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Is There a Relationship Between Profession and Assessment of Interprofessional Collaboration in IPE?

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Is there a relationship between profession and assessment of interprofessional collaboration in IPE?

Kelly Lockeman, PhD & Alan Dow, MD, MSHA
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Background

IPE that increases collaboration is essential for optimal healthcare, but universities face logistical barriers and assessment challenges.



To overcome these issues, we developed a virtual case system where teams of students collaborate around the management of a simulated patient¹.

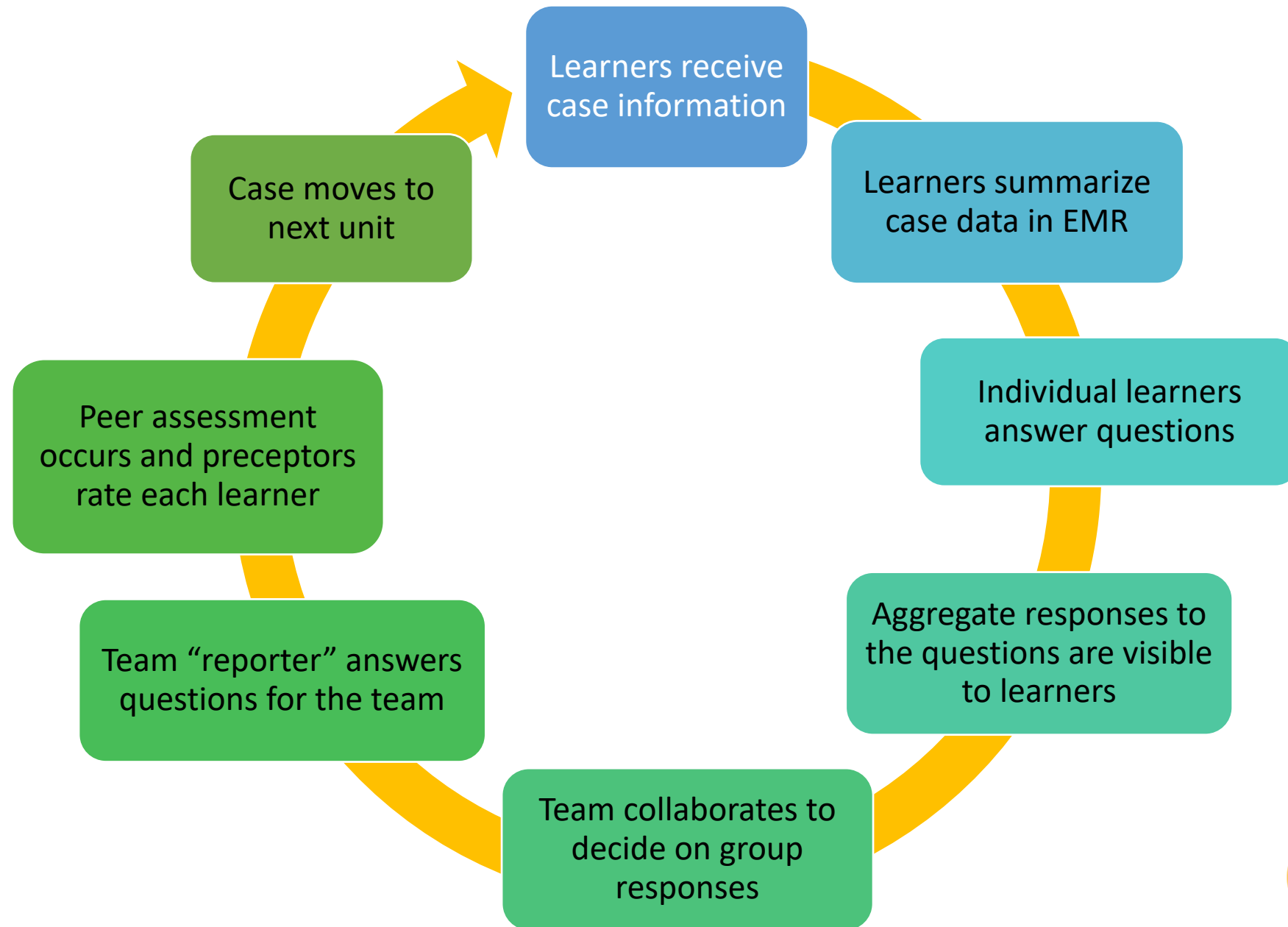


Each team has a faculty preceptor who monitors activity, answers questions, and assesses each learner's level of collaboration.

