

Leading Virtual Teams: A Review of Best Practices

Anthony P Catinella¹, Mary J Amaro Esparza²

ABSTRACT

With the impact of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic, healthcare and businesses abruptly had to adopt the use of virtual meeting space as a means to support their work. Users experienced change with both positive and negative results, with reports of "Zoom" fatigue as an example of a new effect brought on by this newer medium. However, little guidance has been offered to clinicians in principles and practices to support the use of virtual teams and meetings. This narrative review summarizes best practices in developing virtual teams and running virtual meetings. The advantages and disadvantages of the virtual environment are summarized, including multitasking as both positive and negative aspect of the expanded virtual environment. To support both the task and relationship functions of teams through virtual meeting space, recommendations are provided to ensure such teams and meetings are optimized.

Keywords: Communication, Human behavior, Human factors, Leadership, Teams, Team effectiveness, Virtual meetings, Virtual teams, Virtual work.
Donald School Journal of Ultrasound in Obstetrics and Gynecology (2021): 10.5005/jp-journals-10009-1826

INTRODUCTION

Delivering quality healthcare demands a functional team. Surgeons rely on first assistants and operating room nurses; primary care physicians depend on their medical assistants and office nursing; technicians support the work of imaging specialists. Defining a meeting as the exchange of information between two or more people for a purpose,¹ meetings occur with greater frequency than often realized. Most such exchanges occur informally and face-to-face. Yet, with today's technology, meetings may not occur in the same place or at the same time but maintain the same goal to exchange information to improve or enhance the patient's care.

Videoconferencing or virtual meetings have proliferated. Searching for "virtual meeting" in the title, before 2020, only seven articles appeared in PubMed; in 2020, 40 such publications occurred and as of this writing in 2021, 32 appeared. Much of these publications highlight findings of posters and presentations from virtual conferences. While the medical literature has numerous and growing literature on the expanding use of telemedicine and teleconferencing,²⁻⁴ there is very little published on the mechanics of leading or organizing such events. With the current ubiquity and increasing frequency of virtual meetings, a new concern of "Zoom" burnout,⁵ not just meeting fatigue,⁶ demands new attention from leaders. The necessity of virtual meetings during the pandemic created a new market to learn how to best lead such events. What lessons have been learned? Do virtual meetings have substantial differences from in-person meetings? What must a team leader do to optimally orchestrate a virtual meeting given the unique challenges presented by the technology? This paper provides a review of best practices on this topic.

Typography of meeting types exists across several continuums. Reiterating that a meeting involves people exchanging ideas or information for a purpose, that content can be provided across a spectrum of time or space (location). Purely in-person meetings occur at the same time (synchronous) and the same location, while purely virtual meetings may occur at different times (asynchronous) across different geographic

^{1,2}Department of Family Medicine Transmountain, Paul L Foster School of Medicine, Texas Tech University Health Sciences Center El Paso, El Paso, Texas, USA

Corresponding Author: Anthony Peter Catinella, Department of Family Medicine Transmountain, Paul L Foster School of Medicine, Texas Tech University Health Sciences Center El Paso, 2000 B Transmountain Road, El Paso, Texas, USA, Phone: +1-915-215-8508, e-mail: apeter.catinella@ttuhsc.edu

How to cite this article: Catinella AP, Esparza MJA. Leading Virtual Teams: A Review of Best Practices. *Donald School J Ultrasound Obstet Gynecol* 2021;15(4):371–376.

Source of support: Nil

Conflict of interest: None

locations. Hybrid meetings use both features with some people participating in person, while others may be virtual. Then, there is a spectrum of technological tools too. Email, telephone, or the internet all provide means to exchange ideas and information (content) for an intended purpose between individuals. For example, educational meetings can be conducted with obstetrician-gynecologist (OB-GYN) residents and junior faculty regarding performing ultrasounds. During these sessions, videoconferencing learners can see high-resolution images and videos from picture archiving and communication system (PACS) or other reporting systems such as ViewPoint. Each of these factors creates complexity for the team leader. Time, location, and technology all contribute to how the team members interact and influence the effectiveness of the team. The successful team leader takes each of these factors into account to develop a plan for the most effective meeting.

