Preparing Secondary Mathematics Teachers to Facilitate Video Clubs

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MfA

- Nonprofit in NYC that awards four-year fellowships to nearly 1000 accomplished K-12 public math and science teachers
- Teachers interact with one another in the evenings throughout the school year (they stay in the classroom as full-time teachers)
- Teachers engage in self-selected professional development from wide range of opportunities, including “mini-courses” and “professional learning teams”
- Most of the PD is teacher led
- Recipients receive a $60,000 stipend

Goals

Find great math and science teachers, create opportunities for their professional and intellectual growth, and sustain them in their teaching careers
Bring great teachers together in a professional network. Amplify their impact in ways that shape policy and practice
Make teaching a viable, respected, and rewarding career choice for the best minds in math and science

National network

Since 2004 M*f*A has inspired the creation of seven independent programs:

- M*f*A-Berkeley, M*f*A-LA, M*f*A San Diego, M*f*A-Utah, M*f*A-DC, M*f*A-Boston, and the New York State Master Teacher Program (NYSMTP)
- While each program is independent and structured to meet local needs, they are bound by the same mission and values
- ESSA authorizes Title II funds for the purpose of establishing statewide master teacher corps modeled on M*f*A
- M*f*A advocates for its model around the country - we hope to add more states to the network in the coming years

A video club at MfA

FORMAT

1. Two teachers have lessons videotaped prior to session.
2. Facilitators select and edit clips
3. Club spends one hour discussing clips from each teacher's class
4. Four, two hour sessions per video club

Protocol:

1. Introduce the goal
2. Share the classroom context
3. Do the activity that students worked on in the video
4. Watch a video clip
5. Make a list of important moments
6. Choose a moment
7. Interpret student thinking
8. Respond to student thinking
9. Make connections

The protocol - interpreting student thinking

i. What does the student say or do that tells you about how she is thinking?
ii. What can you infer about what the student understands or misunderstands from what she said? What in the video substantiates your claim?

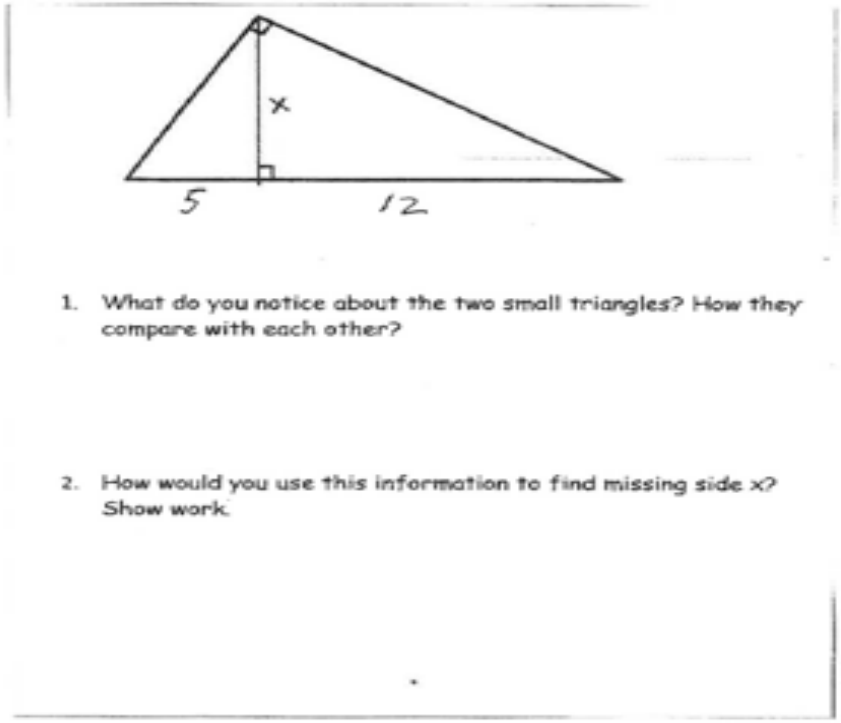
The protocol - responding to student thinking

iii. What questions might you ask to either understand better how the student is thinking or help her understand the concept in her own way?

The protocol - specific instances and general principles

Does this students' understandings or misunderstandings remind you of similar situations with other students? If they do, can you name the general situation of which this (common understanding or misunderstanding) is a specific case?
Do the questions you might ask (or the pedagogical choices you might make) connect with other instances you have seen in other classrooms with other students? Is this a specific case of a more general principle of teaching and learning? How would you describe that principle?

A secondary mathematics class in NYC



NYC public middle school
45% Asian, 9% Black, 20% Hispanic, 25% white
1071 enrolled
6.4% ELL

A video club at MfA:

Context:

- Four recipients of MfA's Master Teacher Fellowship
- Teach at a range of schools
- Co-facilitators, Michael and Eric
- Teachers chose to participate in the PLT

What did you notice?

Why watch video of video clubs?