1. Dow AW, Boling PA, Lockeman KS, Mazmanian PE, Feldman M, DiazGranados D, Browning J, Coe A, Selby-Penczak R, Hobgood S, Abbey L, Parsons P, Delafuente J, Taylor SF. Training and assessing interprofessional virtual teams using a web-based case system. Acad Med. 2016 Jan; 91(1):120-6. PMID: 26375268

Virtual Case Learning Cycle

- Online team-based learning exercise (TBL)
- Case consists of 4 units (i.e., 4 health episodes) for the patient
- Each unit follows the same cycle



Case-Based Multiple-Answer Questions

For example: You live in a democracy and voted during a contentious process to elect a new leader. The new leader is leading in a manner that distresses you deeply. What should you do? Choose all that apply.

<i>Response Options:</i>	<i>Associated Points:</i>
a) Peaceful protest	+3
a) Emigrate	-3
a) Engage in political activism	+5
a) Withdraw from political arena	-5
a) Take a vacation	-3
a) Go drinking	-5

*Learners see response options, but **not** points. Points for responses selected are used to calculate their total score and “percent correct” for the question.*

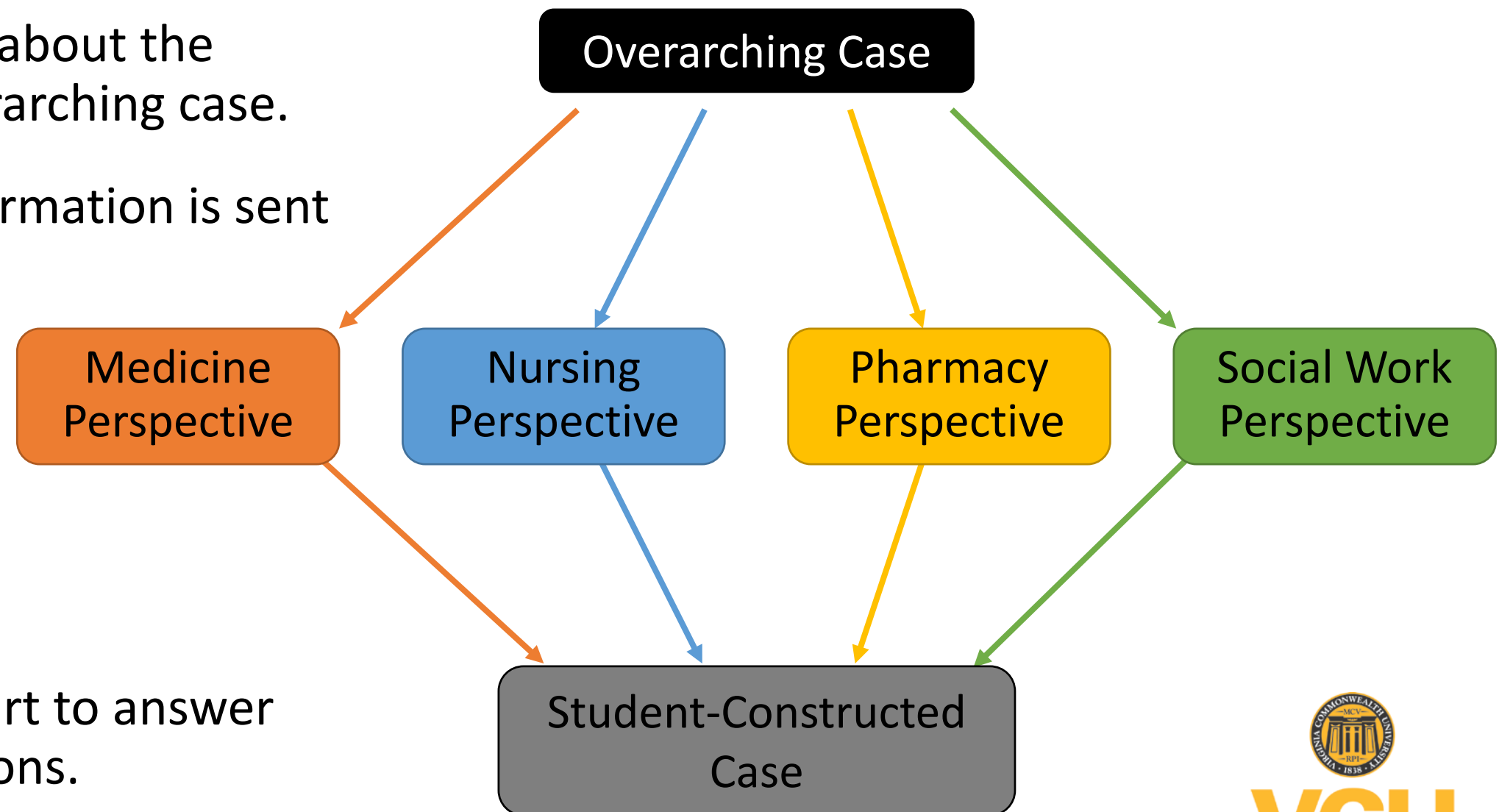


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Collaboration through the Simulated EMR

1. Aggregate knowledge about the patient forms the overarching case.
2. Discipline-specific information is sent to each learner.
3. Learners use the information they were sent to enter patient data into the electronic chart.
4. The team uses the chart to answer the case-based questions.



Collaboration through the Discussion Board



- Case system has a built-in message board to support threaded discussions within each team.
- Team members discuss the case-based questions asynchronously and come to consensus about team responses.



Assessing Individual Collaboration

- Scale: 0 to 3 each unit
- Total score: Sum of unit scores (Minimum = 0, Maximum = 12)
- Two 0's or total score less than 6 → Student ***FAILS*** the experience

Score	Interpretation
3	Excellent Participation
2	Satisfactory Participation
1	Needs Improvement
0	Unsatisfactory



Score Assessment Criteria

3

Student meets all of the criteria outlined for Score 2 (Satisfactory) AND demonstrates evidence of substantive contributions to the plan of care on a consistent basis; demonstrates excellent leadership and/or organization skills – motivates other team members and fosters teamwork; collaborates actively and provides regular support to members of the team. AND Peer Review: Student submits the peer review of members on his or her team.

2

