AIM-TRU PLT COMMON ISSUES TABLE

AIM-TRU
Analyzing Instruction in Mathematics using the Teaching for Robust Understanding Framework

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How to Use This Guide

This guide is to be used in conjunction with the AIM-TRU PLT Facilitation Basedeck and AIM-TRU PLT Facilitation Guide.

Each section represents an important component of the PD model and includes the common issues for the following: group norms, the AIM-TRU cycle, dimensions, and FAL, developing our big mathematical picture, and the video discussions.

For each component, we worked with seasoned AIM-TRU facilitators to determine the most common issues they faced as well as their suggested teacher moves and back-pocket questions.

In each section, you will find a table with two columns: the common issue and suggested moves and back-pocket questions. The moves and questions appear as the **Facilitator Moves** and **Back-Pocket Questions**. The moves are specific strategies that have worked for AIM-TRU facilitators in the past and provide various strategies for you to try in your own PLT facilitation. The questions provide specific prompts to help your PLT move forward collegially for deeper engagement.

We are excited to share this work with you and hope that this guide and our supporting materials help make your professional learning experience meaningful!

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Section 1: Group Norms

Common Issues	*Suggested Moves and Back-Pocket Questions*
The participants have not reviewed the FAL beforehand.	**Facilitator Moves** ● At the end of the PLC, have a 5-minute preview of the next FAL/Case Study that will be focused on in the next session. ● Reiterate the expectation that FAL should be read to help with the richness of the discussion. ● Be clear that the tasks in the FAL will be done in the PLC. ● Send a reminder email to participants including the dimension being discussed and the On Target and ask them to start thinking about a big mathematical picture on their own. ○ "Dear PLC, We are looking forward to our meeting next week where we will discuss the ____ ***FAL***. The TRU dimension associated with this FAL is ***Cognitive Demand***. Please read through the file and think about what ***Big Mathematical Idea(s)*** stand out to you. We have attached the Charles article and the Cognitive Demand On Target for reference. See you soon!" ● Note: We do not suggest asking participants to reply to the email with responses.
There is an imbalance in talk time among the teachers in the group.	**Facilitator Moves** ● Include a group norm such as "make space / take space". Remind teachers that every voice in the group is important - some of us can focus on sharing our thoughts and others can focus on creating space for that to occur. ● Prime quieter teachers for participating in the open discussions by asking them to share specific strategies or thoughts. You can do this by talking to partnerships during the math task and the discussion diamond activities. ● If virtual, allow participants to use the chat in addition to sharing verbally. **Back Pocket Questions** ● After one person shares about their strategy: Did anyone else use a different strategy?

Some teachers make overly confident statements.	*Examples of this common issue:* - "THE way to teach ____ topic is to_____" - " I NEVER use ____ to teach ____." **Facilitator Moves** ● Try to have the teacher rephrase their statement by modeling the type of language that opens the discussion. **Back Pocket Questions** ● What about your school context made this un/successful for your students? How are you defining success in teaching and learning?
Post-PLC session surveys are not being completed.	**Facilitator Moves** ● Have participants do this immediately after the session. ○ If virtual, post the link in the chat. If in person, hand them the physical survey as the session concludes or use a QR code on the last slide.

Section 2: AIM-TRU Cycle, Dimensions, and FAL

Common Issues	*Suggested Moves and Back-Pocket Questions*
The icebreakers are taking too long.	**Facilitator Moves** ● Phase out icebreakers as the group becomes more comfortable. ● Create an icebreaker with one single, relevant prompt. Keep it fun, but also keep it moving. ● Think about using an opening activity to orient people to the work to make it meaningful (e.g., what big mathematical ideas have you thought about; what FAL did you try; what norm will you be working on).
Teachers have varying levels of content familiarity, comfort, and experience.	**Facilitator Moves** ● Intentionally pair teachers with someone of a different grade level. ● Deemphasize correct answers when working on the mathematical task; instead highlight partner discussion and their reasoning when talking to partnerships. ● Encourage teachers to look at the task like a student, focusing on a common misconception that might be apparent in the video case, pointing out that students don't know all of the answers either. ● Remind teachers that we are all learners in the space and that part of our development of collegiality is being vulnerable and embracing uncertainty. **Back Pocket Questions** ● Let's pause. Can you tell me how you've been completing the task so far? ● What part of the task or your work are you unsure about? ● Is there any part of the task/match that you are saving for later? Why is this? ● What are you thinking? How are you and your partner proceeding? ● Remember, we aren't focused on the answers. We want to focus on the process and the ideas that come out of our engagement with the mathematics. What are some strategies that you and your partner used when starting the task? What were some of your initial thoughts?

