



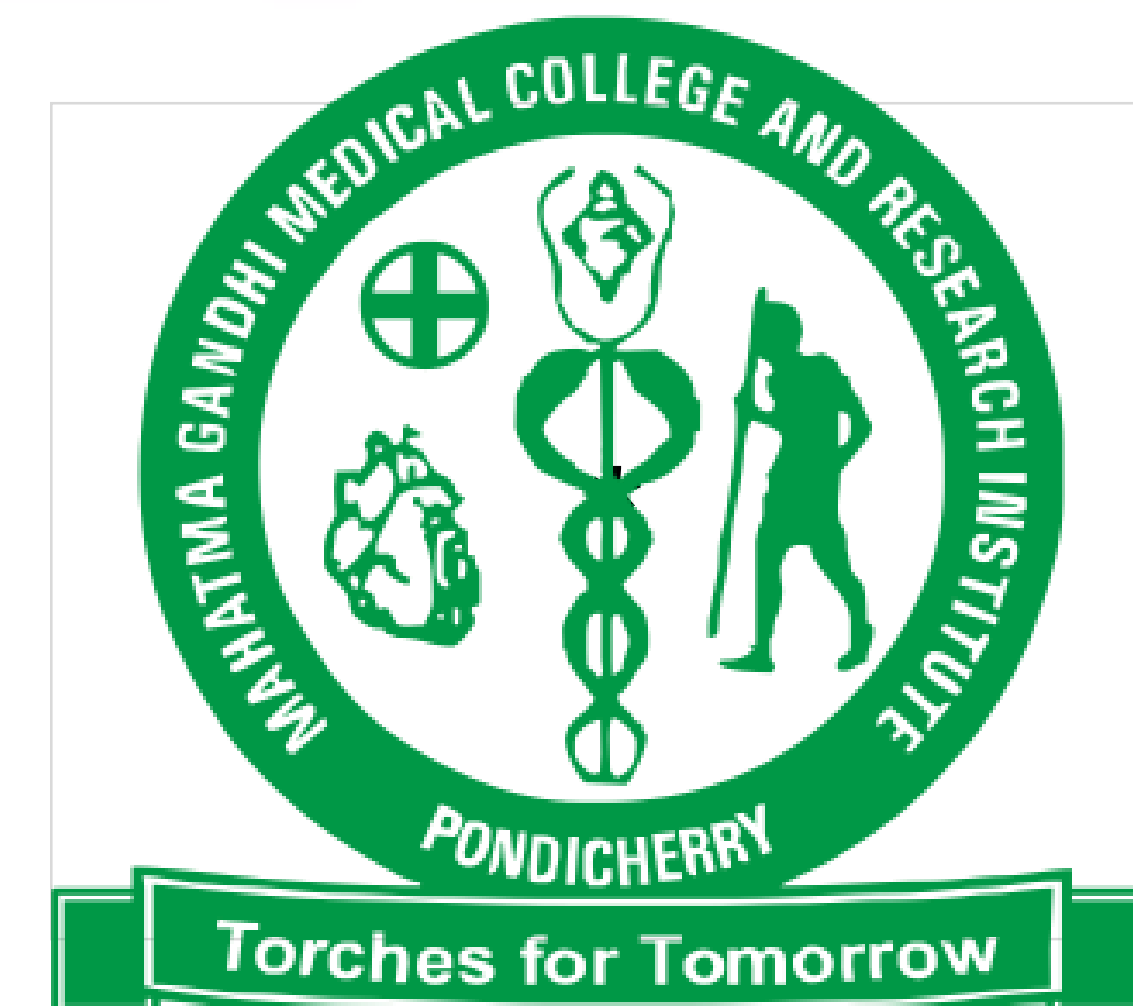
# Transforming the Healthcare Simulation Spectrum: Now, Next and Beyond

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## Strength and pitfalls of remote clinical skills teaching-interventional case control study.

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### Background

Worldwide Covid restrictions had shifted teaching of clinical physical examination for graduate medical students to remote/online mode<sup>1</sup>. Different strategies were adopted for online skills teaching<sup>2-5</sup>. We intend to explore the pros and cons of synchronous and asynchronous online skills teaching methods.