Case data: Enters case data in a complete and timely manner OR makes plans with team member from same discipline to assure that case data is entered; AND Case Discussion Forum: Participates actively in the team discussion forum (within the case platform). Participation is evidenced by regular communication and collaboration with team members in the discussion forum, entry of patient-centered, evidenced-based recommendations to the plan of care as appropriate to discipline, mutual support of team members, and/or situation monitoring as appropriate.

1

Case data: Enters case data late or incompletely OR fails to make plans with team member from same discipline to assure that case data is entered in a timely and complete fashion; AND Case Discussion Forum: Demonstrates evidence of minimal participation in the case; does not regularly engage in communication and/or collaboration with team members; does not offer substantive or evidence-based suggestions regarding the plan of care

0

Case data: Does not enter discipline-specific case data OR collaborate with members of own discipline to ensure that case data is entered; OR Case Discussion: Does not demonstrate evidence of participation in virtual case team discussion forum to plan care for the patient.

Score Sample Message Post (Examples for Assessment Criteria)

- 3** *“Ryan, your post made me remember that I had heard patients undergoing hip surgery have an increased risk of stroke, and just looked it up to confirm: This study shows, that THR (total hip replacement) patients have a 4.7-fold increased risk of ischemic stroke, and a 4.4-fold increased risk of hemorrhagic stroke during the first 2 weeks postsurgery. Risk assessment of stroke in individual patients undergoing THR (ie, evaluate other risk factors for stroke) should be considered during the first 6 to 12 weeks. <http://stroke.ahajournals.org/content/early/2012/11/06/STROKEAHA.112.668509> However, the question asks about what is most useful immediately, and I still feel the answers we chose as a group would give us the quickest information (although head CTs are pretty fast these days!), and labs like cardiac enzymes could be sent after that initial assessment + physical exam”*
- 2** *“Sarah I see exactly where you are coming from with the risk factors plus the fact that she has had surgery, but the question said ‘most likely.’ I feel that if it were a stroke someone would have noticed unilateral defects or a gaze fixed to the side of the injury or even some of the more uncommon signs such as nausea or vomiting. I believe the three we have above are the most likely.”*
- 1** *“I agree with the above answers, I also chose the initiate placement answer, but looking back at the wording of the question I agree that placement was looking too far into the future.”*
- 0** *“I agree with all of these answers. Good job.”*

Study Aims

This study explores faculty grading patterns to determine:



(1) Is there variation between faculty who are assessing students?



