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OPEN Math Evaluation Expectations

Table of Contents

1. What is the evaluators' role?

The evaluation is designed to gather formative feedback to help shape and improve PD offerings in the future, and summative information about what the project accomplished and what difference it made. Formative evaluation is like tasting the soup to see if it needs more cayenne, and summative evaluation is like asking your friends how they enjoyed their meal.

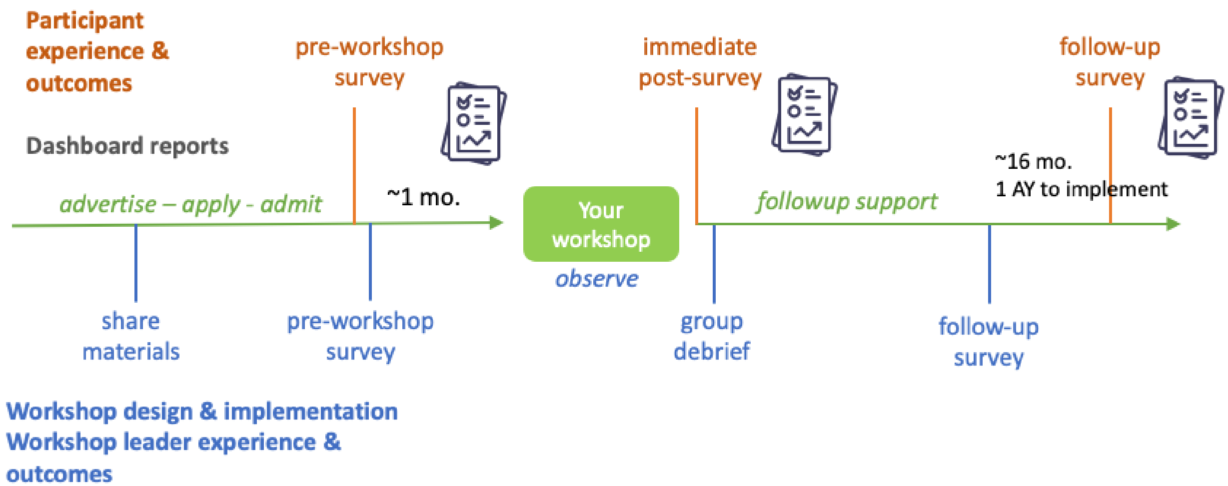
We gather data to track what participants experience, what they learn (or not), and how they do or don't implement what you share, and to capture what you learn (or not) as professional developers. We'll also use these data to provide feedback to improve future PD offerings. Taking a broader lens, we'll use what we learn to develop research findings and recommendations about effective practice in online PD.

We take our professional responsibility very seriously to interact ethically with everyone who is part of the project, and to protect the privacy and confidentiality of information that you and they share with us. All components of the evaluation have been approved by the University of Colorado Boulder's Institutional Review Board (IRB). We are happy to answer questions or respond to any concerns.

[Our group](#) has worked a lot on professional development in STEM disciplines, and we like supporting teachers to improve learning and experiences for students.

2. What is the evaluation design for OPEN Math?

The evaluation focuses on tracking growth for participants, tracking growth for workshop leaders, and capturing effective practices for running online workshops for college instructors. The graphic provides a snapshot of the evaluation components and timeline, and the text provides a bit more detail about each component.



2.1. *Participant experiences, learning, and outcomes*

This part of the evaluation focuses on what participants take away and use from the workshop. We also ask about their experiences, in order to provide feedback on what works and how it can be improved.

We use a series of 3 surveys, given shortly before the workshop, immediately after the workshop, and longer after the workshop, in the fall a full academic year after they attended. Details about each are summarized in the chart below.

Participant survey	Purpose & content	How & when Feedback you get from us
Pre-WS	*Baseline* Initial knowledge, skills, attitudes related to the workshop topic ● general OPEN Math goals ● your team's learning objectives Self-described teaching practices Professional background, work context, & personal demographics	Email from eval team ~4 weeks < WS Eval team will share responses prior to your WS, to help you become familiar with your folks & their needs.

