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Lessons from an Ethnographic Study

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Teaching and Learning with Videoconferencing at Regional Medical Campuses: Lessons from an Ethnographic Study

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Abstract

Distributed medical education and instruction at regional medical campuses is becoming more prevalent. With its focus on connecting learners in multiple environments outside of traditional classroom or clinical environments, the role of technology is central to its success. In many distributed medical education settings, videoconferencing plays a key role. Over the course of a 3-year ethnographic study, we learned that videoconference technologies are more than the background for learning, but rather play an active role. We describe herein a series of practical tips for those working in the context of a videoconferenced distributed medical education program. Rather than treating videoconferencing technologies as something we can ignore, predict, or control, we hope that the tips help educators at regional medical campuses think critically about the realities of teaching and learning in a videoconferenced distributed context.

Distributed medical education (DME) programs, defined as “educational events and activities in multiple locations and learning environments outside of the traditional classroom or teaching hospital settings”¹ have become well established over the past decade.^{2–6} The rationale for DME programs—which are embedded in regional medical campuses—are multiple, including addressing the health needs of rural populations,⁷ promoting primary care,⁸ political influence,⁹ and prioritization of self-directed learning.¹⁰ Being able to connect regional campuses has been made possible through the affordances of technologies, like videoconferencing.^{3,11} These factors, when combined with a shortage of medical graduates,¹² particularly in rural areas,⁵ has meant that DME is more than a passing fad.

DME programs have required a degree of creativity with respect to curriculum design and delivery.^{13,14} They must ensure a comparable educational experience, which is an important accreditation requirement.³ One of the most common ways that DME programs have attempted to ensure this comparability is through the use of videoconferencing technologies that connect groups at multiple sites and allow them to share in real-time instruction.¹⁵

As educators and researchers working within the context of a videoconferenced distributed medical education (VDME) program, we have had the opportunity to watch videoconferencing in action on many occasions. While we were impressed by the scope and affordances of the videoconferencing system, we were struck by the fact that the technologies, themselves, which include cameras, screens, microphones, speakers, monitors, and more, played a central role in the classroom. We began to wonder about how these technologies influenced experiences of medical

education for learners, teachers, and others at regional medical campuses.

We conducted an ethnographic study from 2013 to 2016 that included the following: critical analysis of institutional documents, policies, and videos; more than 100 hours of observing VDME classrooms; and 33 interviews with a range of stakeholders, including medical students, faculty members, administrators, and audiovisual professionals.

Team members conducted document analysis of 65 DME-related institutional documents, policies, and videos between January and December 2013. A minimum of 2 research team members analyzed each document. A structured guide was used that was focused on how these documents construct the intended DME curriculum, and the ways the curriculum actually unfolds as constructed through our fieldwork. Between January and November of 2013, a smaller team of researchers participated in in-person observations (108 hours) of meetings, lectures and other videoconferenced activities in lecture halls, meeting rooms, and audiovisual control rooms. Field notes were guided by a framework by James P. Spradley and focused on the following: spaces where observations took place; actors, activities, and objects involved; time; inferred goals behind the actions; and inferred feelings of those involved.¹⁶ We took 136 photographs of rooms used for videoconferencing lectures, meetings, and other activities during field visits between January 2013 and 2014.

Core team members conducted semi-structured interviews with 15 students and 18 academic, administrative, and audiovisual staff members. Interviews focused on elucidating material tools and technologies as key actors in DME programs.^{3,17–19} Seven faculty interviews focused on teaching

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with videoconferencing technologies. Five interviews with administrative staff focused on videoconferencing coordination. Six AV professional interviews explored the videoconferencing system and its operation. The 15 student interviews explored learner experiences of lectures in the videoconferenced classroom; these included 7 interviews with host site students and 8 interviews with students from the newer campus.

We constructed and analyzed these data iteratively, as insights gleaned in the field were continually interpreted and re-interpreted during data collection. We used qualitative data analysis software (ATLAS.ti version 7.0) for coding, sharing, and managing data.^{20,21} As we collected and analyzed our data, we noted many coexisting activities and actors working together to constitute the lecture. For example, we observed audiovisual professionals as central, yet often invisible, human actors centrally involved in the DME curriculum,² and noted that the videoconferencing system often involved unintended audio, visual, and curricular exposures for staff and students involved in DME.²² Furthermore, we were struck that student questioning-asking seldom occurred during DME lectures, and when it did, it unfolded in unintended ways using various strategies aimed at circumventing or mediating the material effects of the DME system.²³

While we have published the results of this work in various locations,^{3,17–19,21,23} in the spirit of knowledge translation we wanted to synthesize our disparate findings into a set of practically-oriented, user friendly ‘tips’ for those who are working in the context of a VDME program.