(2) Is there a relationship between variation and professional differences?

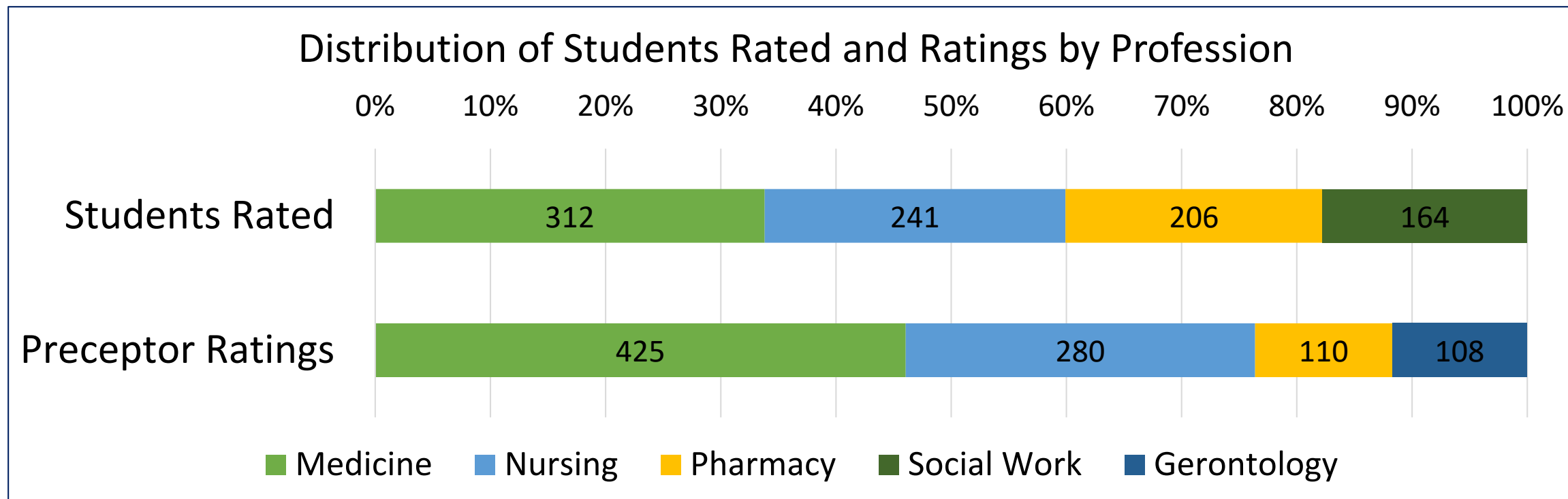


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Sample

- 6 iterations of the learning experience (over a 3-year period)
- Ratings by 9 preceptors who were consistent across all 3 years
- Scores for 923 students



Analysis Methods



- Testing for overall variation: One-way analysis of variance (ANOVA)
- Testing for variance by profession:
 1. Scores were categorized by match—*Did the profession of the preceptor/rater match the profession of the student?*
 2. Independent samples *t*-test based on match/non-match



