

# Impact of In Person vs Virtual Class Instruction on Interprofessional Education

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## Background

- Interprofessional education is the practice of students from different health professions learning about, from, and with each other in order to develop a greater understanding of and appreciation for other disciplines, and to foster collaborative practice between interdisciplinary teams.
- The WHO recognizes that medical teams with members of diverse professional backgrounds provide the highest quality of patient care.<sup>1</sup>
- Interdisciplinary teams are used to provide comprehensive patient care and improve the Quadruple Aim.<sup>2</sup>



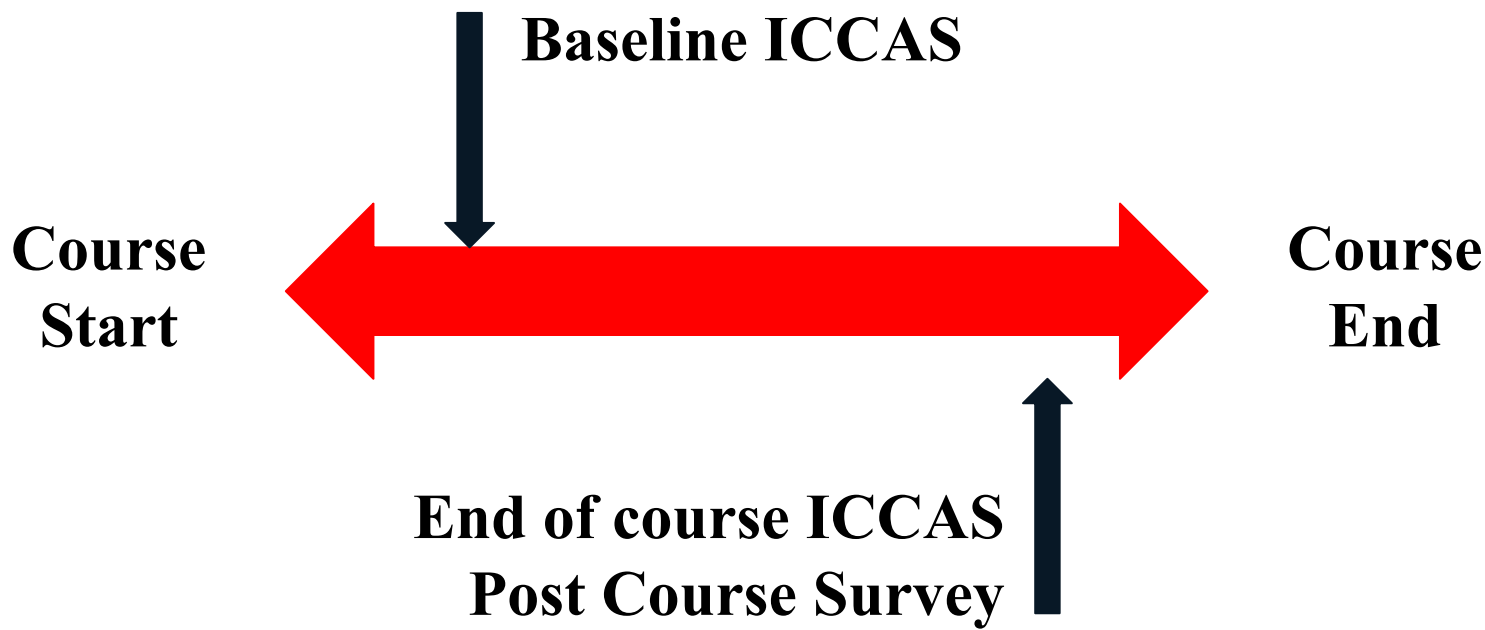
- Team Based Clinical Decision Making (TBCDM) is a 13-week IPE course focused on clinical decision making. It is required for all third year pharmacy and dental students, advanced practice nursing students, and masters of social work students training for clinical care.
- Beginning in 2019, first year medical students were required to participate for 3-weeks of the course, with participation increasing to 5 weeks in 2021.
- From 2015 through 2019, the course was fully in person. In response to the COVID-19 pandemic, in 2021 the course was converted to being fully synchronous remote. *(The 2020 offering was a mix of in-person and virtual.)*
- Studies have demonstrated that online learning encourages student-centered learning and may be problematic for interprofessional teamwork.<sup>3</sup> It is unknown how the format of the course impacted student outcomes.