Practical Tips

1. Recognize, and make visible, the human side of VDME

Where traditional classroom-based instruction focused mainly on the teacher-learner dyad, VDME programs, because of the function of connecting geographically separate sites through technologies, are much more complex. In the context of VDME, any given lecture has been arrived at through the work of the following: educational administrators working to set directions for the program; curriculum workers designing courses, objectives, and lectures; administrative professionals ensuring the multiple required tasks are attended to so that sessions can be distributed; teachers working to deliver materials through the VDME system; learners who are integrating materials received through VDME with other aspects of their medical education; and audiovisual (AV) professionals who are ensuring the VDME system is optimized for instruction. Many of these people are divided between multiple locations and may not have had the opportunity to meet one another yet alone work together. We learned, however, that making the human side of VDME visible—particularly audiovisual professionals and their

work—went a long way toward encouraging successful VDME.¹⁷ We recommend that VDME programs highlight the key role of audiovisual professionals in delivering VDME curriculum, and encourage faculty teaching in VDME programs to consult regularly with these professionals to tailor their lecture delivery to the unique possibilities and limitations of VDME.

2. Resist the urge to be tempted by the ‘latest and greatest’ technology

Videoconferencing technologies are evolving every day, with higher definition screens, faster connections, and clearer audio, all in continual development. With these ongoing technological advancements, it is tempting to assume that investing in the absolute newest models, complete with costly upgrades, means an improved educational experience. Through our research, however, we learned that aiming for the experience of being in the same space together is an unrealistic, and probably unnecessary, goal for videoconferencing. Rather than getting caught up in this cycle of trying to find ‘the best’ technology, we encourage those using VDME to carefully consider working creatively and collaboratively with the technologies they already have, in order to best serve their learners. While technology vendors, and even faculty and staff members who are technophiles, may advocate for acquiring the latest and greatest technology, we learned that other factors, like working collaboratively with AV professionals/experts, are much more important to the success of VDME.

3. Remember technology is not neutral

Despite the fact they are generally conceptualized as ‘backdrop’ in the context of medical education, our research found that videoconferencing technologies actually significantly change the learning environment. For example, we learned that students often avoided asking questions because they were hesitant to have their images projected on screen. Similarly, lecturers described avoiding embedding a useful video in a PowerPoint presentation in order to minimize the chances that something could ‘go wrong’. We saw firsthand that technologies do not simply do things ‘for’ us, but rather technologies also do things ‘to’ us; and, we encourage those using VDME to therefore think critically about the implications of choosing particular technologies. How might certain technological elements encourage learning and how, in turn, might they potentially discourage learning? A good example of such a consideration relates to the issue of question asking raised above. In this case, we would encourage the multiple stakeholders of VDME to explore critical questions, weighing pros and cons such as: Is it necessary for question-askers to have their image projected on the screen? How would the experience be changed if questions were shared across sites by voice only?

4. Be flexible with policies

In the early stages of developing a VDME program, it is tempting to try to anticipate all of the potential challenges that might occur and to proactively develop policies to preempt those challenges. For example, many of the people we interviewed described a local policy of submitting PowerPoint files for lectures 2 weeks in advance of delivery so that slides could be tested and optimized for videoconferencing. This initial policy was developed to minimize operational risk and any real, or perceived, disadvantages for learners at regional campuses. While this policy made sense in theory, in practice, lecturers found it frustrating and an unrealistic timeline; and in some cases, resistance occurred. We suggest that administrators of VDME programs should be open to suggestion and responsive, developing authentic policies to deal with *actual* as opposed to predicted challenges.

5. Allow students to connect using personal technologies

Most VDME technologies have some built in mechanism to connect learners at multiple sites. During our fieldwork, however, we noted that students frequently ‘worked around’ those mechanisms and connected using their own personal technologies, most frequently through SMS messaging or Facebook. In fact, the most authentic cross-site conversations that we learned about did not involve the formal VDME technologies at all. For example, students would send messages across sites through a Facebook group in order to remind people at the opposite site to speak into the microphone, so they could hear them quickly. While some of the teachers and administrators we spoke with expressed frustration at students using personal devices during lectures, we found students were using these devices for educational purposes. We therefore encourage VDME programs to think critically about how to leverage these already available and widely used technologies in student-centered ways.