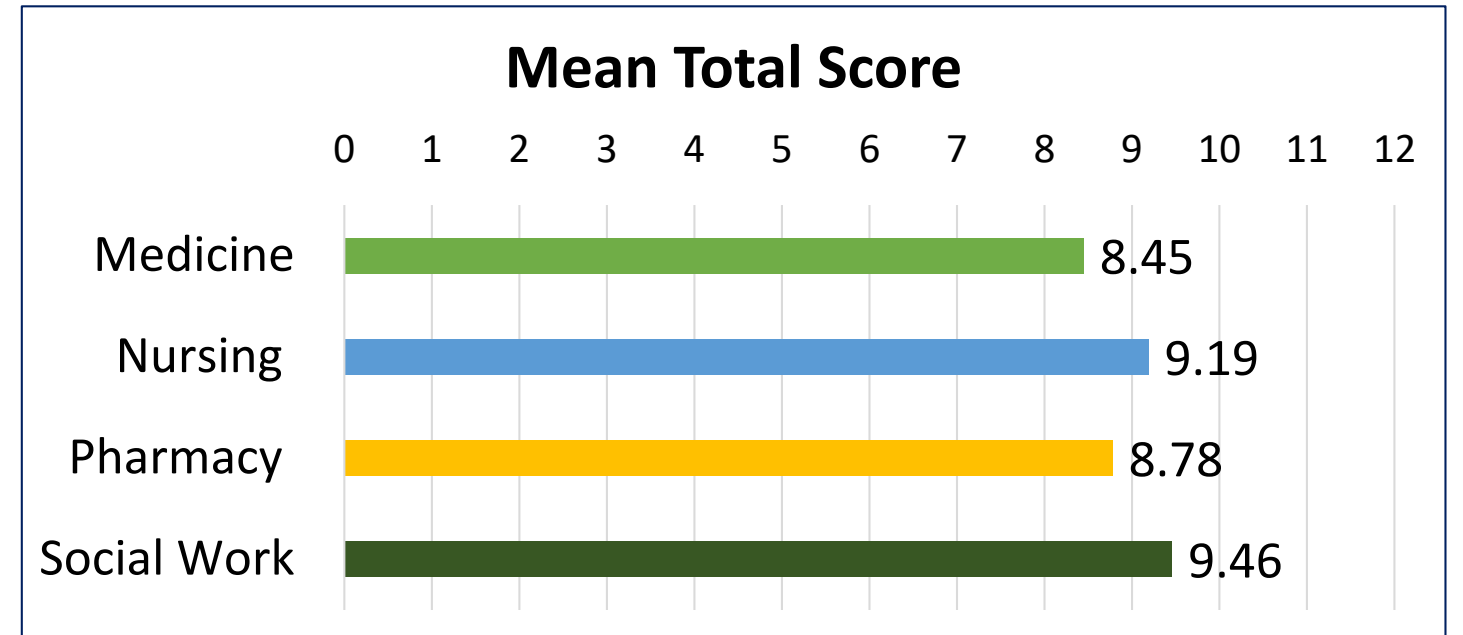
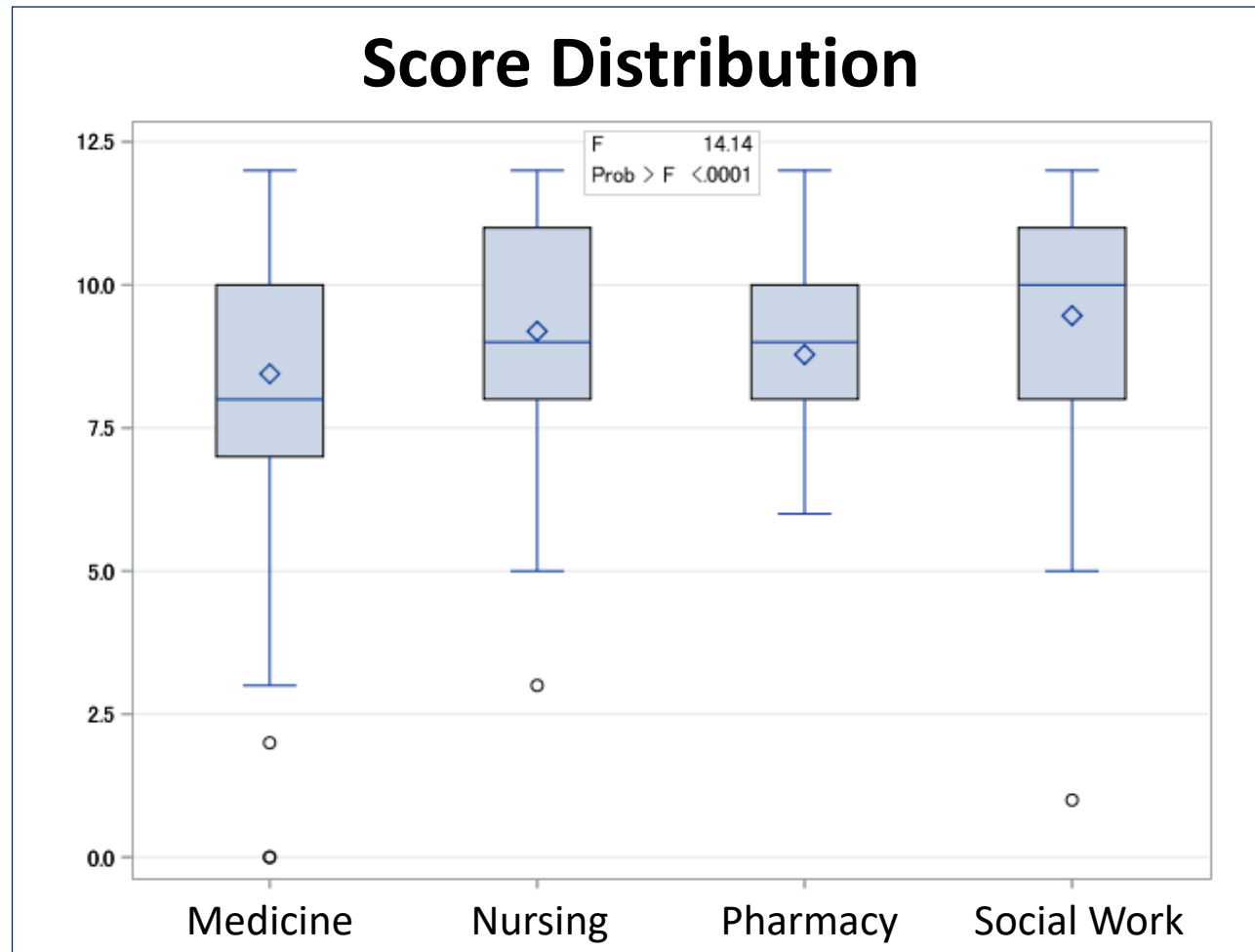
Results