Watching video of teaching helps us improve instruction

Maybe watching video of video clubs can help us improve facilitation

Can we develop a way to help facilitators learn to notice “Learning to Notice”

The role of facilitator

1. Select clips for discussion

2. Maintain a safe and collegial atmosphere that keeps everyone engaged and allows for professional vulnerability

3. Keep the group focused on learning goal

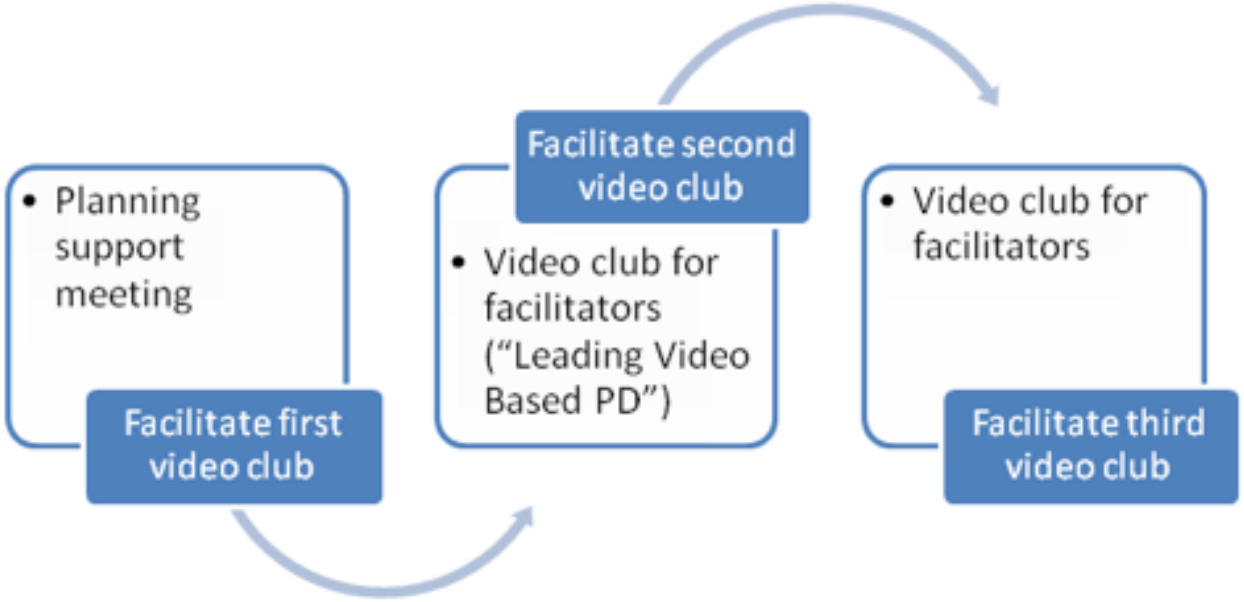
4. Foster substantive discourse around teaching and student thinking

The need for preparation and support

In our experience, facilitating is a complex skill. It is especially difficult to foster substantive discourse around teaching and learning. It is difficult for us at this time to explain why substantive discourse occurs, and how it is maintained.

Hilda Borko (2014) has written about the need to characterize and unpack what she calls “Mathematical Knowledge for Professional Development” (MKPD). We believe that the problem of facilitation is related to developing this kind of knowledge.

A facilitator preparation model: A video club for facilitators of video clubs



Using video to prepare and support facilitators

Important questions:

1. What are we trying to learn?
2. What lenses and practices are useful for achieving our learning goals?

A video club at Democracy Prep

FORMAT

1. One teacher has lesson videotaped prior to session.
2. Facilitators select and edit clips
3. Club spends one hour discussing clips from the teacher's class
4. Four, two hour sessions per video club

Protocol

1. First hour is a structured discussion of the task and student thinking is anticipated
2. Second hour follows the MfA video club protocol

Another secondary mathematics class in NYC

During a sale, a store offered a 40% discount on a particular camera that was originally priced at $450. After the sale, the discounted price of the camera was increased by 40%. What was the price of the camera after this increase?

NYC public charter middle school

The video club at Democracy Prep

Context

What do you notice?

Trying different lenses

Lens: Cognitive depth (van Es, 2011) of conversations

i. Are teachers describing/evaluating, interpreting/analyzing, or generalizing/ proposing pedagogical alternatives?
ii. What are the associated facilitation moves?
iii. What might the facilitator have done differently?
iV. What combinations of moves seem to guide the most substantive conversations?

Lens: Teacher thinking

i. What does a teacher say that tells you about how he or she is thinking?
ii. What do you infer about what the teacher understands the mathematics or student thinking? What did you see or hear in the video that supports your inference?
iii. How might you respond if you goal was to...

Other lenses we might use?

Questions we should ask? Tasks we can engage in?

An evolving protocol

1. Introduce the goal (notice and respond in ways that engage teachers in substantive video-based discussion about instruction and student thinking)
2. Share the classroom context for the video
3. Do the activity that teachers (and their students) worked on
4. Watch a clip
5. Identify moments
6. Interpret teacher's thinking
7. Categorize cognitive depth of conversation.
8. Analyze and propose alternative facilitation moves
9. Make Connections

Learning to notice “Learning to Notice”

Context:
Two MfA Master Teachers facilitating video clubs in their schools
Discussion about a discussion about a problem involving fractions
(31:32)

Towards developing our understanding of MKPD

What knowledge did a facilitator employ to make a move that fostered substantive discussion?