KEY PRINCIPLES FOR EFFECTIVE MEETINGS

Before delving into the unique aspects of leading virtual meetings and teams, understanding some key principles of leading effective teams and meetings provides a needed foundation. A major distinction separates a team from a group, especially a highly

effective team. Teams have a clear and meaningful purpose, team members are motivated to contribute and hold each other accountable for the results, and their independent work supports their interdependent efforts toward their goal.^{7,8} To accomplish this meaningful purpose (e.g., “high-quality care”), each team member brings a needed key skill or expertise. An OB-GYN ultrasound team is an example of this. It is typically comprised of the sonographer and OB-GYNs (Generalist, Maternal-Fetal Medicine, Reproductive Endocrinology and Infertility, Gynecologist-Oncologist, etc.). They often conduct multidisciplinary team meetings comprised of individuals of one or more clinical specialties who discuss and make decisions regarding the management of patients. Ultrasound teams can meet with oncologists and pathologists to discuss the pathology of specimens as well as with Surgery, Family Medicine, Internal Medicine, Endocrinology, or Oncology to discuss the continuity of care for the patient. Groups are more informal and may not have a clear purpose and skill level may be more variable; accountability may or may not be important. In highly effective teams, the clear and consequential purpose drives the internal motivation to succeed among the members.

Meetings serve as the vehicle for the interdependent work of the team members. For more complex missions or teams, leaders may create a team charter, which often consists of a brief statement of purpose and its background, the objective or deliverable, key sponsors or stakeholders, team membership and roles, the process of decision making, norms or responsibilities, timelines and schedules, and if needed—budget.^{9,10} While not all teams or meetings may require this degree of detail, ensuring that all the members are committed to share the same understanding of the purpose, accept their roles, and hold each other accountable to achieve that mission by completing their responsibilities, and how and when they will meet should remain an essential task of the first team meeting.

Planning meetings falls under the guidance that if one fails to plan, one plans to fail. First, leaders should reflect on the necessity of a meeting. Most workers report meetings as wasteful that do not engage their input, they felt decisions had already been made or are redundant.¹¹ Each meeting should contain a clear agenda sent out in advance. The best agendas do more than merely list topics and speakers. To truly engage the team members, each topic should contain a brief statement of background and what action needs to be taken. For example, the topic of guideline review might have a brief statement on what areas of particular need ought to be revised, and the action might be identifying who will volunteer to lead that activity. Providing the background and actions tells members this meeting goes beyond the recitation of information known to create “death by meeting.”¹² This also ensures the right people are engaged and attend the meeting; a topic may require inviting someone outside the team to provide expertise or require distribution of material to be reviewed before the meeting. Leaders should habitually summarize the actions taken or judgments made as to the last agenda item, and these are recorded in the meeting minutes. Lastly, periodically evaluate the quality and quantity of your meetings. Obtaining such feedback promotes engagement if properly followed upon. Responsible leaders include each of these elements for all meeting types—in-person, hybrid, or virtual. Hence, these items—charters, agendas, summarizing actions and decisions, meeting minutes, and periodic feedback—serve as foundations for all meeting types. But are hybrid or virtual meetings requiring additional tools?

ADVANTAGES AND DISADVANTAGES OF VIRTUAL MEETINGS

Virtual meetings offer several advantages over in-person meetings. With the improvement in technology, distance and location no longer pose limitations to involvement. One can now easily engage an expert in the same city, a different state, or country without the costs of travel time, hotel, and meals. This broader pool of talent enhances a team’s resources, as they work their tasks. Well-organized virtual teams promote job satisfaction, providing more flexibility in balancing work efforts; tools within the newer internet platforms also offer greater participant engagement such as polling and brainstorming.^{13,14} In regards to educational sessions with OB-GYN residents and junior faculty learning to perform ultrasounds, the virtual environment allows learners to freely ask questions or clarification about the case. The leader’s challenge is to promote these advantages while avoiding the inherent disadvantages of virtual meetings and their effect on teaming.