Participants are not following the protocol while doing the task.	**Facilitator Moves** ● Before doing the mathematics, remind participants to follow the protocol by reading the directions together. ● Remind the PLC to adhere to the protocol, ensure all voices are heard, and prioritize time spent explaining one's thinking. ● Finishing the task is what we should strive for, but not at the expense of leaving out important conversations. **Back Pocket Questions** ● How well are you following the directions for the activity? Is there some part of the directions you are ignoring? If so, why do you think that is? ● Why do you think the designers of this lesson chose to make the task this way? ● Where did you begin with the activity? Why did you start there? ● Is there any part of the task/match that you are saving for later? Why is this?

Section 3: Developing our Big Mathematical Picture

Common Issues	*Suggested Moves and Back-Pocket Questions*
Participants struggle with distinguishing between the three questions for Building the Big Mathematical Picture.	**Facilitator Moves** ● Have an explicit conversation with participants about what makes each of these questions differ from each other. **Back Pocket Questions** ● Which of the questions asks you to consider what students might actually do in order to tackle the task, and how their approaches might connect to each other? ● Which of the three discussion questions do you think is focusing purely on the mathematics at hand? ● Which of the questions is asking you to think ahead to what students may be learning in a future class, and how this current task at hand connects to that future learning?

A group's BMP is an understanding, learning standard, or lesson goal.	**Facilitator Moves** ● Suggest that participants review the Charles article from orientation for homework before each session. ● Discuss the concept of "big mathematical ideas" compared to understandings and learning standards, as well as grain size. ● Provide participants with the big mathematical ideas listed in the article or the BMP Commentary sheet. ● Validate the math listed on a group's chart paper but offer suggestions for how to modify a lesson goal. ● Ask how the understanding or learning standard is seen in the lesson. Listen for the group's description of the math behind the understanding or standard and highlight that by echoing it back to the group. **Back Pocket Questions** ● How can we be sure that this suggestion is a BMP and not a mathematical understanding or learning standard? Is the grain size of this idea large enough to be considered "big"? ● How do we incorporate ____'s idea from the discussion? ● What is some evidence that supports _____ being the BMP for this task? ● How can we rephrase this idea so it is about mathematics and not about teachers and students?
Teachers are struggling to put their thoughts into words in their group's BMP space.	**Facilitator Moves** ● Echo what you are hearing the group describe to you so that they can adopt, adapt, or discard that idea. ● See if what the group is talking about resembles any ideas in the BMP Commentary sheet. **Back Pocket Questions** ● What part of all of these ideas seems the most integral to the mathematics in the task? ● Can you tell me more about your idea? Can you give an example of this from the task? ● (After consolidating an idea) Does this capture the essence of your group's thoughts?

Teachers use imprecise language during the BMP or at other times during discussion.	**Facilitator Moves** ● Ask them to elaborate on their language ● Leave it be. They're learning. ● If this becomes a pattern you can assign some "pre-work" like the beginning assessment task for the FAL or something to give those teachers a little more exposure to the math over a longer period of time.
People feel the need to have a consensus and exactly worded answer.	**Facilitator Moves** ● Remind folks that the purpose is to start a conversation on the topic of what math is, and not to have a definitive statement. **Back Pocket Questions** ● BMPs are intended to start a discussion, not be a consensus answer… are there any other angles we haven't introduced yet? ● What part of all of these ideas seems the most integral to the mathematics in the task? ● In what ways are the presented ideas connected?

