

The Effect of Experienced versus Novice Problem-Based Learning Facilitators on Student Outcomes

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Abstract

Introduction

The success of problem-based learning (PBL) is dependent upon the competency of the facilitator, quality of the PBL case, and the dynamics of the PBL group. The effectiveness of the facilitator in PBL has been measured by student satisfaction with the facilitation process, and by student achievement on exams. Previous literature has little information about the effect of facilitator experience on outcomes. This study examines the effect of facilitator experience on student performance on examinations.

Methods

Retrospective data from 47 students from the Chatham College PA class of 2007 were collected for this study. Student test scores for each of 6 multiple choice question (MCQ) exams and each of 6 patient management problem (PMP) exams were analyzed to determine facilitator effect. Data were analyzed between all six individual facilitators and also between the 3 experienced and 3 novice facilitators.

Results

Significant differences were noted in deviation from mean MCQ and PMP scores ($p=0.0002$ and $p=0.01$, respectively) and rankings ($p=0.002$ and $p=0.006$, respectively) between students having experienced facilitators and those having novice facilitators. There was a significant difference between students with novice facilitators and student with experienced facilitators in the number having their worst MCQ scores ($p=0.001$). When the data from the experienced facilitator with the highest-scoring students and the novice facilitator with the lowest-scoring students were eliminated, there was no significant difference between the remaining 4 facilitators.

Conclusions

These results suggest that students of novice facilitators can score as well as students of experienced facilitators, but that a facilitator can negatively impact the scores of his/her students. Physician assistant programs utilizing problem-based learning with multiple facilitators should be collecting and tracking student outcome measures by facilitator so that extra attention can be given to facilitators whose students perform poorly.

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Abridged Results

ANOVA

Experienced vs. Novice Facilitators: Student Exam Scores Variance from Mean					
	Df	Sum of Squares	Mean of Squares	F value	p value
MCQ score	1	393.2	393.2	13.942	0.0002*
PMP score	1	773	773	6.393	0.01*

* denotes statistical significance

Kruskal-Wallis Rank Sum Test. MCQ & PMP Rankings, Experienced vs. Novice			
	Chi-squared	Df	p-value
MCQ ranks	9.401	1	0.002*
PMP ranks	7.441	1	0.006*

* denotes statistical significance

Kruskal-Wallis Rank Sum Test. MCQ & PMP Rankings between Facilitators			
	Chi-squared	Df	p-value
MCQ ranks	11.946	5	0.04*
PMP ranks	9.000	5	0.11

* denotes statistical significance