All leaders face two challenges in developing an effective team—ensuring completion of the task or performance and developing a supportive and trusting relationship among the team members.¹⁵⁻¹⁷ Developing these, especially the relationship aspect, may present a greater challenge through a virtual environment than in person. Several authors highlight how the virtual environment may limit social cues,¹⁸⁻²⁰ and have higher rates of conflict than in-person groups.²¹ While video capability provides a facial picture, often it is small and blurry, and it does not allow the same body language input that in-person meetings permit.²² Participants may hide their video to further eliminate that input too. When people work at a distance, developing effective relationships suffers; “water cooler” breaks or sidebar conversations do not happen in the same way or frequency. Team members may also lack training on the best processes for virtual meetings. Several publications highlight that with training, teams do perform better.²³⁻²⁵ Multitasking presents a particularly prevalent issue with virtual meetings; though not unique to this medium, it is easier to do.

IMPACT OF MULTITASKING ON WORK AND TEAMS

Participants’ tendency to multitask can affect individual performance and thus the productivity of the session. Hirnstein et al. utilized Burgess’ categorization of two types of multitasking: (1) concurrent multitasking and (2) serial multitasking.²⁶ Concurrent multitasking occurs when two or more tasks take place simultaneously, while serial multitasking involves two or more tasks occurring sequentially with participants alternate between these tasks.²⁶ Furthermore, such activity can either be “on-task,” if the activity relates to the meeting, or “off-task,” if the activity lacks relevance.²⁷ Multiple factors influence the amount of multitasking that occurs, which leads to examining the advantageous and deleterious effects of this behavior when working in a virtual team.

The availability of technology at the fingertips of its consumers became a catalyst for media multitasking, which led Ophir et al. to examine cognitive control in this behavior. They found that those who were heavy media multitaskers had a greater tendency to respond to irrelevant stimuli or off-tasks, and more likely to participate in serial multitasking.²⁸ Conversely, light media multitaskers were less affected by distractors and more effectively focused their attention on a single task.²⁹



The neurological mechanisms behind multitasking have yet to be fully understood. Prior studies referenced by Hirnstein et al. showed that serial multitasking is linked to the rostral prefrontal cortex and concurrent multitasking is correlated to the prefrontal cortex, as well as the parietal, temporal, occipital, and cingulate areas.²⁶ Interestingly, a 2014 study done at the University of Sussex found that the density of gray matter in the anterior cingulate cortex, the area of the brain that governs cognitive and emotional control, was reduced in those who were heavy media multitaskers.²⁹

With multitasking being a common behavior, this raises the popular belief that females have superior multitasking abilities compared to males. However, as per Hirnstein et al. review, previous findings regarding these sex differences are inconsistent.²⁶ Due to these inconclusive results, they conducted a study that involved testing participants' multitasking abilities in an everyday scenario *via* the computerized meeting preparation task. Contrary to the gender stereotype favoring females, the results of the study showed that there were no behavioral sex differences in multitasking abilities even when controlling for familiarity with technology and education level.²⁶

Regardless of whether sex differences truly exist in multitasking, it is becoming ubiquitous. Wasson found that over the last several decades Americans spend more time at their work, and thus producing "time poverty."³⁰ Multitasking became a tool with which to accomplish as many tasks as possible in an allotted amount of time. In the context of healthcare, clinicians frequently engage in multitasking, specifically emergency and hospital-based physicians, as a means to manage challenging workloads effectively.³¹⁻³³ With regards to working in a virtual team *via* virtual meetings, participants joining in from their respective local spaces are typically in solitude which is conducive to engaging in solitary tasks during the meeting.

