

# Hello!

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## Using the 5 Practices to Improve Facilitation of POGIL Activities



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# Why POGIL? And How?

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- The Best Way to Start is JUMP in...
- Take your worst lecture....
- And POGIL it!



# 5 Practices

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- *anticipating* different solutions (right/wrong/incomplete) that students may have in response to the given problem
- *monitoring* while students work to view responses and give individual help enabling each student or group to give their best response
- *selecting* which student solutions will be presented to the whole class
- *sequencing* the solutions in the final class discussion for optimal learning. Sequencing can also be thought through to some degree at the anticipation stage
- *connecting* the solutions to each other and the underlying content of the lesson

M.S. Smith, M.K. Stein, “*5 Practices for Orchestrating Productive Mathematics Discussions*,” Reston, Va. : The National Council of Teachers of Mathematics and Thousand Oaks, Ca.: Corwin, 2011.

# Anticipating/Monitoring

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True anticipating is more than an answer key

Include possible incorrect answers and responses

Similar to POGIL facilitation prompts:

What could go wrong?

How can facilitator respond?

Monitoring in a POGIL classroom is complex

*Idea: What if facilitator had shared support materials?*

# Example Version Control

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1. (3 min) A possible approach is to always save a backup copy of every project file. How frequently should backups be made? List pros & cons for each option.

Options: hourly, daily, weekly... monthly

2. Summarize key insights

Kussmaul, Clif, "SE\_VER-version control.pdf", [https://www.dropbox.com/sh/isyl5tx9lecfevi/AADYVaDsf7chYTKaWECHli1ja/SE\\_VER%20-%20version%20control.pdf?dl=0](https://www.dropbox.com/sh/isyl5tx9lecfevi/AADYVaDsf7chYTKaWECHli1ja/SE_VER%20-%20version%20control.pdf?dl=0)

# Possible Example

Common Misconception	Examples	Possible Responses	Select/Sequence?	G1	G2	G3	G4
- vague wording on what is actually better or worse about an option	<ul style="list-style-type: none"> <li>- “better” incremental saves</li> <li>- we would look for a happy balance - not too long or too short between saves</li> </ul>	<ul style="list-style-type: none"> <li>- How can you tell what is better?</li> <li>- What are the criteria you could use to determine what is “happy”</li> </ul>	- here probably not important unless general issue with multiple groups				
- missing idea of automation		<ul style="list-style-type: none"> <li>- What would happen if you were asked to save that often? Would you do it?</li> <li>- What would enable you to save that often if you had to?</li> </ul>	<ul style="list-style-type: none"> <li>- Yes, important to get across at some point in connecting</li> <li>- Ask whole class these questions at regroup point</li> </ul>				
- missing idea of combining strategies		<ul style="list-style-type: none"> <li>- How can you get the best of both time frames?</li> <li>- Can you only use one of these approaches</li> </ul>	<ul style="list-style-type: none"> <li>- Yes, select if combination approach mentioned.</li> <li>- Sequence combination at end of other insights mentioned</li> </ul>				

# Selecting/Sequencing/Connecting

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## Choose students/groups to present

Ordering solutions can sometimes have explanation of common mistakes (helps students who don't usually make them understand misconceptions and avoid them later)

POGIL sequencing by who is going faster (not always ideal for presenting) But also by order of questions...

Selecting can be selecting certain questions to report out, or make sure all groups have correct before leaving.

May not need to have every group report out each time (example - advanced solution whole group does not need)

POGIL closure is an opportunity to provide the connection back to learning outcomes - especially for students.

# Take-aways...

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5 Practices can help prepare for facilitation

- Best value when prepared ahead of time
- Making connections back to learning outcomes key (in POGIL too)
- Preparing means content covered appropriately
- Connecting makes sure students are also aware of what they have learned
- POGIL is a more structured/scaffolded approach that encompasses some components of 5 practices in structure

Issues:

- When “nobody” gets solutions we want to see - what can we do in POGIL... I think anticipating this will allow facilitator to plan a possible approach in each case. Likely leading questions.



# Question...

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If materials existed, would you use them?

- 1) Misconception grids
- 2) Reporting out sequences and ideas/  
experiences
- 3) Closure slide per Model
- 4) How to include Process Goal?

# Thanks!

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### References

- [1] M.S. Smith, M.K. Stein, "5 Practices for Orchestrating Productive Mathematics Discussions," Reston, Va. : The National Council of Teachers of Mathematics and Thousand Oaks, Ca.: Corwin, 2011.
- [2] D. A. B. Weikle, M. Murray, "Improving CS Class Discussions Using The 5 Practices." The Journal of Computing Sciences in Colleges – Eastern Conference, 2013, pgs. 65-71.
- [3] Kussmaul, Clif, "SE\_VER-version control.pdf", [https://www.dropbox.com/sh/isyl5tx9lecfevi/AADYVaDsf7chYTKaWECHli1ja/SE\\_VER%20-%20version%20control.pdf?dl=0](https://www.dropbox.com/sh/isyl5tx9lecfevi/AADYVaDsf7chYTKaWECHli1ja/SE_VER%20-%20version%20control.pdf?dl=0)