

Practice Makes Better: Effective Faculty Educator Skill Development in the Virtual Space

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Beginning in March 2020, the COVID-19 pandemic disrupted¹ in-person medical education programming and required a rapid change in program delivery formats to ensure resident and faculty access to education programs.² In this article we describe the experience and lessons learned by one institution, the Michigan State University College of Osteopathic Medicine (COM) Statewide Campus System (SCS) or MSUCOM SCS, as it transitioned from traditional in-person educational course offerings to a virtual format.

Since 1989, MSUCOM SCS has delivered educational lectures, skills labs, and simulation training for community-based hospital graduate medical education (GME) residency programs.^{3–5} Within 72 hours of the pandemic shutdown of university, hospital, and simulation facilities, like many other teaching institutions across the nation, MSUCOM SCS was able to transition resident and faculty education programs to the virtual learning environment, with little disruption to the content delivered. This article will review specific case examples that provide guidance for the transition to a virtual platform.

With the onset of the pandemic, educational programming has been largely either postponed or converted to online formats to ensure compliance with COVID-19 safety requirements. Our experience with this transition has suggested that the pandemic is driving a paradigm shift in GME for both future education programming and required staffing needs, and that these changes will likely persist, even when restrictions to in-person learning are lifted. Although challenges remain, it is important to evaluate the efficacy of newly transitioned programming and the impact of these changes on learner engagement and perceptions of outcomes.

This article aims to: (1) identify strategies to mitigate the loss of face-to-face instruction and to

create the robust learning communities generated through such interactions, and (2) outline lessons learned in successful conversion of programming to online formats. In this article, the term “virtual learner environment” refers to the environment in which the learner is connected to the instructor virtually. The learner could be alone at a computer station or in a COVID-19-safe, appropriately distanced, classroom environment. “Virtual” will refer to synchronous learning and online will refer to asynchronous accessibility to learning tools, videos, or snippets.

Moving Programs to a Virtual Environment During COVID-19 Pandemic

The rapid global spread of COVID-19 in late 2019 and early 2020 within the United States resulted in a profound disruption of MSUCOM SCS’s traditional in-person GME programming to our community-based hospital partners. These educational programs are integral parts of many residency programs and, without the lab and didactic components of these offerings, many risk not meeting Accreditation Council for Graduate Medical Education (ACGME) residency, faculty development, and assessment requirements. Further, many MSUCOM SCS programs help meet licensing, maintenance of certification, and continuing medical education requirements. Special dispensations^{6–9} offered through accrediting bodies mitigated risks to accreditation through the close of the 2019–2020 academic year. However, the 2020–2021 academic year comes with expectations of continued programming and enhanced faculty development to ensure that graduating residents and fellows are validly and reliably assessed in all general competencies. Therefore, it was crucial that the Statewide Campus System, as the GME arm of the College of Osteopathic Medicine, adapt to this “new normal” by developing robust, engaging, virtual educational programming.

Education Cases

In mid-academic year 2020, the MSUCOM SCS was required to rethink the delivery of at least 2 GME-

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based educational offerings: ACGME Regional Hub Faculty Development Course, “Developing Faculty Competency in Assessment,” and Chief Resident Leadership Skills Conference. The process of transitioning these offerings to a virtual format is discussed below.

ACGME Regional Hub Faculty Development

MSU is currently one of 17 international ACGME regional faculty development sites. The ACGME Regional Hub Faculty Development Initiative, launched in 2014,¹⁰ was designed to increase access for the GME community to faculty development in the basics of assessment. By Winter 2020, 17 international regional hubs had delivered live, highly interactive, faculty development courses to approximately 600 GME program directors, administrators, and faculty. The standard Regional Hub program consisted of an in-person 3-day workshop that included hands-on simulation experiences and frequent large and small group discussions designed to engage participants in the application of course content. When the live programs were halted due to the pandemic, the MSUCOM SCS Director of Faculty Development initiated a transition of the in-person regional hub format to a fully virtual environment.