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Variance by Student Profession



Significant variation in scores received
 $[F(3,919) = 14.14, p < .001]$

Post hoc comparisons reveal that nursing students and social work students both received higher scores than medical students and pharmacy students.

Overall Variance by Rater (Preceptor)

Rater ID	Rater Profession	Number of Students Assessed	Mean Total Score Assigned by Rater	Standard Deviation
1	Medicine	96	8.19	1.52
2	Gerontology	108	8.59	1.83
3	Pharmacy	110	8.61	1.71
4	Nursing	85	8.66	1.77
5	Nursing	96	8.70	2.06
6	Nursing	99	9.00	1.67
7	Medicine	114	9.16	1.99
8	Medicine	101	9.41	1.90
9	Medicine	114	9.60	1.77

Significant variation in scores assigned [$F(8,914) = 6.35, p < .001$]

Variance by Rater (Preceptor) Profession

Rater Profession	N	Mean Total Score Assigned by Rater(s)	Standard Deviation
Gerontology	1	8.59	1.83
Medicine	4	9.12	1.88
Nursing	3	8.79	1.84
Pharmacy	1	8.61	1.71

Significant variation in scores assigned

[$F(3,919) = 4.16, p = .006$]

Post hoc comparisons reveal that physicians assigned slightly higher scores than the gerontologist.



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Overall Variance by Professional Match

	Mean Total Score Assigned by Rater	Standard Deviation
Matched Professions (n = 243)	8.96	1.84
Different Professions (n = 680)	8.67	1.86

Overall, scores for professionally **matched pairs were higher** than scores of unmatched pairs, but the effect size was small