## Objective

The purpose of this study was to evaluate the impact of moving TBCDM from an in person to remote offering by assessing the standard IPE and course assessments for students enrolled 2019 and 2021.

## Methods

- This was a retrospective cohort study that included all students enrolled in TBCDM during the 2019 (in person) and 2021 (remote) offerings.
- De-identified data for the Interprofessional Collaborative Competencies Attainment Survey (ICCAS) and a faculty developed post course survey were evaluated.
- ICCAS uses a retro-pre/post Likert-scale approach, asking students to rate their ability on 20 items before participating in the course and after participating in the course.
- The faculty developed post-course survey asked students to indicate their perceived learning about teamwork, communication, and representing their profession on the team.



## Results

Table 1. Change in level of agreement (baseline vs post) for ICCAS items in 2019 and 2021\*

| ICCAS Item  | 2019                 |                   | 2021                 |                   |
|---|----------------------|-------------------|----------------------|-------------------|
|   | Non-medical Students | Medical Students  | Non-medical Students | Medical Students  |
| <b>Domain 1: Communication</b>  |                      |                   |                      |                   |
| Promote effective communication among team members of an IP team              | 41%<br>(37%, 77%)    | 13%<br>(36%, 49%) | 33%<br>(39%, 73%)    | 16%<br>(35%, 51%) |
| Actively listen to IP team members' ideas and concerns                        | 24%<br>(66%, 89%)    | 12%<br>(58%, 70%) | 28%<br>(55%, 83%)    | 23%<br>(53%, 76%) |
| Express my ideas and concerns without being judgmental                        | 27%<br>(55%, 81%)    | 10%<br>(54%, 64%) | 29%<br>(49%, 78%)    | 13%<br>(56%, 69%) |
| Provide constructive feedback to IP team members                              | 26%<br>(38%, 64%)    | 11%<br>(36%, 47%) | 31%<br>(35%, 67%)    | 19%<br>(35%, 54%) |
| Express my ideas and concerns in a clear, concise manner                      | 32%<br>(49%, 81%)    | 6%<br>(50%, 56%)  | 30%<br>(44%, 74%)    | 13%<br>(44%, 57%) |
| <b>Domain 2: Collaboration</b>  |                      |                   |                      |                   |
| Seek out IP team members to address issues                                    | 39%<br>(27%, 66%)    | 15%<br>(20%, 35%) | 35%<br>(26%, 60%)    | 27%<br>(22%, 49%) |
| Work effectively with IP team members to enhance care                         | 37%<br>(38%, 75%)    | 13%<br>(30%, 43%) | 34%<br>(41%, 75%)    | 32%<br>(22%, 54%) |
| Learn with, from, and about IP team members to enhance care                   | 48%<br>(35%, 83%)    | 23%<br>(25%, 48%) | 39%<br>(39%, 78%)    | 36%<br>(28%, 64%) |
| <b>Domain 3: Roles and Responsibilities</b>                                   |                      |                   |                      |                   |
| Identify and describe my abilities and contributions to the IP team           | 46%<br>(36%, 83%)    | 11%<br>(31%, 42%) | 36%<br>(39%, 75%)    | 27%<br>(28%, 55%) |
| Be accountable for my contributions to the IP team                            | 29%<br>(53%, 82%)    | 12%<br>(36%, 48%) | 26%<br>(56%, 81%)    | 23%<br>(40%, 63%) |
| Understand the abilities and contributions of IP team members                 | 51%<br>(30%, 80%)    | 20%<br>(24%, 44%) | 48%<br>(29%, 78%)    | 42%<br>(24%, 66%) |
| Recognize how others' skills and knowledge complement and overlap with my own | 51%<br>(31%, 82%)    | 22%<br>(25%, 47%) | 46%<br>(33%, 79%)    | 35%<br>(30%, 65%) |
| <b>Domain 4: Collaborative Patient/Family Centered Approach</b>               |                      |                   |                      |                   |
| Use an IP team approach to assess the health situation of the patient         | 46%<br>(34%, 79%)    | 15%<br>(26%, 41%) | 44%<br>(33%, 77%)    | 42%<br>(22%, 64%) |
| Use an IP team approach to provide whole person care to the patient           | 43%<br>(38%, 81%)    | 17%<br>(29%, 46%) | 41%<br>(36%, 78%)    | 44%<br>(21%, 65%) |
| Include the patient/family in decision making                                 | 31%<br>(49%, 80%)    | 7%<br>(41%, 48%)  | 31%<br>(49%, 80%)    | 20%<br>(46%, 66%) |
| <b>Domain 5: Conflict Management/Resolution</b>                               |                      |                   |                      |                   |
| Actively listen to the perspectives of IP team members                        | 28%<br>(57%, 84%)    | 11%<br>(53%, 64%) | 25%<br>(60%, 85%)    | 19%<br>(50%, 69%) |
| Take into account the ideas of IP team members                                | 34%<br>(51%, 85%)    | 14%<br>(47%, 61%) | 28%<br>(56%, 84%)    | 18%<br>(51%, 69%) |
| Address team conflict in a respectful manner                                  | 27%<br>(49%, 75%)    | 4%<br>(50%, 54%)  | 24%<br>(51%, 75%)    | 9%<br>(51%, 60%)  |
| <b>Domain 6: Team Functioning</b>   |                      |                   |                      |                   |
| Develop an effective care plan with IP team members                           | 41%<br>(38%, 79%)    | 15%<br>(33%, 48%) | 38%<br>(40%, 78%)    | 32%<br>(28%, 60%) |
| Negotiate responsibilities within overlapping scopes of practice              | 36%<br>(38%, 74%)    | 14%<br>(24%, 38%) | 35%<br>(39%, 74%)    | 23%<br>(28%, 51%) |

