A guide for virtual working groups

CIEE-ICEE

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This guide is intended to help scientists plan and run a virtual working group meeting. In writing this guide, we envision a typical CIEE-ICEE working group meeting of about 8-15 people with about 40 contact hours, but some of our recommendations are scalable.

Preparation in advance of the virtual meeting

1. Develop an overall schedule for your meeting, and be creative! The structure of your virtual meeting will likely be very different than that for an in-person meeting. Interacting via video can be exhausting, so you may want to have multiple short sessions (current recommendations are no more than an hour per session) with either breaks or changes in activities between sessions. For example, you could alternate group video discussions with working collaboratively online on a google doc or individually developing a computer script. Since your participants do not need to travel to the meeting, you have the potential to spread your meeting over time. For example, would meeting every Monday morning for two months be more effective than meeting all day for an intense 5-day week? If your participants are in disparate time zones, your meeting times may be constrained by what falls within everyone's working hours. It is best to enquire directly about your participants' availability, rather than make assumptions.

2. Think about how the work should flow between different parts of the meeting, including whole group discussions and breakout groups. You might want to create a schematic of this workflow that can be modified during the meeting as needed.

3. Use the workflow to set an overall Agenda for the meeting. Develop objectives for each group session, and communicate these in writing in advance of the session. Expect fluid change in this Agenda. To cope with this, keep minutes of previous sessions and finish each session with a summary before closing. This should flag the main topics for the next session which may well be different from that originally planned. Keeping your Agenda in Google sheet or wiki format allows for quick updates on the fly.

4. Each session will need to have a facilitator and a notetaker. This does not mean that the same person needs to be a facilitator for all sessions, and rotating the facilitator amongst members of your working group can help bring out diverse viewpoints and approaches. Alternatively, you could hire a professional facilitator whose role is to keep you on topic and ensure everyone is able to contribute, but who is totally neutral on the science. We suggest that you ask everyone in the working group to take turns as the notetaker in the interests of equity. You may also need a co-host on videocalls to manage the chat or keep track of raised hands.

5. Decide on the technology that you will use during the working group. You may want to consider using a variety of digital platforms (but not too many!) to allow you to remotely: chat, draw, send quick text messages, merge/synchronize/version control files, share data, and organize your

overall project (see Box). Ask participants to set up all the software in advance that you will be using during the collaboration, and to configure it to allow effective collaboration (e.g. receive notifications on Slack). We suggest that you do a test run to make sure that participants are able and comfortable using the digital tools. If a number of participants are new to a particular platform, consider running a short workshop where experienced participants can teach other participants how to use the platform; alternatively, use your budget or other resources to support professional training for the participants. You may also want to identify a participant that will be the resource person for a platform (e.g. someone who will handle all the pull requests for Github).

6. Implement your Data Management Plan (DMP) even before your meeting starts. Your DMP includes data ownership and usage agreements, data storage and security, and data documentation, sharing and archiving. Ideally, have one participant take responsibility as data manager.

7. We suggest that you ask participants to do some preparatory tasks in advance of the meeting (e.g. background reading, collating data). Emphasize that - in the absence of a large block of time together, as would be typical for an in-person working group - it is essential to use group time efficiently. There are a number of excellent resources that you can share with participants on how to build effective collaborations (see References) and how to improve inclusivity in working groups (Germain 2020) and in scientific meetings (Prendergast et al. 2019). If you envision that certain participants will play certain roles in the meeting, approach them in advance to prepare for this role. For example, one person may be particularly familiar with a database that will be used by the working group, and could be asked to walk everyone through it. Another participant may have developed a model, computer package or analysis that will be used in the meeting, and could be asked to develop a hands-on training workshop on this tool.

Technology Platforms for virtual collaborations

Video chat, with share screen features, breakout rooms and whiteboards (e.g. Zoom, Bluejeans, Skype – all of which have different functionalities).

Draw: if you need more than a basic whiteboard on the videochat, consider collaborative design platforms like Mural and Miro.