In late July 2020, course faculty who had agreed to deliver live regional hub course content scheduled for August participated in a 2-hour session to prepare for the transition to a virtual course format. This session involved reviewing technology requirements and a simulated walk-through of all components of the virtual course. Topics of discussion included instruction in balancing workshop content with small group breakout activities, virtual facilitation of both large and small groups of learners, and the use of the virtual platform for content delivery (Zoom). Individual faculty were encouraged to participate in one-on-one training sessions. Approximately half of the teaching faculty participated in these sessions, based on their comfort and familiarity with presenting virtually. The Zoom audio and web conferencing platform supported large group discussions using both chat and verbal communication, created multiple virtual breakout rooms populated with preidentified individuals, and allowed the faculty learner to participate in real-time scripted role-playing of clinical encounters. The participants provided feedback immediately following the encounters.

This training was critical to the success of the course as all questions, technology issues, and troubleshooting of logistical concerns of the course faculty were addressed prior to going live. In early August 2020, the first virtual regional hub course was

BOX 1 Relevant Open-Ended Responses Submitted by Conference Participants Post-Course Evaluation

- Why didn't I know about the frameworks for history taking, shared decision making, etc? I feel like those kinds of tools should be universally used! I want ACGME to promote the tools they have more. Maybe I wasn't aware because I'm not a program director and this is my first “medical education” conference. But I would expect each specialty to promote these as well... for instance, I would love to see these on the American College of OBGYN website under their education section. Maybe ACGME could do more to promote and disseminate their tools to the various specialty societies.
- Zoom format actually worked!!
- The adaptation to a virtual format is challenging and I feel the team handled it well.
- Overall, I think the virtual format was executed very well. It was organized in a good way to keep us engaged (despite the Zoom fatigue by the end).
- Maybe some pre-reading to catch us up to speed on concepts we may not know (Miller's Pyramid, Dreyfuss Model, etc).

delivered by MSUCOM SCS. The course enrolled 30 GME educators and provided essential training in assessment that included the interactive small group and simulation activities essential to the success of the previously offered live regional hub programs.

Course attendees reported that the virtual format for delivery (Zoom) was highly effective. Of participants completing the post-course survey (18 of 30, 60%), all reported the course completely or mostly met all course learning objectives. Relevant open-ended course evaluation comments are provided in box 1. This commentary verifies that transitioning to the virtual learning platform continued to meet the intended outcome of the course.

Chief Resident Training

Another program that was immediately transitioned to synchronous online delivery was the Chief Resident Training program. Different from the ACGME Regional Hub Faculty Development program, this session was a single day program designed to outline the expectations and responsibilities of a chief resident. This program included, reviewed, and allowed methods for giving effective feedback, the 5 dysfunctions of a team,¹¹ and discussion of leadership styles appropriate to the role.

Transitioning this program to a virtual delivery platform required the same preparation described for the ACGME Regional Hub Program. As with the ACGME course, program attendees reported that the virtual environment and Zoom delivery platform was highly effective. The course evaluation form was

TABLE 1

Roles and Responsibilities of Key Individuals in Delivery of Education Programming

Role	Responsibilities
Course director	• Sets agenda with team, identifies speakers, facilitators, and moderators • Directs tech support ◦ Creates script for the entire conference for breakout rooms, polling, timing, and simulation (see example) • Trouble shoots and adjusts time as needed • Facilitates • Presents, including introduction with Zoom instructions
Technology support	• Follows technology script for when to launch polling and open breakout rooms • Records course • Moves people to the correct room based on schedule and roster
Chat moderator	• Monitors chat • Addresses technology or access issues with tech support • Shares questions and comments with presenters at appropriate time during presentation
Breakout room moderator	• Shares instructions for breakout room • Asks questions to stimulate discussion • Ensures that all breakout room participants have the opportunity to participate • Offers little commentary or input • Keeps discussion on task • Identifies group speaker to report out during main session (should not be the moderator)

completed by 60% (69 of 116) of participants. All 69 reported the course was both evidence-based and balanced. Although instructors from the 2019 program differed from the 2020 program, the reported “per-topic” scores were comparable from one year to the next and did not indicate a deficit in learning as a result of the transition to the virtual environment.

