

Comparing Student Satisfaction with Traditional and Modular Group Peer-Tutoring Session

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Background: Our allopathic medical school has utilized a peer-tutoring program since inception in 2011, where second-year medical students teach first-year students in 2-h lecture-style review sessions. In 2015, an alternative format was implemented using four, repeating 30-min modules. This study was designed to compare student satisfaction with both approaches.

Methods: An online survey was emailed to students graduating in 2018 (n = 97) and 2019 (n = 127).

Results: A total of 72 (32.6%) responding students were included in the study, 35 from the class of 2018 (Co2018) and 37 from the class of 2019 (Co2019). Fewer Co2018 students, who received traditional instruction, were 'very satisfied with the session timing' compared with Co2019 students, who received the modular format (proportion difference: 0.42; P < 0.001, 95% confidence interval [CI] [0.21–0.63]). Co2018 students were more likely than Co2019 students to stop attending because their time was better utilized another way (proportion difference: 0.22; P = 0.054, 95% CI [-0.003 to 0.45]).

Conclusions: Students preferred the session length and timing of the modular format. Future studies are warranted to evaluate the effectiveness of this approach.

Keywords: education; medical; teaching; tutoring

INTRODUCTION

Peer-teaching is widely regarded for benefits to both the student and tutor while simultaneously reducing the teaching burden for faculty educators.¹⁻⁴ Students who receive tutoring indicate the greatest benefits include hearing alternate explanations of concepts, learning how second-year medical students approach course content, and making conceptual connections between topics.⁵ In addition, medical schools may utilize peer-tutoring to help prepare students to be future medical educators.⁶ However, very little research exists in the realm of peer-tutoring in health professional schools to evaluate the effectiveness and student satisfaction of the peer-tutoring format.⁷

Oakland University William Beaumont School of Medicine (OUWB) is an allopathic medical school founded in 2011 with a current enrollment of 125 students per year. During the first semester, students encounter basic concepts in Anatomical Foundations of Clinical Practice (AFCP) and Biomedical Foundations of Clinical Practice (BFCP); these foundational courses support subsequent

organ system courses taken throughout the remainder of the first and second year. Since our inception, the Director of Academic Success at OUWB has overseen the peer-tutoring program that employs second-year medical (M2) students to provide weekly individual and group tutoring for first-year medical (M1) students in AFCP, BFCP, and organ system courses. Before the Fall 2015 semester, the peer-tutoring sessions for BFCP followed a traditional lecture-style review format, which covered all relevant topics taught in the previous week. Designated topics were presented in a consecutive fashion by different tutors. While this format was beneficial to many M1 students, drawbacks included lengthy sessions, lack of student engagement, and an intimidating environment to ask questions. To resolve some of these issues, an alternative format was used to cover BFCP course material in 2015, where four, independent, 30-min 'modules' were delivered simultaneously, repeating over the 2-h session. This allowed M1 students to attend the topics in any order, attend the same module more than once, or leave once their questions were answered.

This study was designed to evaluate student satisfaction for the new modular peer-tutoring approach in comparison to the traditional lecture format. We hypothesized that M1 students would prefer the modular format for several reasons, including decreased session length, increased participant autonomy, and increased engagement.

METHODS

Subjects were OUWB medical students graduating in 2018 ($n = 97$) and 2019 ($n = 127$), the two most recent cohorts to attend the peer-tutoring sessions. An electronic survey was created through Qualtrics® and emailed to all subjects in Fall 2016. The class of 2018 (Co2018) attended traditional group peer-tutoring sessions consisting of consecutive lectures; the class of 2019 (Co2019) attended the new session format that utilized repeating 30-min modules. Demographic information was collected to identify potential differences between student academic majors and degrees, attendance, and experiences with the peer-tutoring sessions. Students were asked for their opinions regarding the format of the peer-tutoring sessions they attended. In addition to multiple choice and Likert scale questions, all participants were given the opportunity to answer

free response questions to further compare student satisfaction with the new peer-tutoring method.⁸ The study was submitted under exempt status to the Oakland University Institutional Review Board and received approval.

STATISTICS

Chi square and two proportion tests were used to compare responses between the two cohorts; when samples were small, Fisher's exact test was used (denoted by[†]). All tests were two sided; we used a cutoff of $\alpha = 0.05$ to determine significance. Analyses were performed using Minitab 17 (Minitab Inc., State College, PA).

RESULTS

A total of 72 (32.6%) students completed the survey, 35/97 from the Co2018 and 37/127 from the Co2019. Summary data for the survey is included in Table 1. Twenty-nine percent (10/35) of students from the Co2018 were very satisfied with the timing of the session, compared with 70% (26/37) of students in the Co2019 (proportion difference: 0.42; $P < 0.001$, 95% confidence interval [CI] [0.21–0.63])[†]. Sixty-seven students (93%; 95% CI [0.85–0.98]) reported they used the sessions primarily to supplement lecture materials or ask

Table 1. Selected survey results and associated chi square analyses comparing the traditional (class of 2018) and modular (class of 2019) review format.