Quick text messages that are pre-sorted into organizational channels (e.g. Slack)

Merge or synchronize document edits, and ideally version control these (e.g. googledocs, OSF)

Merge and version control computer scripts (e.g. Github, bitbucket)

Share data on cloud (e.g. OSF, Dropbox, Nextcloud, etc. "Checkout" feature like OSF or fork and merge options like Git prevent conflicted copies)

Organize your overall project to ensure reproducibility (we recommend OSF here as it not only provides built-in version control for multiple file types, unlimited storage and wikis for documentation, but can connect with other platforms like Github, Dropbox, Googledrive products, Figshare and Dataverse).

At the very beginning of the meeting:

1. Start with introductions. Each participant in your working group has been invited because they bring a special ingredient (skill set, knowledge set, etc.) to the group. If you are the facilitator, think about how you will ensure that the rest of the group understands the value brought to the working group by that participant – not only during the introductions, but throughout the meeting. Note that it is generally not a good idea to have individuals present talks on their research as a way of introducing each other – your group's social energy will be at its highest when they meet first thing in the day, and you don't want to squander that by passively watching slideshows. Instead, you could ask each participant to prepare responses to a couple questions, such as: what are the main skills you think you bring to the task ahead, what do you hope for out of the group (this can be very helpful for the group leaders as this gives an opportunity for any dissonance to be identified early). Participants may appreciate a shared folder where they can upload their own papers relevant to the working group.

2. Set a code of conduct. Important elements are: ensuring everyone has the opportunity to contribute and is heard and their contribution acknowledged and correctly attributed, constructive and respectful interactions, and recognition that some people will need short windows of silence in order to jump into discussions. Explicitly discuss etiquette around the technology. You might suggest that participants don't check email or otherwise multi-task during discussion time, consider putting laptops in "do not disturb" mode to prevent notifications, discuss when is it appropriate to have videos on vs. off in discussions. Also discuss which platform will be used for each type of information (e.g. you don't want to be duplicating messages on both Slack and email "just in case", or share files via email that would be better version controlled on OSF). If your working group is using data that are not yet public, establish a data sharing agreement amongst working group participants as well as any exogenous data owners (see example here). While this code of conduct could be imposed by the meeting leader or facilitator, you will get greater buy-in if participants jointly decide on the ground rules.

3. An icebreaker exercise helps get everyone talking to each other! Teams work because people become socially invested in them, and we have to work extra hard to develop those connections online. Some fun ideas include a quiz game where teams compete against each other or a bingo game where you need to learn one thing about each participant to cross off a square on your bingo scorecard (both games can use Zoom breakout rooms to separate teams or individuals). If you use Slack, consider setting up a strictly-social channel (e.g the #random channel). You can also use social media platforms here (e.g. create a WhatsApp or Facebook group), but please remember that some participants may hesitate to use certain platforms due to privacy concerns.

4. Decide as a group how the costs (e.g. time spent collating data) and benefits (e.g. authorship on papers, including position) of this working group will be

shared among participants. There is increasing use of authorship scorecards to objectively determine author position and inclusion on manuscripts, and we recommend that such scorecards (example here) be developed in advance of starting a collaboration. Do not assume that graduate students and postdocs should incur more costs (e.g. do most of the data collation or management) just because you perceive that "they have more time" than faculty. Instead, if such researchers end up doing a disproportionate share of the scientific labour, consider how you could increase their benefits, for example by providing opportunities to lead papers or using your budget to provide a stipend to compensate them for doing this extra work. Be aware that there is evidence that gender influences the role of researchers in scientific publications, even after controlling for career stage (Macaluso 2016), and combatting this trend requires active work on the part of researchers. Although we know of no comparable studies examining how race, Indigenous identity, nationality affects scientific role, it would be unwise to assume there are not similar issues.

During your meeting: tips to be productive and inclusive

1. Start each group session with a discussion of the goal of the session. End each session with a summary of progress made to your goal, and what the next steps are. This type of constant checking in about where you are heading as a group helps maintain focus. While all working groups have unexpected twists and turns in the journey, if you don't know where you are hoping to end up, it is hard to know how to get there.

2. Maintain a good balance between group discussions and breakout groups. The group discussions help maintain overall focus, ensure that the breakout groups are complementary to each other, and allow important feedbacks from the larger group to each of the breakout groups. The breakout groups are where a lot of the actual work of data collation, manuscript writing or model coding gets done. Even if you are meeting for just a morning session, try to sandwich the breakout groups between opening and closing whole-group discussions.