Issues that arise from the prompt: "How does doing the math impact what I see on our chart paper?"	*Examples of this common issue:* - *Groups having divergent opinions on the Big Mathematical Picture.* - *Heavy reliance on the BMPs listed in the Charles article. For example, "equivalence" is a very popular BMP and comes up often as a default choice.* **Facilitator Moves** ● The suggestion is for facilitators to embrace different opinions and communicate that there can be more than one BMP. As facilitators, we should also point out any similarities if there are any. ● Encourage group members to alternate when sharing with the entire group. **Back Pocket Questions** ● Considering the different BMPs presented from each question group, which might make the most sense overall? Why? ● The Charles article is not an exhaustive list of Big Mathematical Ideas. While it is a great resource, let's allow ourselves the opportunity to add to the list.
Pulling It Together Slide – transitioning to the video-watching portion of the workshop.	*Example of this common issue:* - *The question posed on this slide is tailored to the specific TRU dimension. A common issue is deciding what to say when this slide is on the screen (other than reading the question aloud).* **Back Pocket Questions** ● What parts of this task feel intentional? How does this intentionality bring out our TRU dimension and the BMP?

Section 4: Video Discussion I - Suggesting Teacher Moves

Common Issues	*Suggested Moves and Back-Pocket Questions*
The consensus statement at the center of the Discussion Diamond is composed predominantly of one participant's corner response.	**Facilitator Moves** ● Be explicit with the participants that there should be ideas taken from all corner responses when writing the center consensus. **Back Pocket Questions** ● Does this capture the essence of your group's thoughts?
When participants are responding to the discussion diamond protocol, there are often vague statements that are not backed by evidence from the video clip.	**Facilitator Moves** ● Press participants to back up their statements with evidence from the video. **Back Pocket Questions** ● What did you see in the video that made you think of that? ● How and where do you see that idea come up during this clip? ● Where on the target do you believe what we observed falls? What is your evidence? ● You said you observed _____ happening in this clip, what is your evidence for this? (refer to the transcript)
The teachers are unfamiliar with TRU dimensions.	**Facilitator Moves** ● At the first meeting, discuss the TRU framework in great detail. ● Provide the TRU On Target prior to the video (perhaps during the Pulling It Together slide). Give time for teachers to read through it ahead of time so they are primed for what to look for during the clip. **Back Pocket Questions** ● After a teaching move is suggested: ○ Where might this proposed solution fall on the TRU On Target for this dimension? ○ How might this proposed solution help move toward the center of the TRU On Target for this dimension?

The teachers' comments come off as judgmental.	**Facilitator Moves** ● Remind teachers of the norms for watching and discussing the video, ○ Especially since they do not know those recorded personally, and what learning took place before or after this video clip. ○ Remind them that their experiences with their students may or may not mirror what is being seen in the clip.
The teachers are struggling to come up with additional ideas for teacher moves.	**Facilitator Moves** ● Suggest discussing another TRU dimension **Back Pocket Questions** ● Are there teacher moves you would want to make for the next day's class (not just in the moment of the video)? ● Return to the target document and look for any highlighted phrases, not near the target center. Ask: What might you as a teacher do to move closer to the center? ● A couple of groups noticed [state something from the Discussion Diamond work]. What questions or moves could we make to address that? ● Remind the group of a certain point in the video that wasn't addressed yet (use the transcript if available) and ask: Are there any questions or moves to make for this portion of the clip?
There is a need to show the video multiple times.	**Facilitator Moves** ● Budget time for watching video multiple times.
The three discussion questions sometimes mesh together.	**Facilitator Moves** ● For the first session, or perhaps a few sessions down the line, make sure it is clear what the ethos of each question is.
When it comes time to answer the three discussion questions, one of the questions is left out.	**Back Pocket Questions** ● We noticed that question __ does not have anyone, would you two mind considering joining up for that question? What were you going to talk about for your original chosen question, how might that connect to this question?