In 2004, Wasson published a study in which they observed members of four virtual teams during their meetings at Electronic Data Systems (EDS), a multinational information technology equipment and services company.³⁰ They first defined interactional spaces as "zones of communication" (virtual meeting space, local space, etc.) and participant structure as the "totality of communicative relationships" (group member is with others on the conference call, a group member is alone, or group member interacts with others *via* phone, email, text, or face-to-face). Essentially, virtual participants can be in more than one interactional space and participant structure. Researchers observed factors that influence the amount of multitasking during virtual meetings. The lack of face-to-face interactions seems to encourage multitasking, as there is no social pressure to pay one's undivided attention to the presenter. The individual skill level is also a factor as some are better multitaskers than others. Furthermore, topic relevance and the degree of attention that a meeting activity requires also influence the amount of multitasking. For example, if the meeting is simply information sharing, which requires the least attention, this leads to more multitasking. In contrast, if the meeting involves problem solving, which needs the most attention, there is less multitasking.^{27,30}

Face-to-face meetings, though, are not immune to multitasking as was evidenced by a study published by Benbunan-Fich and Truman who based their research on Wasson's findings.^{27,30} Data were collected from participants attending lectures at a business college who had laptops equipped with a computer monitoring log. They found that 76% of multitasking involved activities that were

off-task, an example of which was having an IM or email window open and the content was unrelated to the lecture.²⁷

With multitasking being a ubiquitous phenomenon, its impact on the team and individual performance must be considered. As mentioned before, in clinical settings such as an emergency room or ward, physicians multitask to manage demanding workloads. The tradeoff, though, is an increase in cognitive demand and memory load.^{31,32} Furthermore, Weigl et al. found that when more time was spent multitasking, there was greater physician strain despite their reported self-perception of performing well and efficiently.³³ The potential for medical errors and the question of patient safety are thus a critical factor when considering the impact of physician multitasking.

In the context of virtual meetings, multitasking carries the perception as a tool to enhance productivity for the individual; however, it can have a negative impact on the overall productivity of the virtual team due to the loss of full attention to the meeting.³⁰ If effectively managed, however, multitasking can enhance both individual and team performance. At an individual level, practicing mindfulness can be a means to "work smarter, not harder."²⁹

LEADING VIRTUAL TEAMS AND VIRTUAL MEETINGS

Despite the complexity the virtual environment presents, the disadvantages can be overcome and non-collated teams and meetings can become highly successful. In addition to always using the key foundational elements of any successful team and meeting as noted earlier, a literature review finds commonly referenced practices.

As noted above, team relationship building through virtual meetings carries challenges, but those challenges can be overcome. Earlier, literature posited that electronic communication could not be equal to that of in-person or face-to-face meetings; Straus wrote that:

"...We predicted that communication mode would have a greater impact on group outcomes for tasks that require higher levels of interdependence among members. This result was expected because (1) communication media vary in the capacity to transmit social context cues and (2) social context cues serve important functions in groups when tasks require coordination among members' actions."³⁴

However, more recent work suggests virtual or hybrid teams contain the same potential to develop effective and supportive relationships as do in-person meetings. Leadership and planning make the difference between success or failure in this dimension.²¹ Jarvenpaa and Leidner in a study of 350 global graduate business programs explored trust in virtual teams.³⁵ They found that team leader engaging early in meaningful interpersonal development, facilitating meetings with optimism and positivity, keeping agendas substantive, and encouraging proactivity by members enhanced trust among group members. Kurtzberg³⁶ cautions that typical "icebreakers" used at first meetings may make some members uncomfortable or detract from developing engagement. He recommended using questions such as "tell us about one of your mentors," "describe your special skills or expertise," "what competing activities are challenges are you facing," "who is your go-to person when you need help," or "describe a prior great team experience you have had." The last question helps them to facilitate establishing group norms,