#### Objectives:

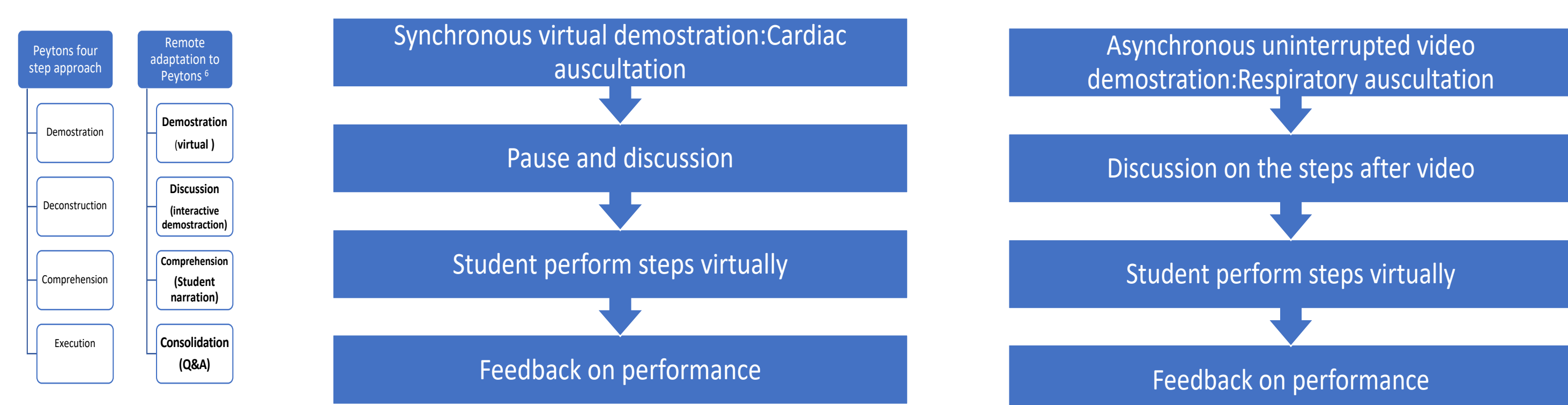
To compare the outcome skills teaching by synchronous virtual demonstration versus asynchronous video demonstration and also with that of face to face teaching.

#### Methodology:

Institutional ethical clearance ref No: AUHEC/FOM/2021/5.

**Subjects:** Graduate medical students of two consecutive academic batches at the initial clinical skills training phase (n=297). Students taught by virtual mode were the subjects and historic cohort of previous year taught face to face were control.

**Interventions:** Synchronous virtual demonstration of cardiac clinical examination skills by facilitator in situ to learner at distant location by **Remote adaptation of Peyton's 4-stage approach**<sup>6</sup>. Asynchronous prerecorded video demonstration of respiratory systems examination by facilitator through digital platform.