Immediate post WS	*Learning* Workshop experience Knowledge, skills, attitudes related to the workshop topic ● general OPEN Math goals ● your team's learning objectives Implementation plans	Last half hour of WS (save us time, please!) Eval team will share a summary of responses & pre/post comparison
Followup	*Implementation* Knowledge, skills, attitudes related to the workshop topic ● general OPEN Math goals ● your team's learning objectives Implementation actions Context for implementation	Email from eval team Late fall 15-16 mos > WS Eval team will share a summary of responses & pre/post/followup comparison

If you have specific survey questions that you've used before and want to use again, or other specific needs for evaluation, let us know. We will get the best responses if we coordinate efforts.

2.2. Workshop leader experiences, learning, & outcomes

This part of the evaluation focuses on what you, as workshop leaders, take away and use from leading a workshop. In order to provide feedback on what works and areas that can be improved, there are various points where you may be asked to comment on your experience as a workshop facilitator. In addition, once the workshop has concluded, the workshop evaluator and workshop facilitators will also have a group debriefing session (see 3.2 post-workshop group debriefing).

We use a series of up to 3 surveys, given shortly before the workshop, immediately after the workshop, and near the end of the academic year after the workshop. Details about each are summarized in the chart below.

Leader survey	Purpose & content	How & when
Pre-WS	*Baseline* Initial knowledge, skills, attitudes about professional development (PD) Professional background, work context, & personal demographics	Sent by email a few weeks < WS
Immediate post WS	*Workshop implementation & leader learning*	Sent by email soon after WS

	Workshop experience Knowledge, skills, attitudes about PD Implementation plans Advice to the project	
Followup	*Leader capacity & community* Knowledge, skills, attitudes about PD Connections to other PD providers	Sent by email spring term > WS

2.3. Workshop implementation

To understand participant responses to the workshop, and to learn more about effective practices for online PD, we want to know what happens in the workshops. In addition to your and participants' perceptions from survey responses, several approaches help us understand your workshop goals and design.

- Access to workshop materials. We want to understand your plans and to see the same workshop-ready materials as your participants do. We'll need access to your WS hub, and please include us in your communications with participants (e.g. group email list or whatever you use). We'll ask for a few key documents in advance, including your schedule and workshop learning goals.
- Pre-workshop group conversation about your learning objectives and key workshop features. We need this info to prepare the pre-workshop survey. We'll be in touch to schedule this with each WS team. See 3.1 below for more about learning objectives.
- Workshop observation. This is our best way to understand the participant experience, interpret their comments, and follow how WS plans work out in real time.
    - We will try to observe in real time as much as possible - that's most efficient for us - but ask you to record Zoom sessions as a backup, since it's a busy summer for us with 7 workshops going on. We will not use the recordings for other purposes.
    - The Zoom recordings that help us may also be helpful to registered participants who miss a session (nearly inevitable) or who want to review a session. They are intended for personal use only; please make sure people understand this ("Vegas rules"). In particular, they are not a substitute for attending: recordings should not be available to people who registered for the workshop but did not attend, or to people who did not register. For this reason, please post links to Zoom recordings privately, with password protection, rather than publicly. The recordings can also be used by your workshop team for self-evaluation (e.g., to debrief or review) but not as a research data source. Our IRB permissions and consents do not include research use of workshop recordings as a data source.

    - *The focus of observation is the workshop design and implementation*, NOT what any individuals do or say. We do not track any individuals in the observations or link observations to individual data.
    - Perhaps the trickiest part of recording workshop sessions is remembering to start and stop the recording. If you stop it for a break or quiet time, please set a timer or other reminder to re-start it. If you leave it on, remember that casual conversation is recorded too.
- **Post-workshop group debrief**, soon after the workshop is over, to capture your immediate thoughts about how it went.
    - It works well to do this right after the session ends, or as participants are finishing their post-workshop survey (e.g., if the team pops off to its own breakout group) -- but we know that may not work for every group. We'll schedule this with you prior to your workshop.

3. What do the evaluators need from workshop teams?

Your help and good will are essential to support the evaluation - both to encourage participants to complete the surveys, and to participate yourselves. We want to learn from you and we are happy to be helpful whenever we can.

