Didactic Performance Before and After Implementation of an Integrated Curriculum

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Background

- The Bill Gatton College of Pharmacy (BGCOP) implemented a revised, integrated (new) curriculum for the graduating class of 2017.
- Integration of medical chemistry, pharmacology, and pharmacotherapy was foundational for the new curriculum. Those select courses were previously offered sequentially.
- Other characteristics of the new curriculum included:
  - Creation of an aligned six semester pharmacy skills lab series.
  - Realignment of both OTC/self-care and pharmacokinetic course series.
  - Emphasis of professionalism, self-awareness, & entrepreneurship is pharmacy practice courses.
  - Minor changes to both IPPE & APPE curricula
- Despite a growing acceptance of integrated curricula within pharmacy education, there is little evidence of its superiority to traditional blocked curricula. [1,2]
- The implementation of a integrated curriculum presented a unique opportunity for academic scholarship. Specifically, "is an integrated curricula better than sequential course work in a professional college of pharmacy?"

Objectives

- To assess the effect of a revised, integrated curriculum on didactic performance, as measured by PCOA scaled scores.

Methods

- Three cohorts of students from the old curriculum (Classes of 2014, 2015, 2016) and three cohorts from the new curriculum (Classes of 2017, 2018, 2019) were eligible for enrollment.
- IRB approval was obtained and informed consent was obtained for all participants.
- PCOA was given to all students in a low-stakes environment late in the spring semester of P3 academic year after completion of nearly all didactic course work.
- For five of the six classes (2014-18), students took the PCOA exam in the morning without distractions such as traditional classes or course exams.
- Due to a scheduling conflict, the class of 2019 took the PCOA exam in the afternoon following a didactic course exam in the morning.
- Doubly-robust estimation was used to determine the effect of curriculum version on PCOA while controlling for PCAT scores, and pre-pharmacy math/science GPA (msGPA).

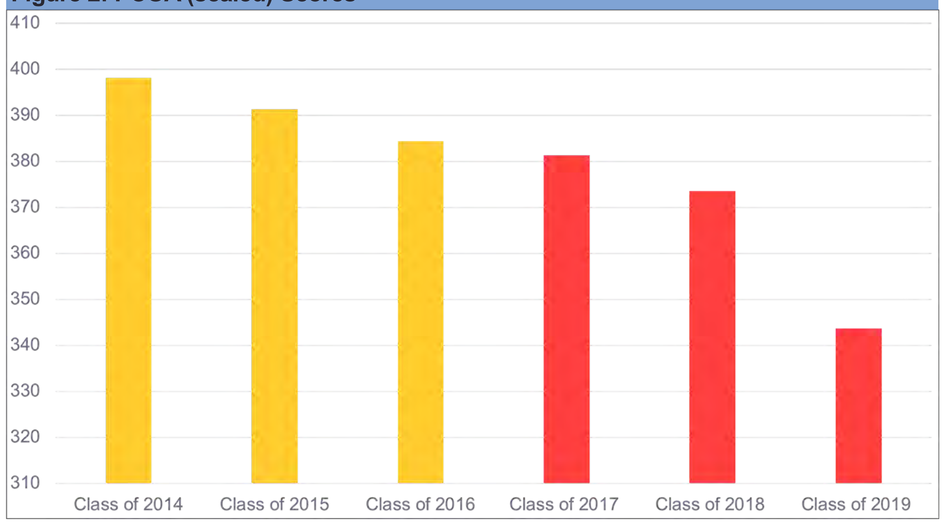
Results

Table 1: Participant Demographics

Cohort	Cohort Participants	ppGPA	msGPA	PCAT
Class of 2014 (n = 76)	66 (86.8%)	3.43	3.33	65.5
Class of 2015 (n = 79)	75 (94.9%)	3.50	3.42	65.4
Class of 2016 (n= 73)	73 (96.0%)	3.47	3.34	65.2
Class of 2017 (n = 82)	79 (96.3%)	3.32	3.16	63.3
Class of 2018 (n = 76)	73 (96.0%)	3.33	3.16	61.1
Class of 2019 (n = 82)	77 (93.9%)	3.33	3.15	61.3

ppGPA, pre-pharmacy GPA; msGPA, pre-pharmacy math-science GPA

Figure 2: PCOA (scaled) Scores



Implications

- The revised, integrated curriculum did not improve performance on PCOA..
  - PCOA scores decreased in the new curriculum when controlling for pre-pharmacy msGPA and PCAT (scaled) score.
  - This difference was only significant when included the Class of 2019 cohort, who took PCOA under slightly different conditions (same day as an exam).
- P3 GPA was similar between curricula after controlling for msGPA and PCAT (scaled) score.
- Future analyses to further assess the effect of the new curriculum on experiential performance, licensure exam performance, and residency match rates is planned.

Figure 1: Pre-Pharmacy Math/Science GPA

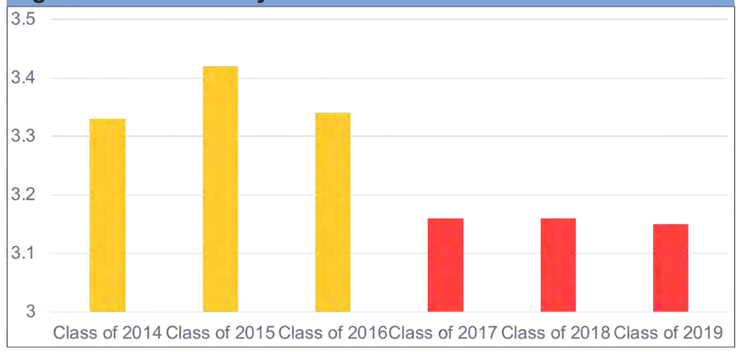


Table 2: P3 GPA Change Old vs. New Curriculum

Δ GPA	β	t-value	p-value
Uncontrolled	-1.03	-3.233	*0.001*
Controlled*	-0.052	-1.300	0.194

*controlled for msGPA and PCAT scaled score

Table 3: PCOA Change Old vs. New Curriculum (Class of 2017 & 2018 cohorts only)

Δ PCOA	β	t-value	p-value
Uncontrolled	-12.843	-2.730	*0.007*
Controlled*	-7.563	-1.503	0.134

*controlled for msGPA and PCAT scaled score

Table 4: PCOA Change Old vs. New Curriculum (All cohorts)

Δ PCOA	β	t-value	p-value
Uncontrolled	-23.257	-5.367	*0.001*
Controlled*	-16.878	-3.786	*0.001*

*controlled for msGPA and PCAT scaled score

References

1. Pearson ML, Hubbal HT. Curricular integration in pharmacy education. *Am J Pharm Educ.* 2012; 76(10): Article 204.
2. Husband AK, Todd A, & Fulton J. Integrating science and practice in pharmacy curricula. *Am J Pharm Educ.* 2014; 78(3): Article 263.