Creating an Effective Virtual Learning Environment

Initial concerns discussed in the referenced planning meetings for both the ACGME course and the Chief Resident Training program highlighted the fear that transitioning to virtual education would be less effective than face-to-face programming because learners would not be as engaged and that negotiating the virtual platform would be technically challenging. Prior to the COVID-19 pandemic and the need for social distancing, the percentage of live vs virtual educational programs reflected a general hesitancy to adopt virtual course delivery. A major reason for this hesitancy appears to be the challenges associated with the implementation of virtually delivered course content and the perception that the robust learning communities created through in-person interaction would be diminished in the virtual environment. To address these concerns, we established required orientation sessions for all course faculty that identified specific roles and responsibilities for key stakeholders (TABLE 1) associated with the virtual course format designed to enhance engagement of course participants.

Conclusions

Based on participant and faculty feedback and our lessons learned in transitioning to a virtual environment, developing an interactive, single, or multi-day educational program can be successful. However, such transitions require focused attention on several essential activities, including:

- developing clear roles and responsibilities for course director, faculty, staff, and tech support, etc;
- establishing comfort with technology platform and capabilities;
- outlining virtual etiquette for participants and speakers; and
- hosting dry runs of the virtual conference and workshop sessions.

It was also apparent that the virtual platform can be designed to bridge the gap between just viewing a program on a screen to actively interacting with other participants and instructors. Forming engaged learning communities in the virtual environment was a critical component of the success of these programs.

Throughout this journey, transitioning from live to virtual learning, numerous pros and cons for each presentation format were identified (TABLE 2). Careful planning with attention to program design and delivery mitigated many of the cons to delivering a virtual course. The experience was reported to be relevant, well-received, engaging, and interactive.

BOX 2 Lessons Learned While Transitioning From On-Ground to Virtual Learning

- Particular care needs to be given to the nuts and bolts of the virtual conference setup. Planned interactions and communication in the virtual environment must be carefully scripted.¹²⁻¹⁴
- Conducted “trial” presentations of content with small group breakout room discussions, refined the logistics of moving participants to virtual breakout rooms using virtual technology (Zoom) including screen sharing, reaction button usage, chat, and meeting vs webinar capabilities.
- Most presenters for a live/in-person educational events are chosen based on their content, knowledge, and/or being a dynamic presenter. Engagement in the virtual space is challenging for presenters. Consider having presenters introduce critical content in short bursts followed by small group breakouts to allow for discussion of content to actively engage participants.
- Speakers may or may not be accustomed to presenting an interactive workshop in the virtual space. It is recommended to work with individual speakers a minimum of 2 weeks prior to the live event in the virtual platform. This gives speakers an opportunity to practice sharing their screen, review screen optimizing options for video sharing, and see the different views of the participants when you share the document vs a computer screen.
- The first course activity is also essential to setting the tone for the entire program.
- If hosting multi-day sessions, the start of each subsequent day’s education events must start with a recap of the prior day’s activities. Additional points to consider from the MSUCOM SCS experience include:
 - o Use the same Zoom link for all days of the conference.
 - o Send conference packets via email or weblink so that participants have all handouts, resources.
- Carefully plan opening introductions and time accordingly. Suggestions include:
 - o Review agenda and course content that was received.
 - o Review Zoom instructions and walking through how to modify your settings (FIGURE).
 - o If using breakout rooms, consider preassigning participants to the same breakout groups to promote a sense of community within the group and to facilitate discussions.
- Provide introductions within small groups. For example:
 - o Identifying health systems, programs, roles.
 - o One thing participants hope to get out of the conference.
 - o One area they feel their program does well (assessment, direct observation, feedback, milestone mapping, etc).

Abbreviations: MSUCOM SCS, Michigan State University College of Osteopathic Medicine Statewide Campus System.

Note: Based on feedback and input from the course director, faculty presenters and facilitators, participants, technology coordinators, and residents. Information was gathered through debriefing sessions, course surveys, and evaluations.