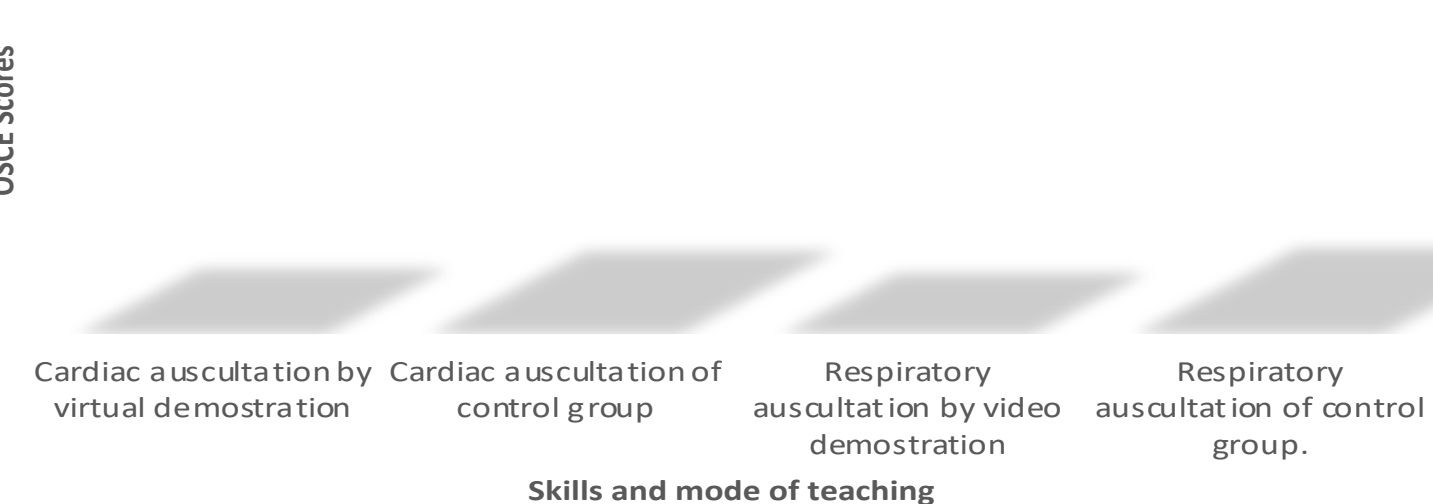


#### Data collected:

- i) **Objective quantitative data:** Objective Structured Practical Examination OSPE score for maximum 5 marks per station
- ii) **Subjective quantitative :** Student feedback by questionnaire on online teaching<sup>7</sup>.
- iii) **Subjective qualitative data:** Focus Group Discussion with facilitators

#### Results:

OSCE Score



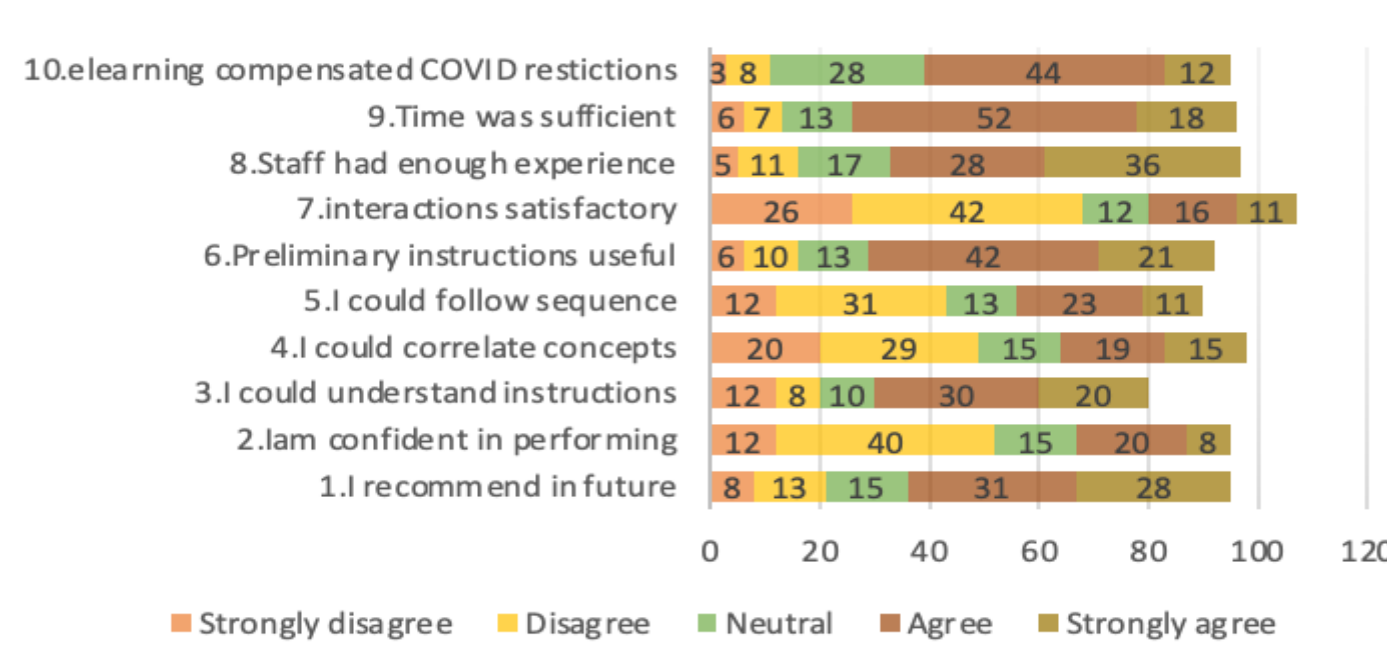
#### i) OSCE score analysis:

- cardiac auscultation taught by virtual demo versus face to face teaching [**p<0.0001**]
- Respiratory auscultation taught by video demo versus face to face teaching [**p<0.0001**]
- Comparison of virtual demo versus video demo scores [**p = 0.1411**]

#### ii) Student feedback

- 52% disagree to item 2, confidence level
  - 49% disagree to item 4, correlating concepts
  - 43% disagree to item 5, ability to follow
  - 66% disagree to item 7, interaction
- iii) Focus group discussion themes**
- lack of hands-on training,
  - paucity of active learner participation
  - technical issues faced
  - videos were preferred as they save time
  - virtual demo enabled interaction.

