

Coaching to Promote Teacher Learning of Ambitious Mathematics Instruction

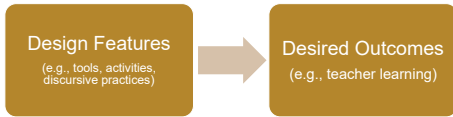
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Current Approach to Research on Coaching

“High-quality” coaching:

- Modeling (Ellington et al., 2017)
- Co-teaching (Campbell & Griffin, 2017)
- Debriefing (Gibbons et al., 2017)
- Discussing lesson videos (Kraft & Hill, 2020)
- Deep & specific conversations (Russell et al., 2020)

➤ Focus on “Design Features”



Limitations of the current research approach:

Practice

Effectiveness depends on faithful implementation

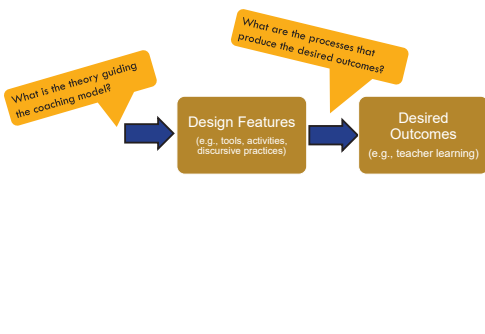
- limits adaptation
- limits scaling-up

Research

Lack of theoretical explanations for why and how effective coaching “works”

- limits contribution to theory development

Overcoming the Limitations of the Current Research Approach



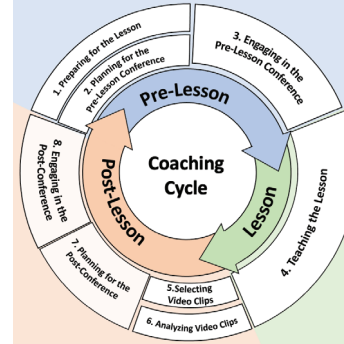
Conjecture Mapping

“A means of specifying theoretically salient features of a learning environment design and mapping out how they are predicted to work together to produce desired outcomes.” (Sandoval, 2014)

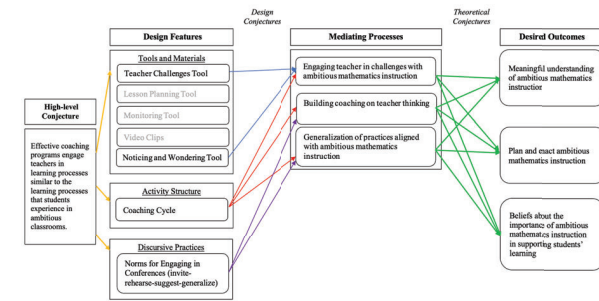
Requires making explicit the mediating processes:

- important for adaptation
- Important for scaling-up

Coaching for Ambitious Mathematics Instruction



Conjecture Map of Our Coaching Model



Design Conjectures:

- If teachers participate in a pre-lesson conference with the *Teacher Challenges Tool*, then they will be engaged in challenges with ambitious mathematics instruction.
- If teachers participate in a post-lesson conference with the *Noticing and Wondering Tool*, then they will be engaged in challenges with ambitious mathematics instruction.
- If a pre-lesson conference is conducted through *Invite-Rehearse-Suggest*, then coaching will build on teacher thinking.
- If a post-lesson conference is conducted through *Invite-Rehearse-Suggest*, then coaching will build on teacher thinking.
- If a pre-lesson conference is conducted through *Generalization*, then teachers will generalize practices aligned with ambitious mathematics instruction.
- If a post-lesson conference is conducted through *Generalization*, then teachers will generalize practices aligned with ambitious mathematics instruction.

Theoretical Conjecture:

- If coaching (1) engages teachers in challenges with ambitious mathematics instruction, (2) builds on teacher thinking, and (3) generalizes practices aligned with ambitious mathematics instruction, then teachers (a) develop “meaningful understanding” of ambitious mathematics instruction, (b) increase their capacity to plan and enact ambitious mathematics instruction, and (c) develop (positive) beliefs about the importance of ambitious mathematics instruction in supporting students’ learning.

References

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