Identifying Characteristics of Effective Small Group Learning Valued by Medical Students and Facilitators

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Abstract

Small group teaching is an important part of undergraduate medical education, providing the ideal setting for learners to clarify misunderstandings, test hypotheses and evaluate ideas. However, there is an overall paucity of literature examining case-based small group sessions in medical school. This study was designed to examine student and facilitator perceptions of effective case-based small group teaching in the pre-clinical years and compare results in order to identify similarities and differences and identify key areas of disconnect so that the small group learning experience can be improved.

METHODS: An 18-item survey was emailed to all 388 students who had started the second year of medical school at the University of Massachusetts between August 2008 and August 2010 and to 146 of 161 facilitators who had facilitated a case-based small group session during that same time. Chi-square tests of equality of proportions were used to compare the answers of students and small group facilitators.

RESULTS: 79 (54%) small group facilitators and 195 (50%) students responded. Student and facilitator responses were similar in the areas regarding goals of small group sessions and responsibilities of the facilitator. Significant difference was noted between cohorts about the most important roles of the facilitator, whether facilitators and/or students should attend training prior to sessions, whether groups should follow a consistent format, how students should be expected to prepare for small groups, how student knowledge and performance should be assessed, and whether the small group leader should be a skilled facilitator or content expert.

CONCLUSIONS: This study demonstrates that there are areas where perceptions of effectiveness differ between students and facilitators. Identifying these areas presents an opportunity to make small group sessions more effective by allowing for more informed facilitator development and better communication of session expectations to students. The lack of a substantive body of literature on this important trend in medical education, coupled with our findings, suggests that further study is needed to identify characteristics of case-based small group learning that are mutually valued by students and facilitators. This will encourage the development of small group sessions that are deemed effective and maximize learning and teaching time.

Introduction

As opposed to a lecture in which students are passive receivers of information, small group teaching adheres to contemporary education theory which portends that learning is best accomplished if it is an active process.[1,2] Learners are able to reflect on their own experiences while also learning from their peers. Additionally, members of small groups have greater control over their learning activities since they can raise questions and contribute to group redirection.[1] Small group sessions allow students to work collegially and obtain skills critical to being part of a medical team such as active listening, presenting an argument, and persuasion.[1,3] Perhaps most importantly, in a small group environment, students are able to monitor their own understanding and knowledge acquisition, identify gaps in understanding, and prepare themselves for a career of self-directed learning to fill these gaps. [1-3]

Several characteristics of effective small group learning have been identified in the literature.[1-4] Steinert used focus groups to assess preclinical year students' perceptions of effective small group teaching in a traditional curriculum. Key characteristics identified by students were tutor characteristics (including: personal attributes, knowledge, and facilitation skills), a non-threatening group atmosphere, clinical relevance and integration, and pedagogical materials that encourage independent thinking and problem solving.[3]

Methods

An 18 item survey, informed by a review of the literature and a focus group of second year medical students, was developed. An anonymous on-line data collection tool (SurveyMonkey) was used to conduct the survey. Contact information was available for 146 of the 161 small group facilitators, and all 388 students in years 2, 3 and 4. A link for the survey was emailed to each student who had started the second year of medical school at the University of Massachusetts Medical School between August 2008 and August 2010. An identical survey link was distributed to facilitators of case-based small group sessions during the same time period. Demographic questions were also asked of each group. A total of 3 reminders were emailed to all potential respondents. Chi-square tests of equality of proportions were used to compare responses between students and small group facilitators. Survey items included: student and facilitator characteristics, desired role of the facilitator, cases, content, student evaluation, group structure, and atmosphere.

Results

79 (54%) small group facilitators and 195 (50%) students responded. Of the 79 facilitators who started the survey, 70 answered all questions (88.6%). Of the 195 students who started the survey, 176 answered all questions (90.3%).