3.1. Learning objectives

We will need a list of 4-6 learning objectives for your workshop - what participants will be able to do after they have completed your workshop. The objectives need to be clear and measurable, stated in terms of active verbs. We will use these to develop survey items that are specific to your workshop, along with a set of general items for all the OPEN Math workshops.

Some links that may be helpful for writing learning objectives:

Step by step guide, how to write learning objectives. From Robert Talbert, a math educator at Grand Valley State who thinks a lot about learning and teaching.

How to articulate your learning objectives, and how these relate to workshop activities and tasks ("assessments" in a course, here you can think of it as work that participants will generate in your workshop). From Carnegie Mellon's Center for Teaching and Learning (CTL).

A guide to using Bloom's taxonomy to write learning objectives, with a good list of verbs. From U. Iowa's CTL.

A sketch of Dee Fink's categories of significant learning - an expansion of Bloom's taxonomy that goes beyond cognitive kinds of learning. The links have more good verbs! From U. Buffalo's CTL.

3.2. Communicating with participants

We do our best to keep the communication role off you, but here is a short checklist of ways we hope you can help us communicate with participants

- If you have a pre-workshop introduction process, we'd like to introduce ourselves too (e.g. on Google Slides as for the winter workshop sessions). It helps when we can explain to them our purpose in participating. Please add us to your group email list or whatever you are using to communicate.
- Communicate positively or neutrally about the evaluation. If folks have questions about evaluation that you can't answer, please do send questions our way.
- It is very helpful if you can set aside time for Jenny (or her observing partner) to introduce herself early on the first day, to explain her presence in the workshop and set people at ease about her taking part.
- Please save us some time (25-30 min., ideally) at the end of the last session, so we can have people fill out the post-survey in real time. This raises response rates enormously and thus provides more accurate and more general feedback to you.
- We may ask you to remind participants about surveys if we need help raising response rates for the follow-up survey, in particular.

4. How can teams get feedback along the way? Everyday formative assessment

We encourage you to include formative assessment in your daily plans, to probe participants' thinking and to get some feedback from them along the way about how things are going. Here are a few we like. As a bonus, these tactics also model useful strategies for formative assessment or metacognition that people can use in their own classes. Formative assessment helps participants (or students) be metacognitive: it's beneficial for learning to reflect -- what am I thinking, and how has my thinking evolved? And it's useful for you to get their input on what they need more of (and what they don't!), and so to adjust your strategies or timing.

4.1. Waterfall, or 1-2-3 Go

This is a Zoom-friendly way to efficiently share a lot of ideas about a single prompt. We have seen this used very effectively in workshops, to brainstorm or to check in on how people are receiving or struggling with an idea. To run a waterfall, post a prompt to the Zoom chat window and ask people to type an answer, but *not* hit Submit until you say 1-2-3-Go (see also Robin Wilson's writeup in the AIBL Handbook). Responses flood into the chat window, and everyone takes time to read them.

This works best with a simple prompt that can have many right answers, such as "Share one idea for doing X in your class," or "What is one challenge you face in implementing Y in your setting?" This one is not anonymous in Zoom. You can read through the answers individually, or turn it into a discussion by inviting people to share (ask for volunteers or pick answers that intrigue you). Capture the chat so you can share the ideas to everyone.

4.2. Minute paper

This is a classic formative assessment for seeing what is clear or muddy about key ideas. This one can be anonymous. One way to implement it online is to set up Google Slides where each slide has the prompt and 6 answer boxes (3 rows, 2 columns). Prepare as many copies of the slide as you need for everyone to have a box. Everyone chooses a box and starts to write. When time is up, everyone takes time to read the responses - it's quick because they are compact.

This format is well suited to a reflective question where you want to capture a range of ideas, such as "What do you think of when we say X?" or "What discomforts did the homework task generate for you?" The small box makes it clear what grain size of answer is expected. People can add their initials or write anonymously; leaders can scan a lot of answers quickly and choose a couple to comment on or invite discussion. (thanks to Naneh Apkarian, Estrella Johnson, and Sara Rezvi for the online version of this tactic)

4.3. Gots and needs

Everyone writes at least one sticky note with something they "got" today, and at least one with something they still "need." The Gots help you know if your learning objectives for the day were achieved. The Needs help you identify topics to visit or revisit tomorrow.