3. Often ideas about new and exciting directions arise as part of the creative process. If the

Ways to Brainstorm Online

Group Discussion. This is the tried and true method for brainstorming. With videoconferencing, you'll want to enact a system to stop people from talking over each other, for example by using the raise hand tool (or even better, raise real hands). You can also have people add their ideas as they come to them on the chat.

Pair-and-share. Ask people to first discuss an issue in groups of only 2-3 people, as these small group sizes ensures that everyone contributes. Once each small group has decided on its ideal solution, the entire group convenes and one person from each group reports back.

group feels that these are important but are tangential to the main project, record these in the meeting notes and discuss when such "side projects" might usefully be pursued later in the overall meeting agenda, or whether specific subgroups should be formed to pursue them. There is a delicate balance between maintaining the overall momentum of the group and allowing the creative blossoming of other ideas. Many of these side projects can provide additional opportunities for different participants to lead papers, helping equalize the benefits from the working group.

4. Understand that there is a distinct tempo to most working group meetings. Brian McGill has written a [blog](#) describing this as a diamond-shaped trajectory: "The goal in the beginning is to broaden out – open up minds, create crazy ideas, capture every thought. Then when things have gotten impossibly wide, it is time to pivot and turn energies into focusing and narrowing down. A key to a good working group is for the PIs to have the nerve to let things broaden out for a while (often several days) and then have the leadership to firmly reign it back into a focus." This dynamic was formalized by Bruce Tuckerman back in 1965 as forming-storming-norming-performing, where *forming* concerns developing the group dynamic, *storming* is about creative differences, *norming* is about reconciling these divergent perspectives and *performing* is realizing the end goal. Think about where your group is in this dynamic, and what leadership it needs to move to the next stage.

5. It is the job of the facilitator to ensure everyone has an opportunity to speak, and that everyone who speaks is heard. That means that ideas are properly attributed to the first person who proposes them, and that consensus is not assumed. Remember that even though everyone may hear the same words, their interpretation of them may be different. A good facilitator provides space and opportunities for multiple viewpoints to be

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Visualize. *Just because you are in front of a computer, you don't need to restrict yourself to a mouse and keyboard. Encourage participants to spend a couple of minutes sketching out a potential workflow or model using a marker on paper: share it via the webcam or by uploading a photo of it, then ask people to explain the idea they sketched out.*

Whiteboard. *Many videoconferencing programs have whiteboards, where participants can add their ideas through text or drawing. Allow enough time for individuals to add their thoughts, then identify clusters of similar ideas (you can even reorganize these on the whiteboard) and ask contributors to explain these. Make sure to add screenshot s of whiteboards to the meeting's notes.*

Want more ideas? *See* [*https://contentmarketinginstitute.com/2020/04/brainstorm-content-ideas-remotely/*](https://contentmarketinginstitute.com/2020/04/brainstorm-content-ideas-remotely/)

Useful questions that a facilitator might use to guide the group dynamic (quoted from NESCENT, 2012):

Probing: *Why is this important?*
Clarification: *It sounds like what you are saying is…is that right?*
Indirect probing: *Is this important because…?*
Leading and seeking other solutions: *Are there solutions in the area of…?*
Redirecting from a nonrelevant point: *That's a good point. Can we put that on the issues list so we won't forget it, and then get back to…?*
Prompt to keep group moving: *We have covered a,b,c…what else might we…?*

expressed and respected. Encourage curiosity about other people's perspectives. Early career researchers can often feel intimidated by jumping into a discussion dominated by established researchers. This may require the facilitator to ask if anyone who hasn't yet spoken wants to, and allowing a silence to linger for someone to jump into. Such silences may seem even more awkward in video meetings than in regular in-person meetings, so an alternative is to encourage everyone to spend a minute responding to a specific question using the online chat feature.

At the end of your meeting

Remember that endings are just as important in meetings as beginnings. Schedule in specific time in your meeting/session to create a "to do" list with deadlines and have people sign-up for tasks before they leave the meeting/session. End on a high note by reviewing progress made towards goals within the meeting.

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