the topics under discussion as they are expected to possess content expertise. Students are assessed on their small group participation, preparedness and responses to short quizzes that are administered at either the beginning or end of a small group session.
METHOD

Focus groups were used to assess student perceptions of effective small group teaching in the Basis of Medicine. Focus groups have been used effectively for programme evaluation in higher education\(^1^{11}\) and for curriculum planning and evaluation in medicine.\(^13\)–\(^16\) This technique is considered to be an inexpensive method of gathering qualitative data\(^17\) and is well suited to obtaining such information from the consumer’s point of view.\(^13\) As Frasier et al.\(^16\) stated, ‘Focus groups draw on group interaction, combining elements of individuals interacting with one another and participant observation.’ Focus groups also make explicit use of group interaction to produce data and insights that would be less accessible without the interaction found in such a group.\(^18\) Given that the aim of this study was to assess student perceptions of effective small groups, this methodology was considered particularly appropriate.

This study will report on 6 focus groups held in the springs of 3 years, from 1996 to 1998. Three of the groups were conducted with Year 1 students who were halfway through their preclinical training; 3 groups were conducted with Year 2 students at the end of their preclinical training, just before they started their in-hospital experiences.

Student recruitment and conduct of the focus groups

Year 1 and 2 student representatives, who had been previously chosen by their peers to represent their small groups to the curriculum committee, were invited to participate in the focus groups by letter and a follow-up phone call. These student representatives were chosen to participate in this study because of their previous experience with giving feedback and their awareness of student concerns and issues. In order to allow for dropouts and cancellations, 8–10 student representatives were invited to attend each focus group.\(^18\) The groups were kept small to allow for full participation as well as in-depth discussion of the topic.\(^16\)

The author, a clinical psychologist with 20 years of experience in medical education, facilitated the focus groups. Although she knew some of the students from her involvement in the undergraduate curriculum committee, she was not responsible for their educational programme or evaluation.

The following questions guided the focus group discussion:

- What makes for an effective small group?
- What are the goals of small group teaching?
- What makes for an effective small group tutor?
- What makes for an effective case?
- What makes for effective small group evaluations?
- What message would you like to give your tutors?
- What message do you think your tutors would like to give you?

The first 5 questions had been identified as issues by students during ongoing feedback sessions and were seen to tap the major aspects of small group teaching in our curriculum. The last 2 questions were designed to provide feedback to tutors during tutor orientation sessions. All of the questions were tested in a prestudy pilot to ensure clarity, precision and comprehensiveness. The term ‘effective’ was not defined for the students as we wished to assess their perceptions of effectiveness. Additional probes, designed in advance, were used to supplement each question if the students did not spontaneously provide the relevant information. Identical questions were asked in all of the groups, and the sequencing of the questions was the same to allow for a more systematic analysis.

Each focus group lasted approximately 90 minutes to allow key themes and issues to emerge. The discussions were held at the end of the day in the Faculty of Medicine, at a time convenient for the students. All of the focus groups were audiotaped and transcribed verbatim. A research assistant, a graduate student in educational psychology, was present during the focus groups to take field notes. The moderator and research assistant introduced themselves to the group but the students did not, in order to ensure anonymity on the transcripts. To promote candour in the students’ responses, confidentiality was stressed; the students were also assured that any report of findings would be generic and not attributed to specific individuals.

Participant verification occurred at the end of each focus group as the moderator summarised key points and the participants were able to respond to the summary. At the end of 6 focus groups, saturation
had been reached, as similar themes and issues emerged from each group.

Analysis

Ethnographic content analysis guided the data analysis. The transcripts were examined independently, by the author and the research assistant, to identify key words, phrases and concepts. Similarities and potential connections among key words, phrases and concepts, within and among the focus groups, were identified and discussed, and initial coding categories were identified. The content of each transcript was then analysed using these categories, and additional codes for newly emerging topics were created as needed, allowing for an iterative process throughout the analysis. Coding discrepancies were reconciled through discussions between the author and the research assistant. The final stage of analysis involved the reduction of all data sources into the final coding categories, the development of major themes and the identification of exemplar quotes illustrating each theme.

The transcripts ranged from 14 to 22 pages in length. Each was read for general clarity and comprehension prior to the coding. Moderator notes from each session also supplemented the text. Once the transcripts were analysed, preliminary findings were presented to the members of 2 Faculty of Medicine committees, for feedback and discussion.

RESULTS

Of the 54 students invited to participate, 46 attended. Of these, 54% were in Year 1 and 46% were in Year 2; 40% were men and 60% were women. Of those who did not attend, 20% declined the invitation; the others did not come at the last minute. The students who attended and those who did not were similar in age, gender and years of education.

The major themes that emerged in response to the key questions are described below.

What makes for an effective small group?