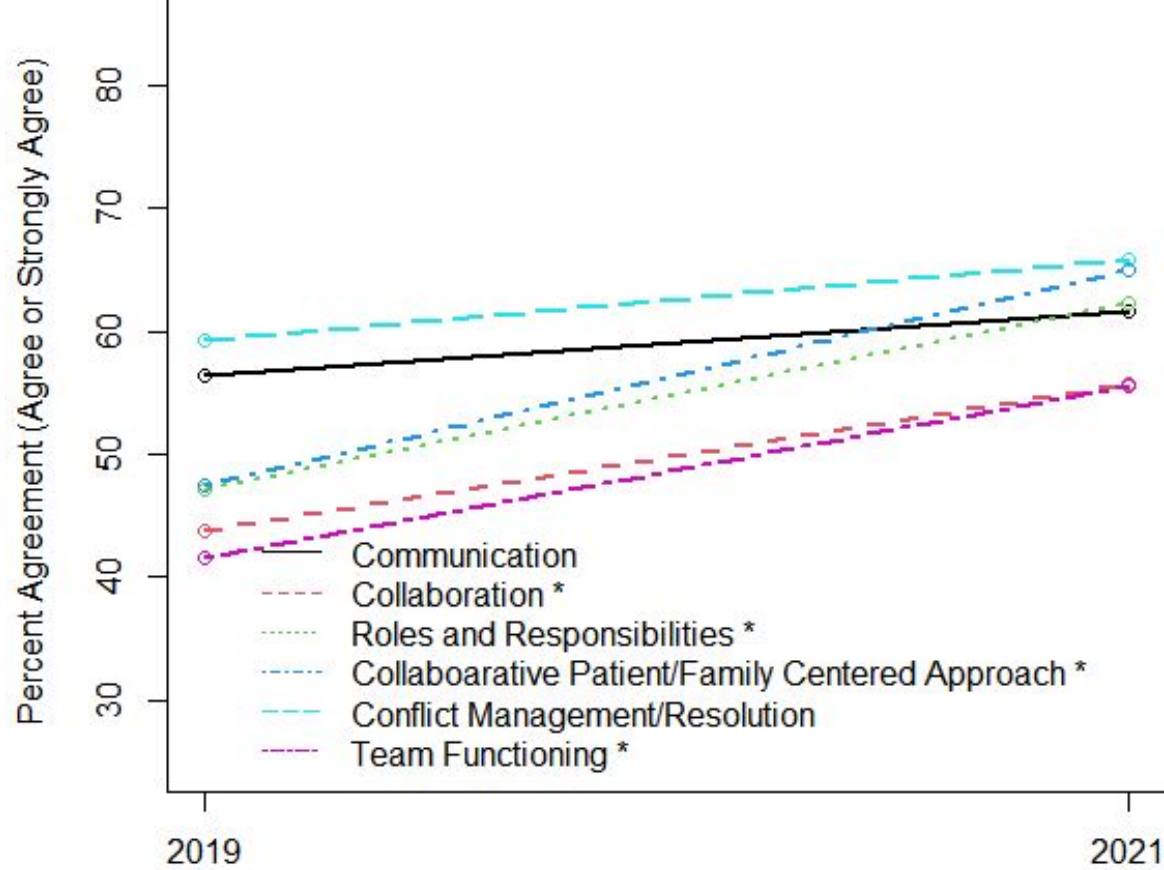
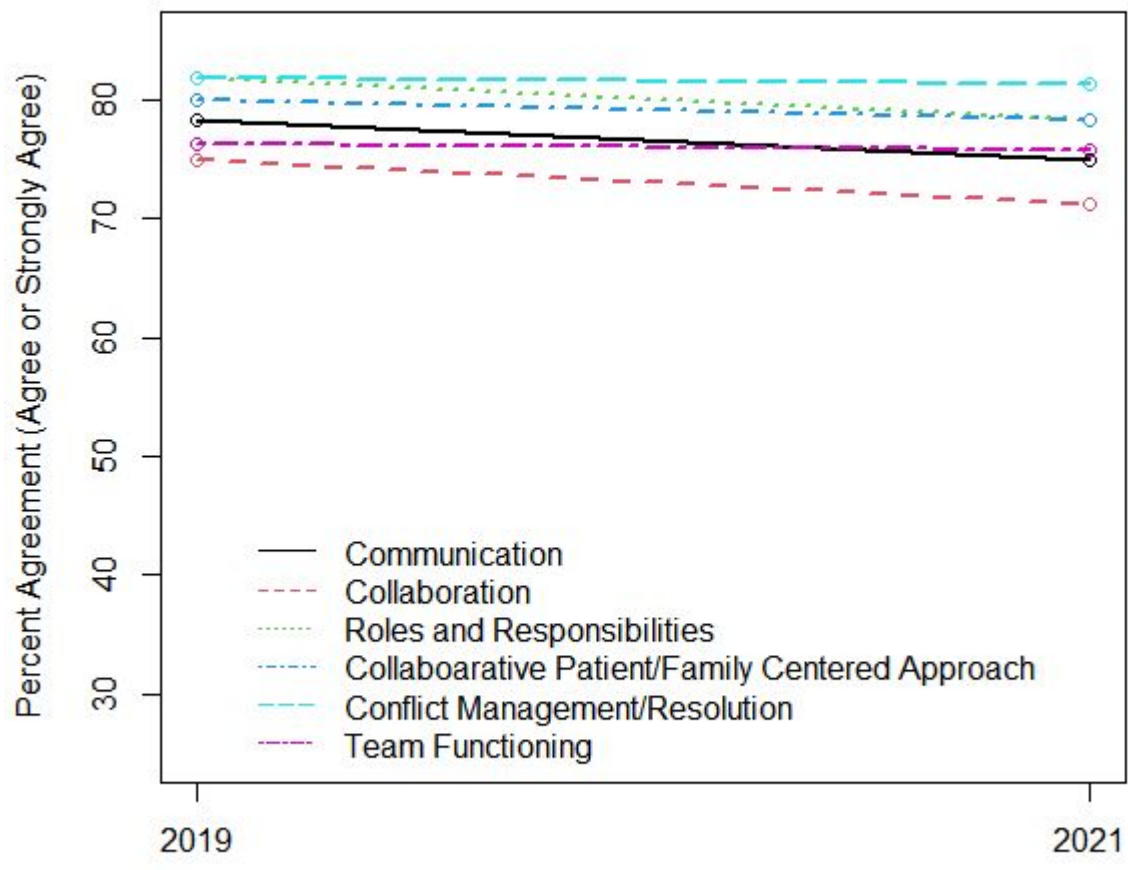
\*Percentage reflects those responding very good/excellent on 5-point Likert scale

