

Impact of Blended Learning on Clinical Inquiries for P3 Students

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Background

- At the University of Wisconsin-Madison School of Pharmacy, the clinical inquiry (CI) is a specific drug information paper which serves as the capstone for the evidence-based medicine sequence
 - P4 students on Advanced Pharmacy Practice Experiences (APPEs) write 3-4 CIs
 - P3 students write a single CI to prepare for APPEs
- To prepare for this, P3 students complete a lecture series describing the purpose and process of writing a CI.¹ Given the virtual environment in 2020, the lecture series transitioned to a blended format
 - 3 asynchronous lectures
 - 3 synchronous discussions with active learning

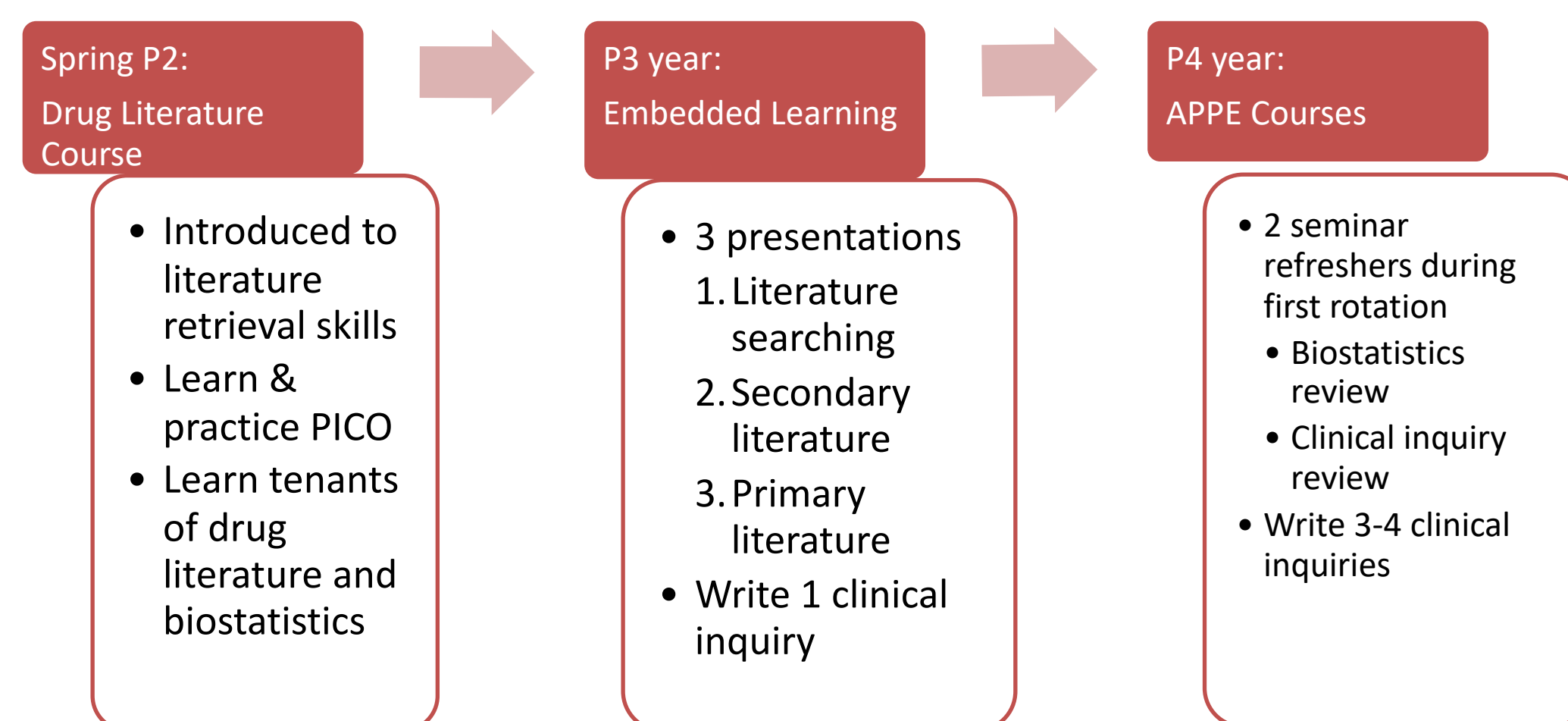
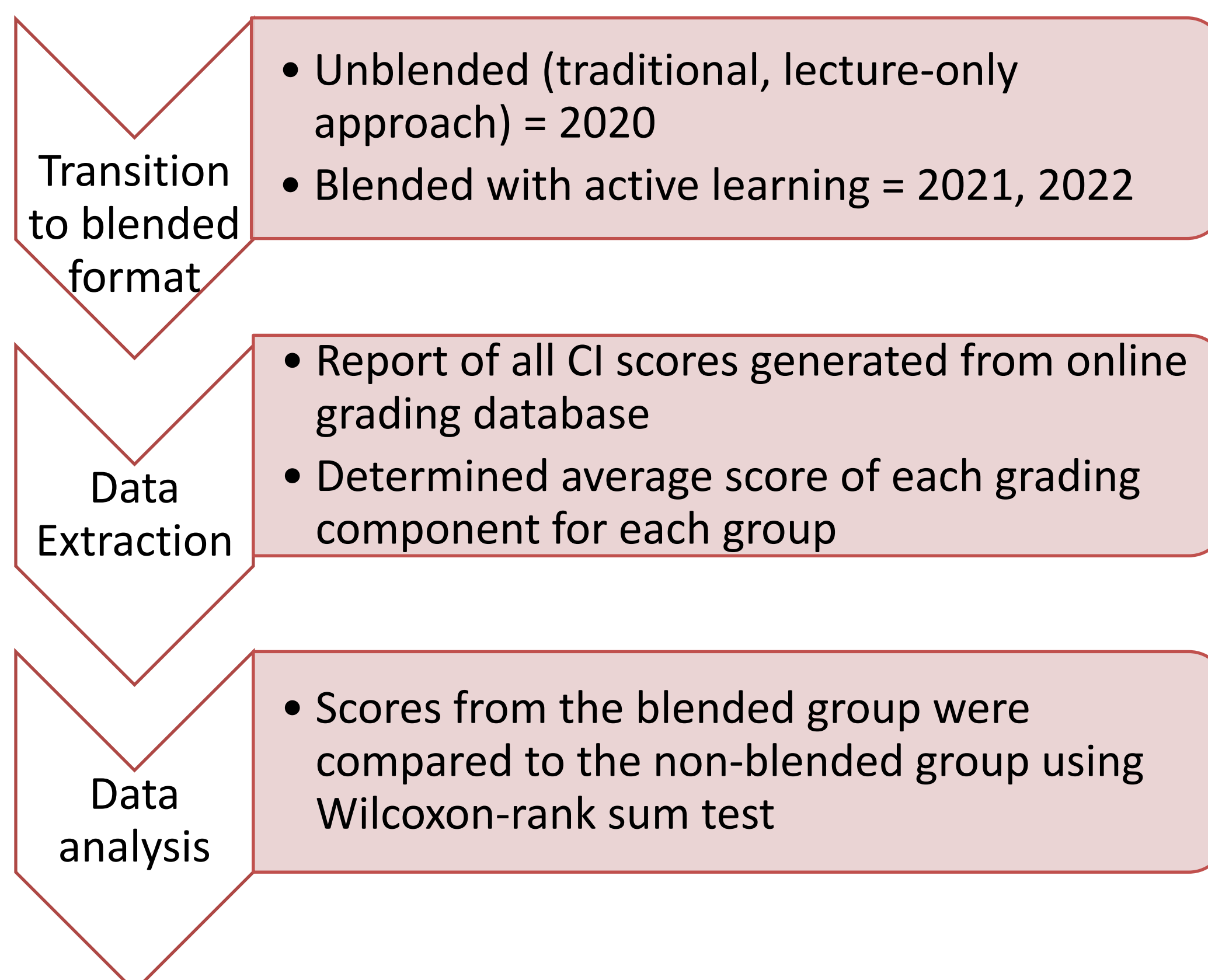