another key recommendation. Creating a social media site for the team can help to develop social cues, as can having pictures of all group members made available to the whole team. Oeppen et al. include in their list of recommendations to improve virtual meetings to plan and set the agenda, delegate a note-taker, one person speaking at the time so muting oneself when listening, reviewing the aim, and work of the meeting, and evaluate one's meetings.³⁷ In an insightful article, Dhawan et al. caution that videoconferencing can disadvantage women. Specifically, the authors cite such examples if working from home, and children are heard or appear on the screen, implicit bias may foster the incorrect belief of being uncommitted to the work; while men rely more on verbal cues, women rely more on nonverbal cues, which are less accessible in virtual meetings. They include among their recommendations for leaders to explicitly set norms of behavior, use features such as hand-raise or chat to encourage participation, invite silent participants to augment the dialog, take immediate action if a biased statement is made, and avoid references to physical appearance.³⁸ Each of these improves the working climate of the group, which impacts the task performance, but other techniques can further support the work effort as well.

Two commonly used in-person techniques for group decision making are brainstorming and the nominal group technique. More recent video platforms now offer tools to enhance decision making in meetings. The use of a whiteboard during a videoconference enables both a facilitator and participants to actively brainstorm. Additionally, one can use the annotate function to gauge participant acceptance of the ideas, forming a virtual affinity diagram.¹⁴ The nominal group technique, first described by Delbecq et al., elevates brainstorming to a higher level of decision making. After a shared understanding of the single problem or issue to be addressed, each participant silently generates one to five desired responses. This silent phase is critical to the success of the activity. Then, Round-Robin feedback lists these responses by each member as in brainstorming; this can be done on the whiteboard. A period of discussion ensues allowing each participant understanding of the intent and meaning of each response. Following the discussion, each participant again silently prioritizes the group's responses; for example, participants may be asked to rank their top three choices with 3-points to their top choice and 1-point to their lowest choice. The points can be annotated to the whiteboard list and the responses with the overall highest score represent the group's ranking.³⁹ Similarly, the newer platforms imbed question writing so that polling can be effectively done on the fly during the meeting. Keeping the meeting agenda substantive with topics meaningful to the group, active dialog and decision making remain key elements of a successful meeting, both virtual and in-person. Leaders can quickly create breakout dyads or triads in the video platform, which facilitate both task performance and relationship building and assign between meeting activities to groups of two or three people.

Leaders should be proactive in managing multitasking to ensure productivity in a virtual meeting. Not all multitasking is harmful. During a meeting, a member finding an article or website and posting this in the chat enhances the group's work. Separating this type of on-task from those unrelated to the task remains important for facilitators. Helpful team norms include keeping phones on mute, having interactive meetings as opposed to those that only require passive listening, self-awareness of multitasking skills, and determining if an email will suffice in place of a meeting.³⁰ Limit the use of PowerPoint; sending out documents in advance for people to read allows the meeting to focus on how to use the information,

not in reviewing it.⁴⁰ Such passive work contributes to implicit permission to multitask.

Also, unique to the virtual meeting is the type of technology one is using. One should ensure the technology works as expected before the meeting and for major events, have a dedicated information technology specialist immediately available, and plan a backup method of communication. For certain teams, distributing a contact list with the accurate phone number, noting mobile or office preference, and the email address of each member provide a needed resource. Importantly, there must be a close collaboration with the information technology specialist to ensure security and patient confidentiality when virtual meetings are conducted for patient care, such as when OB-GYN ultrasound teams hold multidisciplinary meetings.

Online resources can facilitate the virtual team's work. Leaders should have the group define their between meeting communication processes, routinely re-evaluating their effectiveness, and, if needed, refining these methods. Create an open communication environment so the members feel comfortable having challenging discussions.⁴¹ To ensure virtual teams stay on task, there should be strong, supportive, and proactive leadership that fosters diversity, mentorship, engagement, communication, and recognition and acknowledgment of the work.⁴²