- There was a significant improvement in all 20 ICCAS items in 2019 and 2021 for non-medical students. Improvements were seen overall and by discipline (data not shown).
- Similar results were seen with medical students, where there was significant improvement in all items in both years with the exception of addressing team conflict in 2019.
- Analysis by ICCAS items suggests remote teaching did not negatively impact student learning.

Plots evaluating the six ICCAS domains in 2019 vs 2021^

Non-medical Students

Medical Students

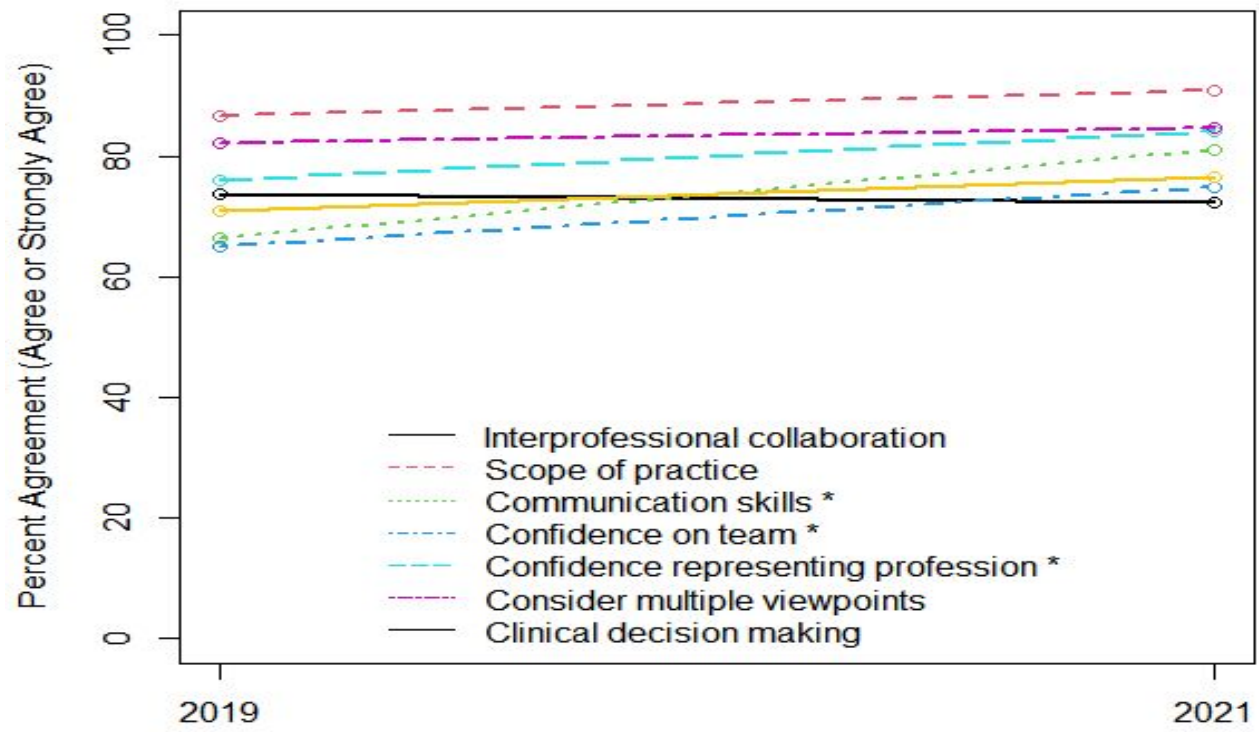


^Percents reflect the post-course level of agreement (SA/A)  
\*p<0.05.