This works well as a daily exit ticket, where everyone reflects a bit at the end of the day. Grouping the Gots and Needs into themes, and planning how to respond, is a good exercise for the end-of-day team meeting. For the most candid feedback, do it on a jamboard or padlet, where people can be anonymous. When you respond to issues the next day, call attention to the changes you made, so they know you heard and are responding to the feedback: "Several people asked for X in their Needs yesterday, so we're going to [take next step]."

4.4. Roses, buds and thorns

Because this is a bit more work, it's less suited to daily feedback, but good for a midway checkpoint or end-of-workshop reflection. You can invite people to share in small groups or in the whole group. It's nice to read the three responses together from each individual, but a padlet of 3 columns could also work here.

Rose = A highlight, success, small win, or something positive that happened.

Thorn = A challenge you experienced; something you can use more support with.

Bud = New idea that has blossomed; something you are looking forward to learning more about or experiencing.

4.5. Daily team debrief

We highly recommend this practice, even if it's quick, to go over the plan for the next meeting, make any adjustments based on Gots and Needs, and review who is doing what when. Maybe you'd like to share your own Gots and Needs at this time. It can be very helpful to have team members rotate through an observing role, who can then comment on what they noticed during a particular session. It's a good time to appreciate each others' different contributions and roles!

5. How can teams keep the mojo going? Follow-up support

5.1. Keep the conversation going

We know from research that workshops have more impact on instructors' practice if they are not just one-and-done. That is, if participants experience meaningful support to implement what they have learned, they are more likely to do so, and to have enough success that it encourages them to continue implementing and developing their skill at the new teaching methods they've learned. And, after a successful workshop, people feel connected and will want to keep talking about your shared teaching interests.

Some workshop teams have already thought of mechanisms to get everyone together again and support each other in implementation. That is great! If you have not thought about that yet, or to complement your current plans, we encourage you to explore with your participants how they might like to stay in touch - via an email list, Slack or Discord channel, MAA Connect group, google group, or some other means. This doesn't mean you have to run that yourself (though you may like to). Consider asking a couple of friendly and outgoing participants to take on the task of prompting everyone from time to time, to keep a supportive community going. Keep reading for ideas about how to do that!

5.2. Tactics to keep the conversation going

From previous work tracking this kind of post-workshop support, we know some things that work well. Chuck Hayward used social network analysis to analyze the communication functions of a post-workshop email list and found that its main function was *building community*: nearly half of all messages sent had a social function such as celebrating student successes or commiserating about challenges. These behaviors made it safe to share difficulties and thus the list became a supportive problem-solving space. While persistent prompting from the workshop leaders was required to get this culture going, eventually participants took over and initiated new conversations of their own.

Posts that shared information alone were sometimes helpful but rarely started conversations. Rather, lively conversations occurred especially when people shared a problem and others helped them think of solutions ("When that happened to me, here's what I did…."). Chuck distilled his findings into these pieces of advice:

- Build community, persistently, through inviting participation and offering emotional support. (Acknowledge that what participants are doing is challenging.Thank people when they contribute.)
- Let things simmer to encourage participant responses. But don't let posts go unanswered. This transfers authority to the group.
- Relevant prompting helps (e.g., share teaching plans in August; check in and consider gathering student mid-course feedback in October; debrief and reflect on the term in December).

- Keep a low floor for participation. (‘‘what are you doing?’ is easier to answer than ‘how did it go?’; check in with individuals who haven’t posted and ask them to share experiences to the group)

Workshop leaders have been the people to initiate the followup support in the past, but this need not be the case. With a little knowledge about “what works,” a couple of participants could take on the role of “listserv mavens” or “Slack captains” and work together to keep the group communicating. Chuck gave a conference talk in 2017 that explains and elaborates on these findings; if you try this approach, we suggest that you and your captains watch the video and plan some tactics (20 min. video).

For a deeper dive, and more of the intriguing social network visuals, take a look at Chuck’s paper .

We’d be happy to help your participants get rolling on this if you have questions or want to strategize a bit. Stan Yoshinobu is skillful at this kind of online support and can offer advice too.