Table 1 summarises the 6 major items identified by the students in response to this question. All of the focus groups highlighted tutor characteristics as an important aspect of effective groups. In addition, all of the groups highlighted a positive, non-threatening group atmosphere, and active student participation and group interaction as essential characteristics. Adherence to group goals was also noted by all the focus groups, as were the importance of clinical relevance and integration, and the effective use of certain pedagogical materials (e.g. cases) that promote thinking and problem solving. Additional variables mentioned by some of the groups included methods of evaluation and the role of students. Interestingly, however, these were the only 2 areas in which Year 1 and 2 students differed; attention to student roles and methods of evaluation were emphasised more by Year 1 students.

What are the goals of small group teaching?

The students were very articulate in their description of small group goals and their concern that the goals of small group teaching were not always met. From their perspective, the major goals of small group teaching were to allow participants:

- to be able to ask questions and think things through;
- to check out their understanding of the material;
- to work as a team and to learn from each other;
- to apply content to clinical or ‘real life’ situations, and
- to learn to problem solve

Table 1 Student perceptions of effective small groups

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<th>Small groups should include:</th>
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<tr>
<td>Effective small group tutors</td>
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<tr>
<td>A positive group atmosphere</td>
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<tr>
<td>Active student participation and group interaction</td>
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<td>Adherence to small group goals</td>
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<td>Clinical relevance and integration</td>
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<td>Cases that promote thinking and problem solving</td>
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</table>
One student noted:

‘The goal of the small group is for us to work through a problem, to develop a way of thinking and problem solving, to provide clinical relevance, to develop our database, and to work together as a team. Isn’t that what we have to do in the hospitals anyway?’

What makes for an effective small group tutor?

All the focus groups identified the same tutor characteristics as essential to learning. These described an individual who promoted thinking and problem solving, was not threatening, encouraged interaction, did not lecture, highlighted clinical relevance, and wanted to be there. In fact, the responses to this question could be divided into 3 main categories: personal attributes, facilitation skills and knowledge – of both the goals of small group teaching and the content area under discussion.

Student perceptions of personal attributes are best exemplified in the following quote:

‘The group leader should not be threatening. Sometimes the tutors expect you to know everything – and sometimes you feel kind of stupid. They should encourage you to think and to problem solve – not to feel threatened.’

Facilitation skills were most frequently mentioned in the context of allowing the group to work independently:

‘Sometimes it is seamless. We work as a group, we look to the tutor when we are stuck, he asks a question or helps us with the answer, and then we continue on our own. It is a fine line between leaving us alone and being involved.’

Additional characteristics mentioned by some of the students included tutors who understood the goals of small group teaching, who used the cases well, who outlined the small group objectives, and who remembered to summarise the discussion.

What makes for an effective case?

Student views of effective cases included cases that had clear objectives, that were not preassigned, that encouraged problem solving and discussion in the small group, and that did not lead to the repetition or regurgitation of previously prepared material. Throughout all of the 6 groups, students highlighted the value of what they called ‘mystery’ cases. This referred to cases that they had not seen before and that did not allow for the regurgitation of previously acquired facts or solutions:

‘The mystery case makes you think on the spot. The case description is provided during the small group. It’s on a topic you supposedly studied, like gastrointestinal disease, but you have not seen the case before. You have to think on the spot – not sit at home for hours and do research over it. You’re seeing it right there and trying to find out what’s going on. It allows you to study the basics the night before but not delve into the specifics of the case.’

Students also highlighted the importance of the clinical relevance of cases, the clarity of questions asked, and the number of cases under discussion at any particular time. They stated that they often felt they were given too many cases or not enough time to discuss them. In addition, students appreciated tutors who went ‘beyond’ the presented case, by expanding on the case or generalising issues to another clinical situation.

What makes for effective evaluations in small groups?

The perceived value of short quizzes, which are frequently used as part of our small group assessment, varied greatly from group to group. Some of the students felt that the quizzes were helpful in getting them to prepare for the small group session, in focusing the case discussion, and in giving them feedback on their understanding of course content. Others felt there were too many quizzes, that they were not helpful, and that they inhibited learning.

In general, quizzes were seen as more helpful when the small group tutor reviewed the answers with the students (to provide immediate feedback), when the quizzes focused on the case discussion, and when they were held at the end of the session to reinforce the concepts discussed. Students also welcomed the opportunity to be assessed on their participation as a group member rather than on their knowledge of the content or their ability to give the ‘right’ answer:

‘There’s this feeling that we’re evaluated on how many answers we get right rather than how we work within the group. There’s a very competitive feeling...’
to the group. I never have the feeling that we’re encouraged to discuss things fully. It’s more like we’re asked questions and people feel like they have to spit the right answer back.’

What message would you like to give your tutors?

To conclude the focus group discussion, students were asked what message they would like to give their tutors. They were told that this information would be reported back to their tutors at a forthcoming faculty development workshop and they were encouraged to be candid in their responses. Student feedback to tutors included the following comments:

• relax;
• be excited to be there;
• we are there to learn, not to be drilled;
• remember that we are only students;
• we all come from very different backgrounds;
• tell us when you don’t know, and
• please don’t lecture in the small group.