Teachers will give general recommendations about classroom culture and broader issues.	**Facilitator Moves** ● Redirect the discussion towards the students/classroom in the video. **Back Pocket Questions** ● What did you see in the video that gave you an idea about the classroom culture? ● What small everyday things do you do to communicate the environment you want in the classroom?
Teachers recommend drilling a specific algorithm or procedure, e.g., keep-change-flip, usually in an attempt to give students access and boost their confidence.	**Back Pocket Questions** ● On the one hand we want students to have access, and on the other we want them to develop a deep understanding of math with transferable skills. It's possible to teach KFC and have a deep understanding of mathematics, but how have others balanced this? ○ Follow up: What are we teaching students about math? ○ Even deeper follow-up: What do we believe math is?
The video clip is hastily and negatively judged.	**Facilitator Moves** ● Remind participants of video discussion norms ● Remind participants that the video is only a short part of a much longer class section. ● Focus the conversation on the TRU dimension that is being focused in the session. **Back Pocket Questions** ● What did the teacher do well in the clip? ● What are specific examples of student learning in the video case?

Teachers suggest changing the FAL (e.g., remove cards).	**Facilitator Moves** ● Discuss how changing FAL may result in lower cognitive demand, and affect the development of agency. **Back Pocket Questions** ● Why do you think the designers of this lesson chose to make the task this way? ○ What parts of this task feel intentional? How does this intentionality bring out our TRU dimension/the BMP? ● What would the impact on the learner be if a calculator was added to or removed from this task? ● Why do you think that this match tested your cognitive load?

Section 5: Video Discussion II - Connecting to Our Big Mathematical Picture

Common Issues	*Suggested Moves and Back-Pocket Questions*
Suggested teacher moves do not directly address getting to the BMP and instead focus on the TRU dimension.	**Facilitator Moves** ● Post BMP work is somewhere visible in the room so it is easily referenced at this point in the meeting. ● Use the Mathematics Target document to help generate ideas. **Back Pocket Questions** ● Does the teacher move also help illuminate the BMP to students? ○ If so, teachers can defend why. ○ If not, ask for moves specifically to address the BMP.
Many people don't have things to say about connections to the BMP.	**Facilitator Moves** ● Take a piece of the BMP and ask about that specifically. **Back Pocket Questions** ● How might you use a BMP like this to modify or create an activity/unit in your classroom? ● How did these students experience the BMP? How do you know?
The BMP activity is at the end of the meeting and people are tired.	**Facilitator Moves** ● Focus on the pacing of the meeting ● Take a short break and resume.

Section 6: Other

Common Issues	*Suggested Moves and Back-Pocket Questions*
There is a saturation of printed materials.	**Facilitator Moves** ● Only print select pages that will be focused on (they should have viewed it all in the prework). ● Hand participants a stapled packet at the beginning of the session that would contain the materials that will be focused on in the order in which they come up.
The group starts to fall behind the targeted pacing of the meeting.	**Facilitator Moves** ● In your pre-session planning, set time stamps for yourself and your co-facilitator and decide what to do if you fall behind. ○ Leave at least 10-15 minutes at the minimum for the On Target discussion. ● Emphasize the value of moving through all parts of the protocol while also respecting everyone's time. ● Give warnings for the timing of transitions. Ex: "Thirty more seconds to write silently before joining your group at the BMP poster." ● Doing the Mathematics: Move on once most groups have gotten through the majority of the task. The task does not have to be finished by everyone to have a meaningful discussion about it. ● If an open discussion is running longer than predicted, consider the value of the conversation to the group and the depth of what is being discussed. It may be more beneficial to stay in a productive discussion longer than anticipated than it is to complete every part of the protocol at the cost of cutting off discussions. ● Add a slide at the beginning of the meeting about goal pacing if this happens repeatedly.

The teachers' conversation is off-task.	**Facilitator Moves** ● Refocus conversation by repeating the current prompt or using a back-pocket question to move the conversation forward. ● Reiterate directions not being adhered to. Ex: "If your group is done discussing what each of you wrote, please come back to the main table." ● Ask an off-task group to explain their strategy to refocus. ● If a group is finished with the task: ○ Ask them to check that all directions for the task have been followed. ○ Provide an extension if the lesson offers one, or have them go back and record their thinking at the significant moments/challenges they faced during the task for them to later share in the discussion.