Figure 1. Evidence-Based Medicine Series¹

Objective

To determine change in P3 student CI performance after conversion to a blended format

Methods



Results

- Non-blended group (N = 139)
- Blended group (N = 259)

Rubric Item	Percent of Overall Grade	Mean pre-blending (out of 5)	Mean post-blending (out of 5)	Mean difference	P-value
Appropriate Literature Sources	25%	4.05	4.44	0.39	p < 0.001
Evidence Summary	25%	3.92	4.10	0.18	0.0108
Evidence-Based Answer	25%	4.63	4.76	0.13	0.3233
Question derived from PICO format	1.8%	4.96	4.95	-0.01	1.0
Citation or logical support for statements	1.8%	4.43	4.62	0.19	0.0022
Literature citation format	1.8%	3.39	3.27	-0.12	0.4603
Search strategy provided	1.8%	4.55	4.61	0.06	0.6244
Answer organized logically, expressed in a clear, concise manner without repetition	1.8%	4.63	4.84	0.21	0.0150
Appropriate medical terminology used	1.8%	4.43	4.45	0.02	0.7006
Grammar, spelling, and punctuation correct, including required formatting	1.8%	4.24	4.42	0.18	0.1281
Recommendations from others	1.8%	3.65	3.88	0.23	0.0221
Strength of recommendations provided	1.8%	4.27	4.59	0.32	0.0001
Clinical Inquiry Overall Score	100%	84.43/100	88.59/100	4.16	p < 0.001