Survey Respondent Characteristics

Students	Overall No. (%)	Facilitators	Overall No. (%)
Gender*		**Gender***	
M	75 (39.5)	M	45 (57.0)
F	115 (60.5)	F	34 (43.0)
Age*		**Years Facilitating**	
≤25	73 (39.0)	<3	25 (31.6)
26-30	90 (48.1)	3-5	12 (15.2)
≥31	24 (12.8)	>5	42 (53.2)
MS II Year		**Years since Graduation**	
2008	60 (31.4)	≤5	7 (8.9)
2009	49 (25.7)	6-10	13 (16.5)
2010	67 (35.1)	11-20	21 (26.6)
Other	15 (7.9)	>20	38 (48.1)

Key: Asterisk(*) denotes an optional question; MSII is the 2nd year of medical school

Facilitator Characteristics

A significantly greater percentage of students (69%) reported that the small group leader should be a skilled facilitator rather than a content expert (**p = 0.04**).

Question	N	Agree	Neutral	Disagree	p-value
Role of facilitator to create supportive environment					0.06
Students	185	96%	3%	1%	
Facilitators	76	96%	0%	4%	
Facilitation skills most important					0.23
Students	185	73%	16%	11%	
Facilitators	76	62%	24%	14%	
Review session objectives					0.32
Students	185	70%	21%	9%	
Facilitators	76	76%	20%	4%	
Facilitators should attend training					**<0.01**
Students	185	77%	17%	5%	
Facilitators	76	27%	41%	31%	
Role of facilitator to summarize main points at end					0.92
Students	185	71%	23%	6%	
Facilitators	76	70%	22%	8%	
Role of facilitator to identify and address misunderstandings					0.79
Students	185	71%	22%	7%	
Facilitators	76	67%	25%	8%	

Most desirable role of the facilitator*	N	Desirability				Avg Rating	p-value
		Most	Very	Less	Least		
Guide discussion							**<0.01**
Students	176	60%	16%	19%	5%	1.68	
Facilitators	70	81%	9%	3%	7%	1.36	
Present content							**0.01**
Students	176	22%	36%	19%	23%	2.43	
Facilitators	70	7%	29%	30%	34%	2.91	
Answer questions							**0.01**
Students	176	14%	37%	40%	9%	2.45	
Facilitators	70	9%	36%	31%	24%	2.71	
Ask students questions							**<0.01**
Students	176	4%	11%	21%	64%	3.44	
Facilitators	70	3%	27%	36%	34%	3.01	

Key: Asterisk(*)Respondents were asked to rank the importance of each of the above roles of the facilitator with 1 being the 'most desired' and 4 the 'least desired' role.

Cases, Content and Evaluation

Both students and facilitators reported agreement that problem solving is as important as content covered (p = 0.06) and that the problem solving process is more important than getting the right answer (p = 0.23).

Preparation of cases to be discussed*	N	Desirability			Avg Rating	p-value
		Most	Very	Less		
Completely worked up by students prior to session						**<0.01**
Students	176	27%	31%	42%	2.14	
Facilitators	70	51%	27%	21%	1.70	
First reading at session; no prior workup						**<0.01**
Students	176	14%	35%	51%	2.37	
Facilitators	70	1%	26%	73%	2.71	
First reading at session; background reviewed						0.16
Students	176	59%	34%	7%	1.49	
Facilitators	70	47%	47%	6%	1.59	

Key: Asterisk(*)Respondents were asked to rank the desirability of each of the above methods of preparation with 1 being the 'most desired' and 3 the 'least desired' role.

Best way to evaluate student performance*	N	Desirability					Avg	p-value
		Most	Very	Neut.	Less	Least		
Written quiz at start of session								0.83
Students	176	7%	14%	19%	21%	40%	3.72	
Facilitators	70	10%	10%	17%	21%	41%	3.74	
Written quiz at end of session								0.72
Students	176	32%	28%	15%	21%	4%	2.36	
Facilitators	70	24%	34%	17%	21%	3%	2.44	
Written assignment at start of session								**0.03**
Students	176	6%	11%	26%	31%	26%	3.61	
Facilitators	70	17%	14%	23%	31%	14%	3.11	
Written assignment at end of session								0.14
Students	176	12%	30%	23%	22%	14%	2.95	
Facilitators	70	24%	31%	19%	17%	9%	2.54	
Only on scheduled course exams								**0.01**
Students	176	43%	17%	18%	6%	17%	2.36	
Facilitators	70	24%	10%	24%	9%	33%	3.16	

Key: Asterisk(*)Respondents were asked to rank the desirability of each of the above methods of evaluation with 1 being the 'most desired' and 5 the 'least desired' role.