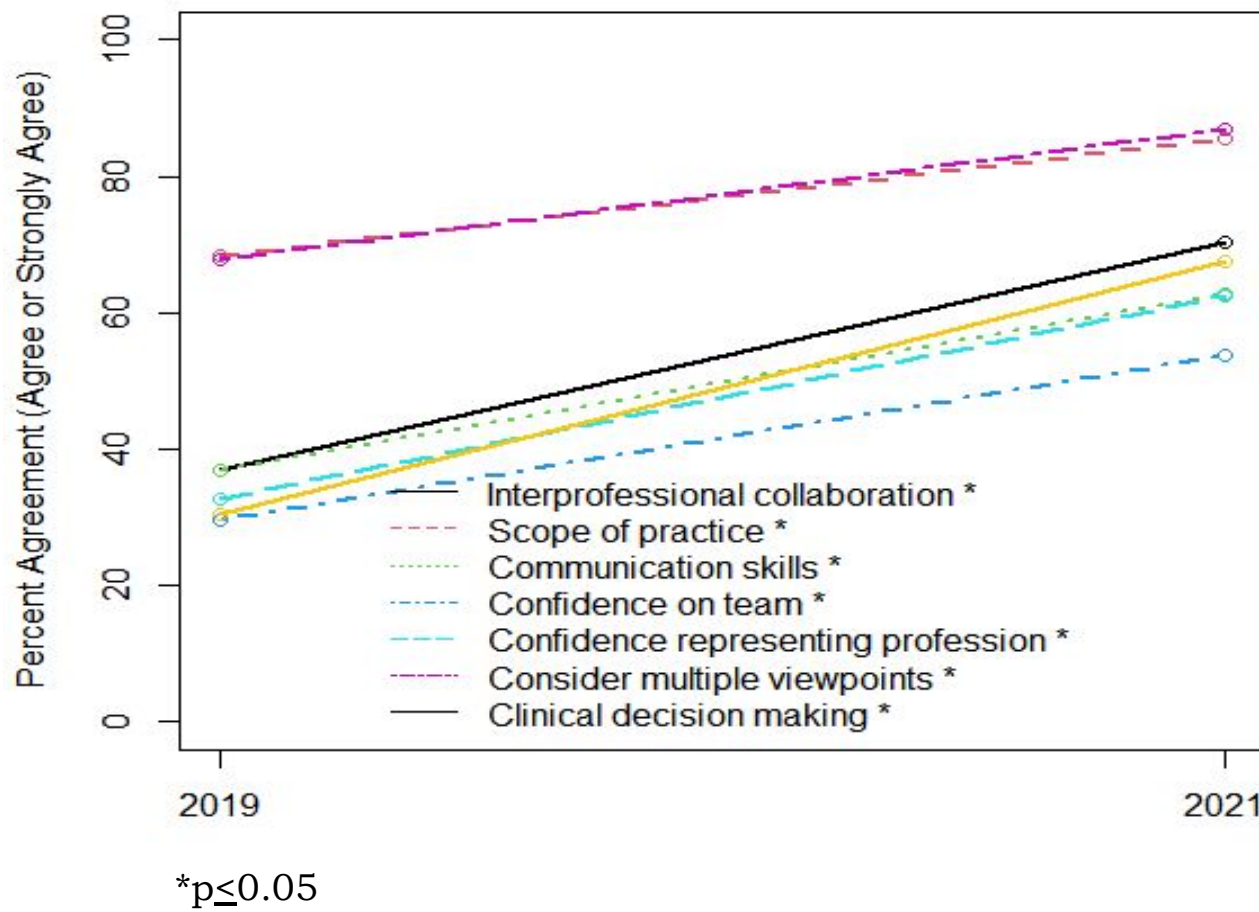
- When evaluating ICCAS by domain for non-medical students, post-course percent agreement was similar across all six domains in 2019 and 2021
- In contrast, post-course scores significantly increased in four domains for medical students in 2021 vs 2019. This is likely a result of their longer participation in the course in 2021 (5 weeks) vs 2019 (3 weeks).
- Analysis by ICCAS domains also suggests that the remote format did not negatively impact learning, with the medical student data suggesting that additional time in the course had a positive impact.

Plots evaluating 7 teamwork and collaboration questions 2019 vs 2021

Non-medical Students



Medical Students



- Self-perceived ability to collaborate interprofessionally remained steady in both years for non-medical students, and significantly increased for medical students in 2021 vs 2019
- Three teamwork scores (communication skills, confidence on team, and confidence representing profession) significantly increased for non-medical students, with all 6 items increasing for medical students in 2021 vs 2019

## Lessons Learned

- Results based on ICCAS data support there were significant gains in learning whether the course was in person or remote.
- The move to remote learning did not appear to negatively impact student learning based on ICCAS.
- Results for ICCAS and the collaboration/teamwork scores for medical students are generally higher in 2021 vs 2019, likely an effect due to the increased time they spent in the course in 2021 vs 2019 (5 vs 3 weeks), with those being 5 consecutive weeks allowing for consistency and improved team building.

## Future Application and Next Steps

- Data learned from this study can help inform the pedagogical approach for future IPE offerings, with the goal of identifying ways in which virtual learning can be optimized.
- While virtual learning offers many advantages, most notably increased ease in bringing people together, the lack of in person contact with team members may affect teams.
- Finding ways to mirror the benefits of in person engagement while utilizing a virtual platform will be necessary in order to address logistical barriers that exist in bringing learners physically together.

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- The authors have no conflicts of interest to disclose.

## Sources

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