STUDENT FEEDBACK



### Discussion

- Skill gain of both cardiac and respiratory auscultation taught by virtual mode was satisfactory with score above 50% (2.93 & 2.76) and were almost equal (p=0.141).
- Performance was significantly lower in virtual teaching compared to face to face teaching (3.7 vs 2.93 and 3.90 vs 2.76) (p<0.000).
- Student feedback and focus group discussion themes reflect the reasons for lower performance and challenges faced.
- Faculty expressed lack of opportunity to provide hands-on training, active learner participation and technical issues.
- Majority of students expressed lack of confidence, dissatisfaction with interactions and inability to correlate sequence of tasks.
- Strategies to overcome the challenges and improve outcome are proposed.
  - Develop institutional policy, build supportive strong technical team.
  - Design session with small learner group, ideal faculty learner ratio 1:6.
  - Faculty to embrace approaches that encourage learner participation.
  - Design hybrid model of teaching with feasibility for hands-on practice.

#### Pros and cons of the two online teaching tools.

	Asynchronous video demonstration	Synchronous remote teaching-Virtual demonstration
Pros	<ul style="list-style-type: none"> <li>• Available recourse.</li> <li>• Save faculty time.</li> </ul>	<ul style="list-style-type: none"> <li>• Can be tailored to learner knowledge level on the run.</li> <li>• Learner interaction possible.</li> </ul>
Cons	<ul style="list-style-type: none"> <li>• Less opportunity for interaction.</li> </ul>	<ul style="list-style-type: none"> <li>• Technically challenging.</li> </ul>

#### Conclusion:

- Clinical skills can be effectively taught online yet face to face teaching enables attainment of proficiency.
- Active learner participation, provision for hands on practice and error correction would yield better outcome.
- Recorded videos save time, while virtual demo enables interaction.

#### Limitations:

- Short term retention of skills were only studied.
- Analysis of long-term retention of skills to be done.

#### Acknowledgements:

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#### References:

1. Al-Balas M, Al-Balas HI, Jaber HM, Obeidat K, Al-Balas H, Aborajoo EA, Al-Taher R, Al-Balas B. Distance learning in clinical medical education amid COVID-19 pandemic in Jordan: current situation, challenges, and perspectives. BMC medical education. 2020 Dec;20(1):1-7.
2. Robles MJ, Miralles R, Esperanza A, Riera M. Different ways to present clinical cases in a classroom: video projection versus live representation of a simulated clinical scene with actors. BMC Medical Education. 2019 Dec;19(1):1-6.
3. Woodham LA, Ellaway RH, Round J, Vaughan S, Poulton T, Zary N. Medical student and tutor perceptions of video versus text in an interactive online virtual patient for problem-based learning: a pilot study. Journal of medical Internet research. 2015 Jun 18;17(6):e3922.
4. Naseri M, Shantiaee Y, Rasekhi J, Zadsirjan S, Mojtahed Bidabadi M, Khayat A. Efficacy of Video-Assisted Instruction on Knowledge and Performance of Dental Students in Access Cavity Preparation. Iran Endod J. 2016 Fall;11(4):329-331. doi: 10.22037/iej.2016.14. PMID: 27790265; PMCID: PMC5069912.
5. Traba C, Holland B, Laboy MC, Lamba S, Chen S. A multi-modal remote clinical skills mini-course utilizing a teaching teleOSCE. Medical science educator. 2021 Apr;31(2):503-9.
6. Khan H. An adaptation of Peyton's 4-stage approach to deliver clinical skills teaching remotely. MedEdPublish. 2020 Apr 23;9(73):73.
7. Seifert T, Becker T, Büttcher AF, Herwig N, Raupach T. Restructuring the clinical curriculum at University Medical Center Göttingen: effects of distance teaching on students' satisfaction and learning outcome. GMS Journal for Medical Education. 2021;38(1).