TABLE 2
Pros and Cons of Virtual vs On-Ground Training

	Virtual Training	On-Ground Training
Pros	• Can accommodate a larger number of participants. • Recording is easy. • No travel costs and catering costs • Reduction of time lost previously to travel. • Real-time engagement through immediate polls, Q&A, and discussion prompts. • Creates a sense of exclusivity with the login/access prompts.	• Reduces the chances of miscommunication. • Participants can network—sharing of ideas can happen more organically both in sessions and breaks. • Travel perks, such as catering and nice facilities that reduce personal distractions. • Hands-on demonstrations are easier to facilitate.
Cons	• Development/coordination time is greater in order to create an interactive environment. • Does not force participants out of their environment where distractions may be present. • Not everyone will have access to the same technology and internet capabilities. • Engagement may be less organic. • Hands-on activities are difficult to organize and incorporate into the learning process.	• Limited number of participants due to social distancing guidelines or room size. • Recording may capture only part of the presentations and is more expensive. • Catering and room rentals are expensive. • Travel costs and time.

Tips to maximize your conference experience:

- Plan for a distraction-free environment (consider use of virtual backgrounds and/or headphones to minimize distractions)
- Verify that you have enough bandwidth to accommodate the length of the program
- Plan to test your computer/login/programs that will be used during the workshop, prior to the event, to ensure your computer meets minimum hardware, browser and software requirements

**Conference Login Information**

- Dates and Times (time zone)
- Zoom Link:
- Password:

**Once Logged Into Zoom, Select Video Settings**

- Select “hide non-video participants”—this will optimize the viewing during the simulation portion of the training, allowing only those that are participating in that case to be active on the screen.

**Communication Ground Rules**

- Discourage multi-tasking
- Discourage interruptions
- Avoid judgmental language
- Discourage sidebar conversations/chat messages unless needed for clarification purposes

**Communication During the Presentations**

- Please remain muted unless asking a question or sharing
- Please leave your video feed on during the workshop to encourage and simplify interaction
- Use the chat function to ask questions
- A moderator will be monitoring the chat and will pause the speaker at appropriate times for the presenter to answer. Additional follow-up questions may be typed into the chat box to continue the discussion. At times, the participant may be asked to un-mute for clarification or to provide additional details.
- Use the ‘reactions’ function during times when group assent is requested, ie, use the “thumbs up” when asked questions like ‘Does everybody want to take a 5-minute break?’
- There will be polling questions used throughout the conference. The question will appear on your screen and you will be able to respond in your Zoom window.

**Breakout Rooms**

- For small group activities, you will be in the same group of (x number) for the duration of the conference, including the virtual simulation
- There will be a moderator in each virtual breakout room to answer any questions regarding the table activity
- Before returning to the main classroom, decide who will report out the discussion of your group.
- **Everyone should have a chance to report out, so this should rotate with each table activity.**

**Direct Observation/ Virtual Simulation (if part of your workshop)**

- Case facilitator will guide the discussions
- Everybody should stay muted unless called on by a facilitator.
- If you would like to comment, use the “thumbs up” Reaction to indicate such and the room facilitator will call on you
- **Do NOT use the chat function to communicate during simulation**
- During video playback and observing the “hot- seat” participant giving feedback, everyone else stays muted and cameras off. Cameras back on when scene ends, but mics remain muted unless called upon
- Reactions used to express appreciation or positive elements



FIGURE
Zoom Instruction Sheet

Educators involved in the transition to virtual learning, in turn, learned lessons through the process (BOX 2). Programs that were once local, or at most, regional, provided the means to reach out-of-state participants who were less encumbered by the expense and time traditionally associated with travel. Additionally, invited speakers, course directors, and

administrative support personnel also benefited from the elimination of travel. Finally, the adoption of the virtual format allowed the local development team to meet and plan course content and delivery safely.

While virtual learning may not have been a preferred delivery platform for GME educational programing prior to the COVID-19 pandemic,

necessity mandated the transition. Our experience has demonstrated that the transition to virtual faculty and resident development is an excellent option for future educational programming, regardless of the status of the pandemic.

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