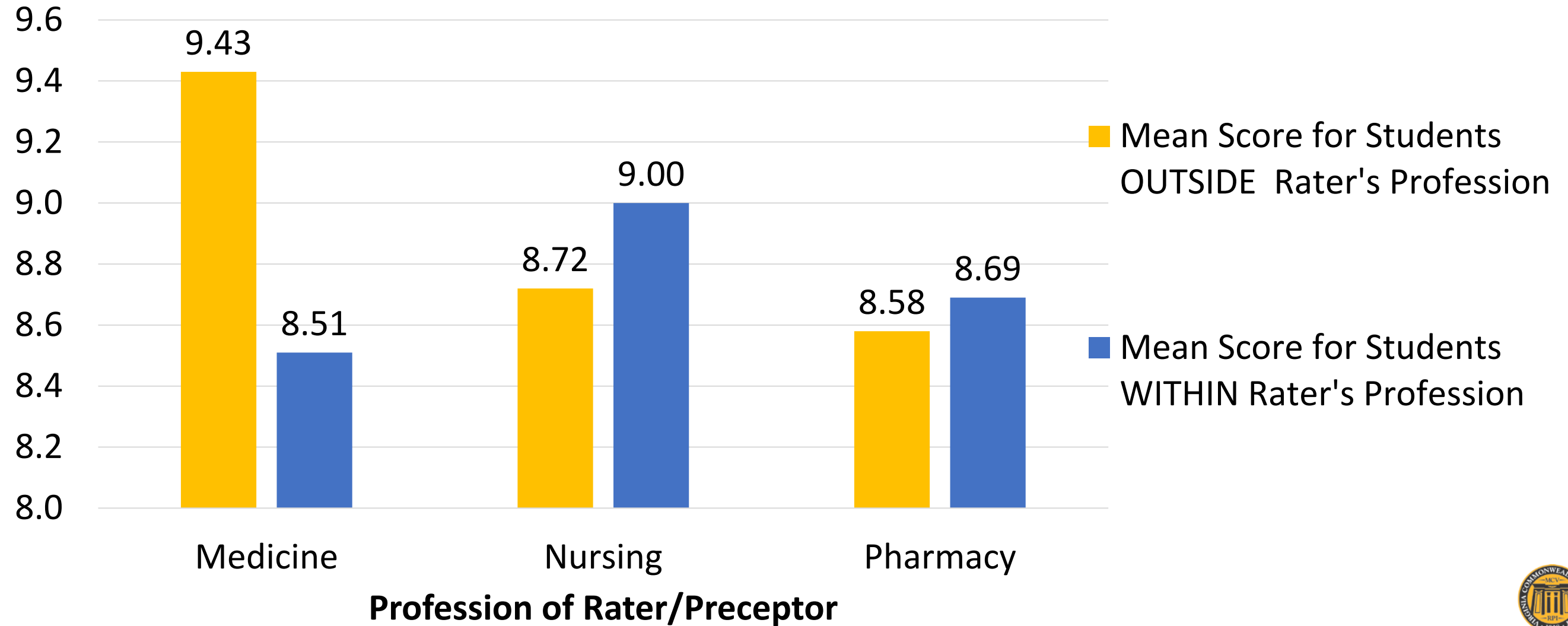
[$p = .030$, Cohen's $d = 0.143$].



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Variance Patterns by Professional Match



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Summary and Discussion

Student ratings varied by profession

- Nursing and social work consistently rated as better collaborators than medicine and pharmacy

Rater scores varied significantly

- Between individual raters
- Between rater professions
- Despite attempts to standardize ratings via a detailed objective rubric

Ratings varied based on professional match

- Physicians biased against medical students?
- Nurses and pharmacists biased toward their own students?

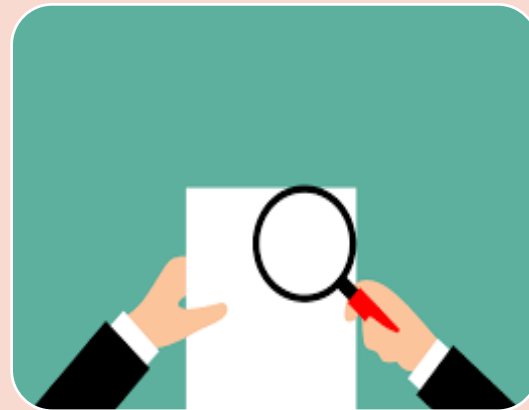
But... >45% of ratings were from physicians.
Did that play a role in these findings?



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Implications for Research and Practice



Reliable assessment of collaboration in online IPE is challenging.

Professional biases of raters may hinder assessment.

These findings should be explored further in other IPE settings.

Findings should shape faculty development and future assessment approaches



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