Best way to evaluate student participation*	N	Desirability				Avg Rating	p-value
		Most	Very	Less	Least		
Determined by group leader							**<0.01**
Students	176	31%	27%	26%	16%	2.27	
Facilitators	70	60%	29%	6%	6%	1.57	
Determined by peers							**<0.01**
Students	176	9%	15%	29%	48%	3.16	
Facilitators	70	10%	41%	26%	23%	2.61	
Determined by student (self)							**<0.01**
Students	176	14%	43%	29%	14%	2.42	
Facilitators	70	11%	21%	56%	11%	2.67	
Student participation should not be evaluated							**<0.01**
Students	176	46%	15%	16%	23%	2.15	
Facilitators	70	19%	9%	13%	60%	3.14	

Key: Asterisk(*)Respondents were asked to rank the desirability of each of the above methods of evaluation with 1 being the 'most desired' and 4 the 'least desired' role.

Group Atmosphere and Structure

Both students and facilitators agree that the most desirable main purpose of the small group session is to practice problem solving (p = 0.77). A statistically significantly greater percentage of students, however, reported that the *least* desirable purpose of small groups is to learn new material.

Question	N	Agree	Neutral	Disagree	p-value
Students can learn from classmates					0.85
Students	185	76%	10%	14%	
Facilitators	76	76%	12%	12%	
Sessions should follow consistent format					**0.01**
Students	185	57%	29%	14%	
Facilitators	76	39%	29%	32%	
Sessions should have clear objectives					0.17
Students	185	92%	5%	3%	
Facilitators	76	95%	5%	0%	
Students should receive training on learning in small groups					**0.01**
Students	185	20%	37%	43%	
Facilitators	76	38%	42%	20%	

Conclusions

FACILITATOR CHARACTERISTICS

- Students reported variable experiences with facilitators and believe that facilitation in small groups is a skill for which formal training is recommended.
- While the literature appears to support higher value placed on facilitator content expertise over small group facilitation skills, our study found that students, compared to facilitators, felt much more strongly that small group leaders' skills in facilitation were more important than content expertise.

GROUP ATMOSTPHERE AND STRUCTURE

- Since both students and faculty disagreed that their cohort should be required to attend training on learning and teaching within a small group setting, attention to developing efficient ways to train both groups is needed given pressures on student learning and faculty teaching time.
- While students felt more strongly that introducing new material in small group was not recommended, both students and faculty agreed that the highest value placed on small group learning was in practicing problem-solving skills – more important than 'getting the right answer'.

CASES, CONTENT AND EVALUATION

- Faculty were twice as likely to recommend students completely work up a case prior to a session, while nearly two-thirds of students recommended cases be presented for the first time during a session. This demonstrates the need to identify a common format that best supports learning and teaching.

LIMITATIONS

- The nature of a survey is such that questions are subject to varying degrees of interpretation and reporting bias.
- While the scope of this study was limited to case-based small group learning, both students and faculty participated in other types of small group learning that may have influenced their responses.
- Students had more exposure to small group sessions than faculty; thus, consistency between facilitator likely factored into student responses.

FUTURE RESEARCH AND NEXT STEPS

- Recommend students and facilitators come together to discuss areas of different perspectives and prioritize areas of action.
- Refine existing training modules about case-based small group learning and balancing content with problem solving skills to best meet our institutional needs.
- Readminister survey after implementation of newly identified areas of training and assess for increases in areas of agreement between facilitators and students.

Acknowledgements

We would like to thank the University of Massachusetts Medical School **Office of Undergraduate Medical Education** for providing financial support for this project. We are grateful to **Dr. Bruce Barton** for his assistance with the statistical analysis. We also appreciate the assistance of **Dr. Melissa Fischer, Tricia Droney MPH**, **Christine Locke, Andrew Walls** and **Joel Bradley**.

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