The coronavirus disease 2019 (COVID-19) pandemic abruptly forced the virtual platform on many who were unprepared.⁴³ Getting members to participate in any meeting can be challenging. Hale and Grenny recommend several suggestions to facilitate this in the virtual world. These are framing the task or problem in the 60 seconds in a way that has an affective component evoking feelings about why the task is important. Second, devise activities so the team is engaged during the meeting. This can be using the breakout groups with a defined problem to solve and type their responses in the chat pod. Third, centers on adopting a 5-minute rule—sustain attention through rapid chunks of tasks. For example, after a problem description, the issue may have a subtask to solve and participants have 3–5 minutes to create ideas in a breakout room, record their findings in the whiteboard or chat pod, then onto the next subtask. Working online or with hybrid teams and meetings necessitate creating a safe environment to sometimes raise sensitive issues. Hale and Grenny offer a series of suggestions to foster such dialog.⁴⁰ Raising the issue by asking for permission gives the team a chance to absorb what may need to be discussed; stating, "I know what I am about to say is sensitive but I think it is essential we tackle it. May I proceed?" exemplifies one such example. The next element may be explaining what one hopes to gain from the dialog and what one is not attempting to do to avoid misunderstandings. An example might be, "I do not want this discussion to suggest someone in this group does this behavior, but I do hope we can clarify if that behavior is off-limits for us." Next, telling a narrative or example of how that issue raised concerns—what facts lie behind the concern. One can then proceed with giving an example of an unintended consequence and ask if there is more to learn.²⁰

CONCLUSION

Virtual teams working through virtual meetings became a new normal in 2020, greatly accelerating its diffusion within healthcare than previously anticipated. As with in-person meetings and collated teams, leaders must ensure premeeting planning, agenda setting, use of working resources, use of note-takers, facilitators, and summaries of work performed, and actions taken remain equally important.



The virtual environment does create some unique challenges, which with attention and forethought may not limit either the task performance or relationship building necessary for successful and effective teams. Leaders can learn these tools and techniques and train their team members to ensure the work is rewarding for all.