Question	Response	Class of 2018		Class of 2019		<i>P</i>
		<i>n</i>	(%)	<i>n</i>	(%)	
Age	<27	28	(80)	28	(76)	0.659
	27+	7	(20)	9	(24)	
Biological science educational background	Yes	22	(63)	30	(81)	0.084
	No	13	(37)	7	(19)	
Attendance at tutor-led review sessions	<25% of the time	11	(31)	9	(24)	0.355
	25–75% of the time	17	(49)	15	(41)	
	>75% of the time	7	(20)	13	(35)	
How much did you rely on peer-review sessions to learn material in BFCP? ^a	Only to ask small questions	3	(9)	5	(14)	0.466
	Teach myself some/most of the material	3	(9)	1	(3)	
	Supplement or reinforce understanding of material	28	(82)	31	(84)	
Please rate your satisfaction with the overall timing of the session	Far too long	4	(11)	0	(0)	<0.001
	Somewhat too long	18	(51)	3	(8)	
	Somewhat short	3	(9)	8	(22)	
	Very satisfied with the timing	10	(29)	26	(70)	
Please rate how engaging the review sessions were	Not at all or rarely	4	(11)	1	(3)	0.179
	Somewhat	19	(54)	17	(46)	
	Very	12	(34)	19	(51)	

^aOne respondent from the class of 2018 failed to respond to this question.

clarifying questions, as opposed to using the sessions as a replacement for lectures. There were no statistically significant differences between the Co2018 and the Co2019 regarding the reasons for attending the review sessions.

Student responses to aspects of review sessions that should be 'stopped, started, or continued' are found in Table 2. When asked why students stopped attending review sessions, students in the Co2018 (9%; 3/35) were less likely than the Co2019 (24%; 9/37) to stop attending because they did not need the material explained a second time (proportion difference: 0.16; $P = 0.11$, 95% CI [-0.01 to 0.35])[†]. Students in the Co2018 (60%; 21/35) were more likely than the Co2019 (38%; 14/37) to stop attending because their time was better utilized another way (proportion difference: 0.22; $P = 0.054$, 95% CI [-0.003 to 0.45]). When asked which aspects of the session were not helpful and should be discontinued, session length was mentioned by 20% (7/35) of the Co2018, but not mentioned by any respondents from the Co2019 (proportion difference: 0.20; $P = 0.005$, 95% CI [0.07–0.33])[†].

DISCUSSION

Many studies have shown that peer-tutoring is an effective tool to improve student learning, both for the students and their peer-tutors.^{1–4} While the literature supports the value of peer teaching in medical education, there is limited information in regard to the ideal peer-tutoring program format. Our study evaluated student satisfaction of a unique modular peer-tutoring approach compared to a more traditional peer-tutoring format.

We found a statistically significant difference in student satisfaction with session length between the two

formats, where students who participated in the modular format were more likely to be satisfied with the session timing. Although the traditional approach followed a 2- to 3-h lecture-style format covering all topics, the modular approach allowed for more flexibility, with four, 30-min sessions focused on the material that the M1 students had previously indicated they needed the most assistance with. Students who attended the traditional format were more likely to say that session length was too long, as well as stop attending because they believed their time could be better utilized. Time is an extremely valuable asset for medical students, in which studying for examinations, community service, and research are only a few of the activities that often fill their day. In addition to keeping the review sessions to a strict 2 h, the modular peer-tutoring format also allowed students to determine how long they needed to stay to cover concepts they were struggling with, as opposed to the linear format of the traditional sessions. This may have helped students utilize their time more effectively and efficiently, and increased student satisfaction with this format.

Increased engagement is another potential reason for student satisfaction with the modular format. For one, students may have felt that it was easier to successfully learn important concepts during a shorter 30-minute session. According to the AMEE Medical Education Guide, attention fluctuates throughout a 1-hour lecture, and students often experience a marked decline in attention after the first 20 min.⁹ As the student cohort was divided spatially into four different modules, there were fewer students per tutor, potentially allowing for closer seating, increased participation, and less intimidation when asking questions. In addition, students

Table 2. Comparing the top responses for the 'start, stop, continue' series of questions between the traditional (class of 2018) and modular (class of 2019) review format.

Question	Top responses	Class of 2018		Class of 2019		Difference	95% CI	P^a
		<i>n</i>	(%)	<i>n</i>	(%)			
Stop	Nothing	7	(20.0)	12	(31.6)	0.12	[-0.31 to 0.08]	0.253
	Length of session	7	(20.0)	0	(0.0)	0.24	[0.07–0.33]	0.004 [†]
Start	More practice questions	4	(11.4)	6	(15.8)	0.04	[-0.20 to 0.11]	0.738 [†]
	Nothing	5	(14.3)	3	(7.8)	0.06	[-0.08 to 0.21]	0.468 [†]
Continue	Handouts	16	(45.7)	12	(31.6)	0.14	[-0.08 to 0.36]	0.211
	Time to ask questions	5	(14.3)	5	(13.2)	0.01	[-0.15 to 0.17]	0.889

^aDifference between two sample proportions.

[†]Fisher's exact test was used.

could choose which sessions to attend based on the material covered, attend the same module multiple times, or leave the session between modules once they felt comfortable with the material. These themes appeared as some of the most common responses to the open-ended 'start, stop, continue' questions (Table 2). Generally, students wanted to 'start' seeing more practice questions, and 'continue' being provided with handouts and opportunities to ask questions. The only common 'stop' response was with respect to session length, and this was only observed with the Co2018.

One potential limitation of this study was recall bias, in which students from the Co2018 completed the survey approximately 2 years after completing their last tutor session. Our cross-sectional study did not employ random sampling, and lacked associated grade data; thus, we were unable to make claims regarding the similarity of the two sample populations. Sample size was also a concern for statistical significance, as our cohorts were limited by class size and participation, which may have introduced an element of response bias. Finally, we recognize the possibility that the review format influenced the sample populations by selecting for students preferring that particular setting; the traditional style was passive, while the modular format included active learning. Our study showed that medical students preferred the session length and timing provided by the modular peer-tutoring approach. Based on these results, we feel that future studies are warranted to further evaluate the effectiveness of this approach.

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