6. Remember what videoconferencing technologies are designed to do

The technologies of VDME are designed to optimize seeing and hearing—and they do so very efficiently! One of the challenges we learned about is that members of the VDME community become comfortable with, and complacent about, the technologies which can lead to unintended revelations.²² These situations can be embarrassing, professionally challenging, and ethically complex. We learned about several such examples, including a microphone left on accidentally in one site leading to everyone at another site overhearing what was intended to be a private conversation. We encourage the people of VDME programs to be mindful of the potential exposures that occur through these technologies, and to develop systems to remind users when technologies are ‘active’ or ‘live’. This may involve, for example, a red dot on the screen when the

videoconferencing system is activated and being shared to other sites.

7. Rethink faculty development

People need to be prepared for teaching with VDME systems; however, many lecturers only use videoconferencing technologies for a few hours per year. Traditional faculty development models, like hour-long workshops, may not be the solution. We encourage those investing in VDME systems to think carefully about how best to reach those who will be using the system, and to develop a multi-pronged approach. Promising practices we witnessed include just-in-time meetings between AV professionals and lecturers, and instructional videos that were accessible at any time. We believe simply allowing people the time and space to practice with new technologies in an environment in which they are not being judged by students or their peers could be especially helpful.

In the context of VDME-related faculty development, there are many types of educational experts from whom we might learn. Students, subject to the most instruction by VDME, are often overlooked with respect to their perspectives. Providing opportunities for students to freely share their ideas and opinions would be very helpful. Likewise, the AV professionals who are working to produce lectures behind the scenes have almost constant access to the learning environment and are able to “see all.” Through our research, we learned that these professionals often have very concrete and actionable ideas to share about how to optimize VDME teaching. Yet, for a variety of reasons including their relative invisibility, academic and administrative divisions, issues of power, and others, they remain a largely underused resource. We believe AV professionals are critical pedagogical partners who can provide feedback that might not otherwise be available, and we encourage members of VDME communities to reach out, ask for feedback, and build relationships with them to optimize teaching.

8. Reconsider taken for granted pedagogical practices

We often conceptualize teaching as an embodied practice, relying on strategies like eye contact to gauge attention. We ask people to ‘call out answers’ in order to encourage engagement. We listen for whispering and restlessness to judge when it is time to wrap up a lecture. These tried and true pedagogical approaches, which become almost second nature to teachers, are for the most part, not appropriate in the context of videoconferenced teaching. They inevitably lead to focusing on the group of people who are in the same physical space as the teacher, to the detriment of those who are accessing the lecture through technology. Another example of a taken for granted pedagogical practice that we frequently observed involved singling out learners at other sites and asking people to weigh in (i.e. “What do you think in

location X?; Any thoughts from *location Y?*"). While this was thought to be a strategy for being inclusive by those at the central site, we learned that people at other sites experienced it as uncomfortable, nerve-racking, and described feeling repeatedly "put on the spot." Clearly, there is a need to think through such practices and how they affect the sites differently when the interactions are mediated by technology. This again is an opportunity for thinking about the potential role of faculty development in helping teachers prepare for VDME instruction.

9. Define success in terms other than 'sameness'

We encourage VDME programs to think critically about what success means to them, and to explicitly name it. Whether success is defined in terms of numbers of 'dropped minutes' (i.e. we only dropped 2 minutes of lectures in the entire term), student experience (i.e. mechanisms were in place to support question asking outside of given lecture time), learning outcomes (i.e. students at all sites performed comparably on assessments), or some combination thereof. Whatever the given definition, we think it is very important to move away from the taken for granted position that 'the same' experience across sites is the gold standard, or even possible. Rather, we encourage programs to think about the uniqueness of each distributed site and put systems in place to make VDME instruction work in the context of those realities.

10. Try not to make assumptions about what is happening in other locations

Experiences of VDME across sites are technologically mediated. Everything we hear, we hear through a network of microphones, cables, and speakers. Everything we see, we see through a system of cameras, cables, and screens. Spontaneous adjustments we would make in in-person interactions in order to optimize communication and understanding are not as easily available to us, or even available to us at all, through VDME. For example, through our observations we noted that students at a distant site could sometimes be seen to be chatting in the midst of a lecture. Since we only observed this through a screen and muted microphone system, we initially assumed this chatting was a sign of disengagement. However, upon further investigation we learned that these students had developed an informal peer teaching system in which challenging concepts of the lecture were researched and discussed in real time. We encourage members of the VDME community to recognize the limitations of the technologies, and if something seems troubling, to further investigate rather than making assumptions.

Conclusions

We present this series of 'tips' based on our ethnographic field work in the hopes that it might be useful for those who

are currently working with, or considering integrating, videoconferencing technologies into their DME programs. VDME is a powerful tool that facilitates connection and sharing of information in real-time, and this is very important in the context of distributed medical education. Rather than treating the technologies as something we can ignore, predict, or control, we hope that the tips help curriculum workers consider the realities of teaching and learning in a videoconferenced environment.

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