REFERENCES

1. Streibel BJ. *The Manager's Guide to Effective Meetings*. New York: McGraw-Hill Education; 2003.
2. Lee Y, Kim C, Choi HJ, et al. A feasibility study of telementoring for identifying the appendix using smartphone-based telesonography. *J Digit Imaging* 2017;30(2):148–155. DOI: 10.1007/s10278-016-9921-x
3. Marsh-Feiley G, Eadie L, Wilson P. Telesonography in emergency medicine: a systematic review. *PLoS One* 2018;13(5):e0194840. DOI: 10.1371/journal.pone.0194840
4. Ramsingh D, Ma M, Le DQ, et al. Feasibility evaluation of commercially available video conferencing devices to technically direct untrained nonmedical personnel to perform a rapid trauma ultrasound examination. *Diagnostics (2075-4418)* 2019;9(4):188. DOI: 10.3390/diagnostics9040188
5. Fosslien L, Duffy MW. How to combat zoom fatigue. *Harv Bus Rev Digit Articles* 2020:2–5. Available from: <https://kortschakcenter.usc.edu/wp-content/uploads/2020/11/Zoom-Fatigue.pdf>. Accessed June 28, 2021.
6. Perlow LA, Hadley CN, Eun E. Stop the meeting madness: how to free up time for meaningful work. *Harv Bus Rev* 2017;95(4):62–69. Available from: <https://www.hbs.edu/faculty/Pages/item.aspx?num=5283>. Accessed on June 28, 2021.
7. Katzenbach JR, Smith DK. *The Wisdom of Teams: Creating the High-Performance Organization*. Boston: Harvard Business School Press; 1993. p. 291.
8. Edmondson AC. *Teaming: How Organizations Learn, Innovate, and Complete in the Knowledge Economy*. San Francisco: Jossey-Bass; 2012.
9. Eby K. *The Essential Guide to Creating an Effective Team Charter: Smartsheet*. (2017). [online] Available from: <https://www.smartsheet.com/essential-guide-creating-effective-team-charter>. [Last accessed October, 2021].
10. Brownlee D. *Team Charter. Leadership Excellence* 2012; 29(10):15. Accessed from: <https://static1.squarespace.com/static/5445b92de4b0104aa94a9fdf/t/54e97da7e4b02904f4d38be3/1424588199414/Leadership-Excellence-2012-10.pdf>. Accessed on June 28, 2021.
11. Rogelberg SG, Scott C, Kello J. The science and fiction of meetings. *MIT Sloan Management Review* 2007;48(2):18–21. ISSN 8756-2308. Accessed from: <https://sloanreview.mit.edu/article/the-science-and-fiction-of-meetings/>. Accessed on June 28, 2021.
12. Patrick ML. *Death by Meeting: A Leadership Fable...About Solving the Most Painful Problem in Business*. San Francisco, CA: Jossey-Bass; 2004.
13. DuFrene DD, Lehman CM. *Managing Virtual Teams*, 2nd edition. New York: New York Business Expert Press 2016.
14. Frisch B, Greene C. 3 Things virtual meetings offer that in-person ones don't. *Harv Bus Rev Digit Articles* 2020:2–9. Accessed from: <https://hbr.org/2020/07/3-things-virtual-meetings-offer-that-in-person-ones-dont>. Accessed on June 28, 2021.
15. Hunsaker PL, Hunsaker JS. Virtual teams: a leader's guide. *Team Performance Management* 2008;14(1/2):86–101. DOI: 10.1108/13527590810860221
16. Edmondson AC, Smith DM. Too hot to handle? How to manage relationship conflict. *California Management Review* 2006;49(1):6–31. DOI: 10.2307/41166369
17. Druskat VU, Wolff SB. Building the emotional intelligence of groups. *Harv Bus Rev* 2001;79(3):80–90. Accessed from: [http://researchforteachers.org.uk/sites/default/files/Docs/Building%20the%20Emotional%20Intelligence%20of%20Groups%20\(report\).pdf](http://researchforteachers.org.uk/sites/default/files/Docs/Building%20the%20Emotional%20Intelligence%20of%20Groups%20(report).pdf). Accessed on June 28, 2021.
18. Branson L, Clausen TS, Chung-Hsein S. Group style differences between virtual and F2F teams. *Am J Bus* 2008;23(1):65–70. DOI: 10.1108/19355181200800005
19. Cascio WF. Managing a virtual workplace. *Acad Manag Exec* 2000;14(3):81–90. DOI: 10.5465/ame.2000.4468068
20. Grenny J. How to raise sensitive issues during a virtual meeting. *Harv Bus Rev Digit Articles* 2017:2–5. Accessed from: <https://hbr.org/2017/03/how-to-raise-sensitive-issues-during-a-virtual-meeting>. Accessed on June 28, 2021.
21. Maruping LM, Agarwal R. Managing team interpersonal processes through technology: a task-technology fit perspective. *J Appl Psychol* 2004;89(6):975–990. DOI: 10.1037/0021-9010.89.6.975
22. Nawaz S, Cordano RJ. Communication: what deaf people can teach others about virtual communication. *Harv Bus Rev Digit Articles* 2020:1–5. Accessed from: <https://hbr.org/2020/08/what-deaf-people-can-teach-others-about-virtual-communication>. Accessed on June 28, 2021.
23. Rosen B, Furst S, Blackburn R. Training for virtual teams: An investigation of current practices and future needs. *Hum Res Manag* 2006;45(2):229–247. DOI: 10.1002/hrm.20106
24. Sweigart LI, Umoren RA, Scott PJ, et al. Virtual TeamSTEPS(®) Simulations Produce Teamwork Attitude Changes Among Health Professions Students. *J Nurs Educ* 2016;55(1):31–35. DOI: 10.3928/01484834-20151214-08
25. Umoren RA, Poore JA, Sweigart L, et al. TeamSTEPS Virtual Teams: Interactive Virtual Team Training and Practice for Health Professional Learners. *Creat Nurs* 2017;23(3):184–191. DOI: 10.1891/1078-4535.23.3.184
26. Hirnstein M, Larøi F, Laloyaux J. No sex difference in an everyday multitasking paradigm. *Psychol Res* 2019;83(2):286–296. DOI: 10.1007/s00426-018-1045-0
27. Benbunan-Fich R, Truman GE. Multitasking with laptops during meetings. *Commun ACM* 2009;52(2):139–141. DOI: 10.1145/1461928.1461963
28. Ophir E, Nass C, Wagner AD. Cognitive control in media multitaskers. *Proc Natl Acad Sci U S A* 2009;106(37):15583–15587. DOI: 10.1073/pnas.0903620106
29. Griesel D. Multitasking and mindfulness can they work together? *AMA Quart* 2020;5(4):42–45. Accessed from: https://www.amanet.org/assets/1/6/AMA-Quarterly-Winter-2020-pg42-45_Griesel.pdf. Accessed on June 28, 2021.
30. Wasson C. Multitasking during virtual meetings. *People Strategy* 2004;27(4):47–60.
31. Laxmisan A, Hakimzadeh F, Sayan OR, et al. The multitasking clinician: decision-making and cognitive demand during and after team handoffs in emergency care. *Int J Med Inform* 2007;76(11-12):801–811. DOI: 10.1016/j.ijmedinf.2006.09.019
32. Walter SR, Li L, Dunsmuir WT, et al. Managing competing demands through task-switching and multitasking: a multi-setting observational study of 200 clinicians over 1000 hours. *BMJ Qual Saf* 2014;23(3):231–241. DOI: 10.1136/bmjqs-2013-002097
33. Weigl M, Müller A, Sevdalis N, et al. Relationships of multitasking, physicians' strain, and performance: an observational study in ward physicians. *J Patient Saf* 2013;9(1):18–23. DOI: 10.1097/PTS.0b013e31826b7b87
34. Straus SG. Technology, group process, and group outcomes: testing the connections in computer-mediated and face-to-face groups. *Hum-Comp Interact* 1997;12(3):227. DOI: 10.1207/s15327051hci1203_1
35. Jarvenpaa SL, Leidner DE. Communication and trust in global virtual teams. *Organ Sci* 1999;10(6):791–815. DOI: 10.1111/j.1083-6101.1998.tb00080.x
36. Kurtzberg TR. *Virtual Teams: Mastering Communication and Collaboration in the Digital Age*. Santa Barbara: Praeger 2014.
37. Oeppen RS, Shaw G, Brennan PA. Human factors recognition at virtual meetings and video conferencing: how to get the best performance from yourself and others. *Br J Oral Maxillofac Surg* 2020;58(6):643–646. DOI: 10.1016/j.bjoms.2020.04.046