What message do you think your tutors would like to give you?

The students’ answers to this question included the following suggestions:

• relax;
• give each other a chance;
• prepare;
• don’t be afraid to be wrong;
• don’t worry so much, and
• don’t appear as if you know everything.

The similarity between tutor and student messages was striking, as was the lack of differences in input between Year 1 and 2 students.

DISCUSSION

This study’s findings indicated that students identified tutor characteristics, a non-threatening group atmosphere, group interaction, clinical relevance and integration, and pedagogical materials that encourage problem solving and thinking as the most important characteristics of effective small groups in an integrated, systems-based curriculum.

Student comments about the importance of tutor characteristics were consistent with the literature. Tutor characteristics identified in this study included personal attributes and effective facilitation skills, such as the ability to promote problem solving and critical thinking. It is interesting to note that although we generally promote a skill-based approach to small group teaching (e.g. set objectives; summarise and synthesise) in our faculty development workshops, students did not comment on these identified skills as much as they highlighted tutors’ interest in teaching and their ability to create an atmosphere conducive to learning. Our results also confirm the findings of Mayo and colleagues that the tutor plays an important role as a metacognitive guide; that is, without giving the answers, the tutor is there to help students raise the questions an expert doctor would raise when thinking through a clinical case. Interestingly, our students’ comments about effective tutors in a systems-based curriculum did not differ from those of students in a PBL curriculum. In our opinion, this raises the question of whether the tutorial process is indeed different, and whether students perceive a need for content expertise.

This study expands on previous research by soliciting student perceptions of effective cases, views on evaluation, and specific feedback to tutors. Although the characteristics of effective cases as perceived by the students in this study may only be pertinent to our local context, some aspects may be transferable to other situations. This includes the value of ‘mystery’ cases, moving ‘beyond’ the case and ensuring clinical relevance at all levels of case development. Clinical cases have long been the hallmark of PBL and other small group curricula, and yet little is known about what makes for an effective case. The findings of this study suggest the need for further research in this area. They also indicate the limitations of over-reliance on a single pedagogical tool.
This study’s findings are tempered by a number of limitations. The focus groups took place in a particular context at 1 university, and we must therefore question to what extent the students’ comments and observations are context-dependent and to what extent their observations may be transferable to another setting. We also do not know enough about the students who did not attend the focus groups, and what their perceptions of small group teaching were. Although the students in these focus groups were student representatives, it is our belief that their peers would have been equally articulate in expressing their views. Finally, we did not define the term ‘effective’ (i.e. producing a desired effect, 25) in order not to constrain the students’ responses. It was interesting to see, however, that student perceptions of effectiveness in this study related to student learning and the achievement of course objectives. In fact, their perceptions of group goals matched the curriculum objectives with 1 exception; students placed a greater emphasis on small groups as an opportunity to learn about teamwork and group functioning than did the course organisers.

Despite the aforementioned limitations, this study has demonstrated the value of using focus groups for assessing student perceptions and feedback on curriculum implementation. Morgan 14 stated that the hallmark of focus groups is the explicit use of group interaction to produce data and insights that would be less accessible without the interaction found in a large group. Throughout this study, we were impressed by the students’ ability to articulate their perceptions of the goals and purposes of small group teaching. Faculty members also commented on the students’ accuracy and insight, and as 1 tutor commented, ‘Everything they said makes sense!’ Based on this experience, we would recommend the use of focus groups for obtaining student perceptions for curriculum planning and evaluation, both as a stand-alone method of course evaluation and as a supplement to ongoing methods.

This study also points out avenues for future research. It would now be worthwhile to assess student perceptions of small group teaching during all phases of medical education, including undergraduate clinical training, postgraduate residency education and continuing professional development. It would also be valuable to compare student perceptions with those of their teachers. During a recent faculty development workshop, we asked participants to answer the same questions we had posed to the students. The similarity in responses was striking. It would now be important to conduct this comparison in a more rigorous fashion. We also need to know more about the role and attributes of pedagogical materials and resources in small group teaching (e.g. cases).

Finally, this study is among the first to incorporate student perceptions of small group teaching into a faculty development programme. 21 In our setting, we regularly host faculty development workshops on small group teaching. For the last 3 years, we have developed workshop transparencies and handouts based on the students’ comments, and we have discussed their perceptions during the workshop plenary. Tutors have been very interested in the students’ perceptions and their comments have provoked very useful discussions. In fact, many workshop participants have requested copies of the students’ remarks for their own in-service activities. The presentations of our focus group findings have also encouraged other course directors to conduct focus groups around clearly delineated content areas. We have been heartened by this response, and the apparent usefulness of these findings. In our opinion, student perceptions of effective and ineffective small group teaching are invaluable in planning undergraduate programmes and faculty development initiatives.

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