

Active Learning: Improving PACKRAT™ 1 Scores



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Abstract

This is a quality improvement study to evaluate the integration of active learning strategies into a physician assistant (PA) didactic neurology module and the impact on the scores of the neurology section of the standardized Physician Assistant Clinical Knowledge Rating and Assessment Tool 1 (PACKRAT™ 1). PACKRAT™ 1 is a 225 question exam to assess student progress at the end of their didactic studies. Questions are typically presented in vignette format to allow the exam can assess students' capacity for problem solving and critical thinking.¹ The PACKRAT™ 1 exam serves as a predictor of Physician Assistant National Certifying Examination (PANCE) performance.² Upon graduation from an accredited physician assistant program, the student must pass the PANCE for certification and eligibility for licensing. The purpose of the study is to quantify the impact of incorporating active learning strategies into the PA didactic curriculum on students scores on the PACKRAT™ 1 exam which is a predictor of success on the PANCE.

Methods

In 2018, the didactic neurology module in the Emory PA curriculum was changed to a hybrid of 50% traditional lecture based sessions and 50% active learning sessions. The active learning sessions consisted of flipped classroom, team based, and problem based learning activities. Participants included 53 Emory University Physician Assistant (PA) students enrolled in the Class of 2019 and 53 students enrolled in the Class of 2020. The Class of 2018, who received the traditional neurology module will serve as the comparison group (n=53). We will compare the Packrat I neurology examination scores from the Class of 2018 (pre-intervention baseline group), 2019, and 2020.

Conclusion

Medical education literature demonstrates that active learning produces better educational outcomes, improves critical thinking skills, and promotes life long learning strategies. These are vitally important to our future physician assistant providers. It is the responsibility of medical educators to ensure that our students receive the best education and are prepared to pass their PANCE certification exam. Our limited quality improvement study demonstrated a small improvement in PACKRAT™ 1 scores which is predictor of success on the PANCE examination. We will follow the Class of 2020 to see if this trend continues. Additionally, the implementation of a hybrid module with active learning was well received by the students. Future studies should include a larger cohort with multiple PA programs and a standardized curriculum.

Results

After the implementation of the hybrid curriculum into the didactic neurology module, there was an improvement in scores on the PACKRAT™ 1 neurology section for the Class of 2019. The class average score increased by 4% while there was no change the national average.

Background & Purpose

Healthcare providers are expected to become lifelong learners and employ critical thinking and problem-solving skills. There is a constant flux of dynamic challenges within the medical environment. Providers are expected to meet these challenges within the rapid pace of advancements in medicine. Medical educators must provide a curriculum to meet the demands of today's healthcare providers. Evidence suggests that active learning sessions are better than large-group didactic teaching, since they not only produce better educational outcomes, but also enhance one's ability to think critically and work effectively in a team.³ However, the most often utilized form of teaching in medical education is the traditional lecture format which is passive learning. The traits of millennial learners favor active learning pedagogies and flexible classrooms. There is substantial evidence showing improved exam scores and lower failure rates in active learning sections compared with traditional lecturing.⁴

Module survey from the Class of 2020

Neuro Survey Summer 2019 - CO2020							
	STRONGLY DISAGREE	DISAGREE	NEITHER AGREE NOR DISAGREE	AGREE	STRONGLY AGREE	TOTAL	WEIGHTED AVERAGE
Team learning was beneficial to me	0.00% 0	3.33% 1	20.00% 6	53.33% 16	23.33% 7	30	3.97
The learning resources on Canvas were sufficient for my learning of the course material	0.00% 0	6.67% 2	23.33% 7	50.00% 15	20.00% 6	30	3.83
This format improved my critical thinking skills	0.00% 0	10.00% 3	20.00% 6	46.67% 14	23.33% 7	30	3.83
I would recommend this format in future modules	3.33% 1	13.33% 4	20.00% 6	33.33% 10	30.00% 9	30	3.73

Selected Comments from the Class of 2020

I really enjoyed the TBL format - my group was great, and I feel like it made going back and studying the material much easier because I was able to recall facts from the TBL cases. I also felt that already having the necessary info outlined for me saved me a ton of time, which resulted in me utilizing the time to be able to actually study the material. Normally in a module I am so busy trying to type out my notes, that I run out of time to actually study them.