Table 1. Data Results

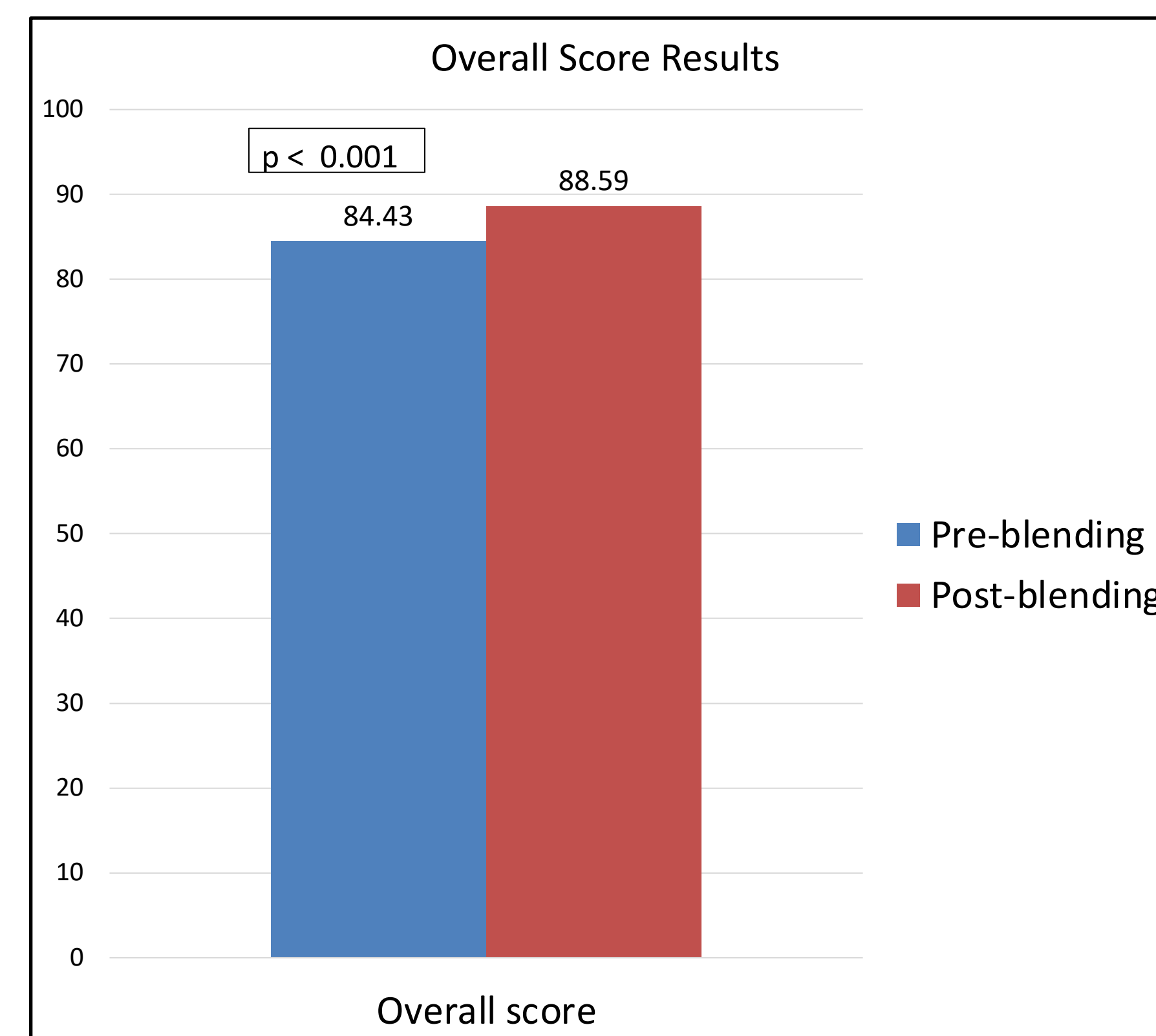


Figure 2. Overall Score Results

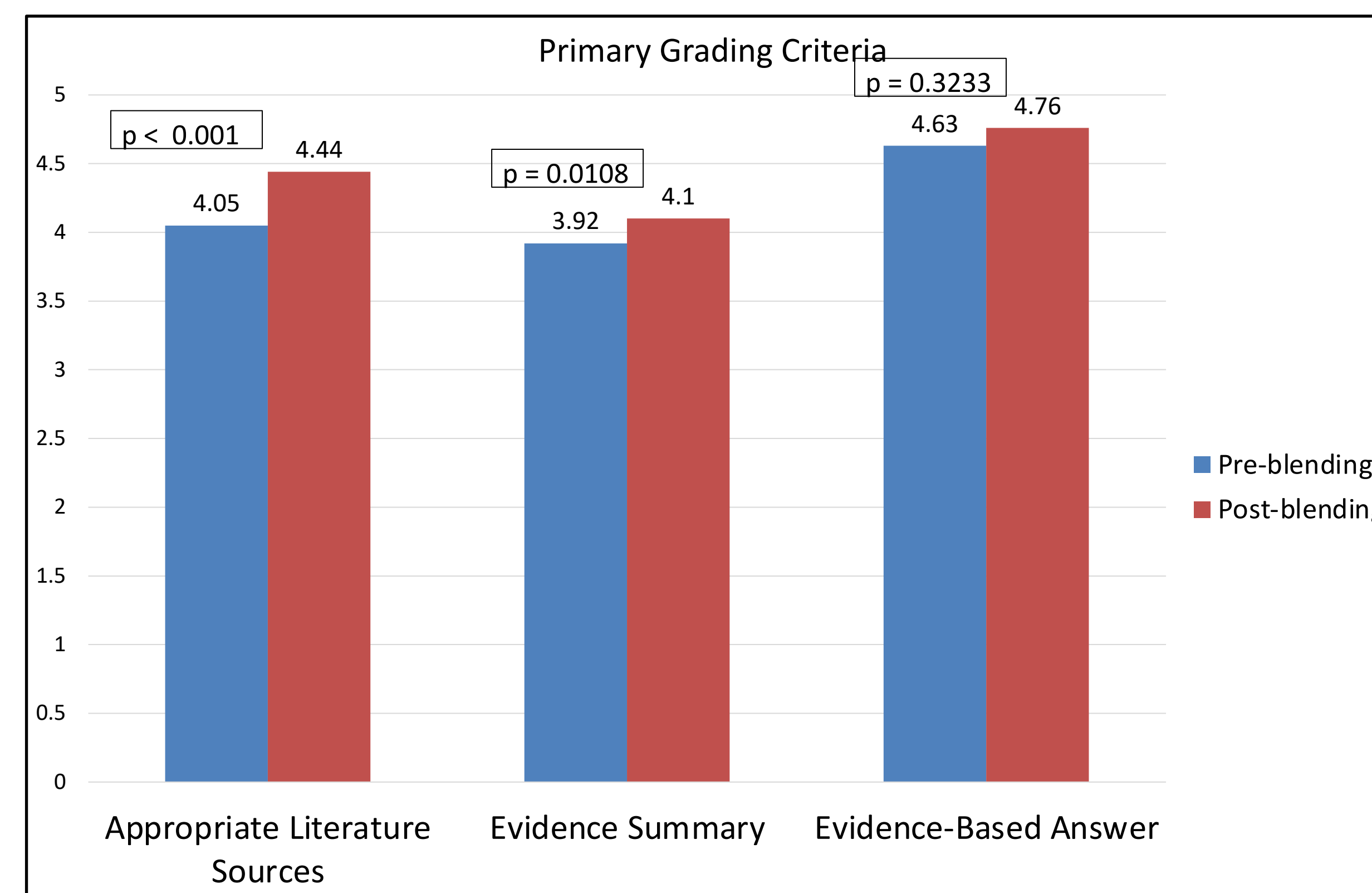


Figure 3. Primary Grading Criteria Results

Discussion

- The increase in scores following transition to blended learning is consistent with published literature²
- The lecture series focused on finding appropriate literature and practice writing evidence summaries and answers
 - Score improvement was primarily seen in areas the blended learning curriculum focused on
- Blended learning is most successful when asynchronous requirements are clear and synchronous active learning activities are intentional³
- Overall, third year students perform very well on the clinical inquiry assignment

Limitations:

- Limited pre-data due to changes in the assignment format; prior to 2020 questions were assigned by IPPE preceptors
- Students were not all assigned the same question; each question has its own nuances and difficulties which could have impacted scores
- There were 3 different faculty grading resulting in potential grading differences

Future Directions

- Evaluate the impact of blended learning in other courses (i.e., drug literature, pharmacotherapy)
- Expand the blended learning curriculum to other courses
- Evaluate APPE clinical inquiry data to determine how blended learning as P2/P3s impacts scores

Conclusion

- Students performed better in a blended format which allowed additional active learning in comparison to a traditional, lecture-only approach

References

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