38. Dhawan N, Carnes M, Byars-Winston A, et al. Videoconferencing etiquette: promoting gender equity during virtual meetings. *J Womens Health (Larchmt)* 2021;30(4):460–465. DOI: 10.1089/jwh.2020.8881
39. Delbecq AL, Van de Ven AH, Gutafson D. *Group Techniques for Program Planning: a guide to nominal group and delphi processes*. Middleton, WI: Green Briar Press; 1986.
40. Hale J, Grenny J. How to get people to actually participate in virtual meetings. *Harv Bus Rev Digit Articles* 2020:2–5. Accessed from: <https://hbr.org/2020/03/how-to-get-people-to-actually-participate-in-virtual-meetings>. Accessed on June 28, 2021.
41. Ferrazzi K (Aug. 8, 2019). Getting virtual teams tight. *Harv Bus Rev Digit Articles* 2014. Accessed from: <https://br.org/2014/12/getting-virtual-teams-right>. Accessed on June 28, 2021.
42. Malhotra A, Majchrzak A, Rosen B. Leading virtual teams. *Acad Manag Perspect* 2007;21(1):60–70. DOI: 10.5465/AMP.2007.24286164
43. Szelwach C, Matthews TL. Being present in a virtual world: improving the effectiveness of virtual teams. *Org Dev Rev* 2021;53(2):75–82. Accessed from: <https://pesquisa.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/resource/pt/covidwho-1200566>. Accessed on: June 28, 2021.