Patient simulation case: this is the best learning experience. It is high pressure because you are clinically thinking and showing reasoning in front of your peers, but it is somehow not stressful because I can recognize the incredible opportunity it is. Instead of searching for points, it allows us to actually take the time to analyze the SP and think through the case

The format. Combining minimal PowerPoint with self-study of the basic pathology, TBL, and quizzes was very effective at assessing my level of knowledge of the material, and provided me a means to apply the knowledge to better retain the information

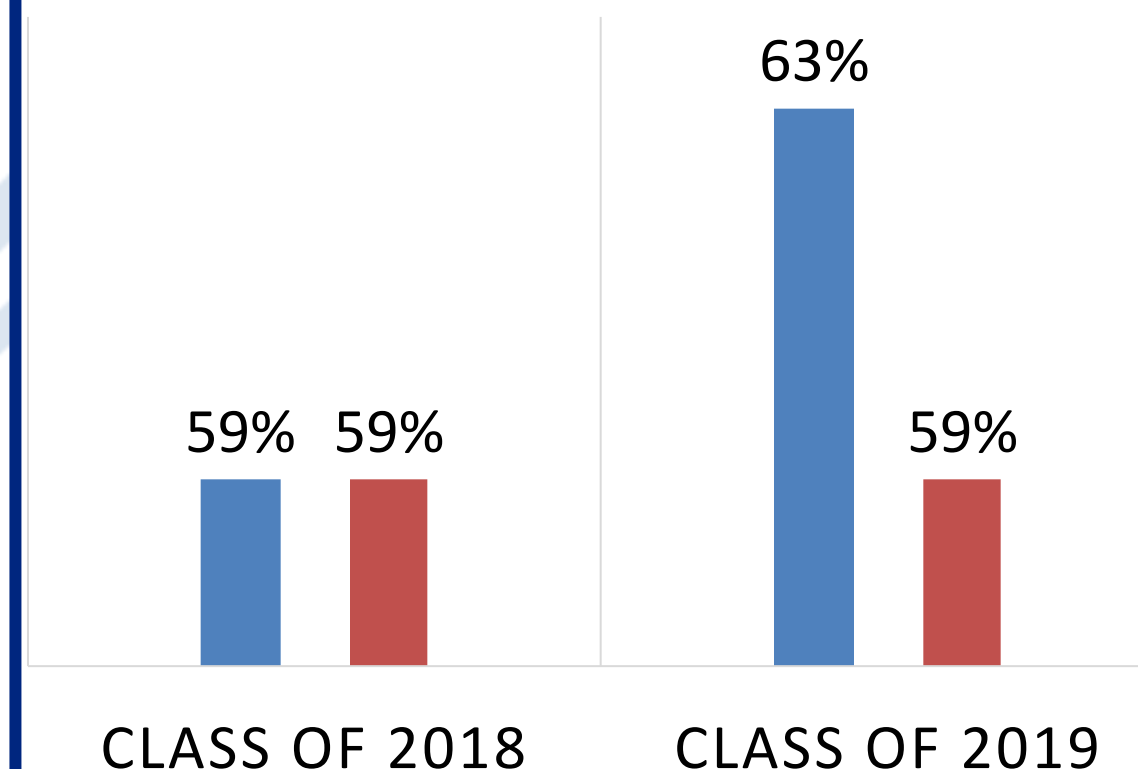
Honestly I really thought it was great. I really appreciated actually having the TIME to read things outside of class, rather than spending hours and hours and hours watching PowerPoint presentations.

The daily quizzes really pushed me to study every day for the information, and they showed me if I really knew the material or not.

The TBL's and live cases. It really helped me think critically and actually apply the knowledge I learned.

PACKRAT™ 1 SCORES: NEUROLOGY

■ National Average ■ Emory PA Average



References

1. Last Updated: August 12, 2019 URL: <https://paeaonline.org>
2. Honda T, Barry C, Buchs SR, Garbas BL, Hibbard ST, McLellan A, Riethle T, Swanchak LE. Considerations Around Predicting Physician Assistant National Certifying Exam Scores From PACKRAT®: A Multiprogram Study. J Physician Assist Educ. 2019 Jun;30(2):86-92.
3. Tsang A, Harris DM. Faculty and second-year medical student perceptions of active learning in an integrated curriculum. Adv in Physiol Educ. 2016 Dec; 40(4): 446-453.
4. Freeman S, et. Al. Active learning increases student performance in science, engineering, and mathematics. Proc Natl Acad Sci USA. 2014; 111: 8410-8415.