PROFESSIONAL DEVELOPMENT MATERIALS

SUPPORTING FACILITATORS AT DIFFERENT LEVELS

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& many more colleagues and graduate students…

PROJECT AIM: ALL INCLUDED IN MATHEMATICS
DRL 1020177

NC STATE

Horizon RESEARCH, INC.

WAKE COUNTY PUBLIC SCHOOL SYSTEM

Project AIM (All Included in Mathematics)

- Five year DRK12 R&D grant
- To develop and investigate a 40-hour, yearlong professional development program
- That focuses on promoting mathematics discourse for all students in elementary classrooms, with attention to ELL
- By adapting successful discourse strategies from literacy education to mathematics instruction

Project AIM Timeline

2010-11: - Design and pilot professional learning activities

- Developed draft of PD materials

2011-12: - Internal pilot of program (1 cohort; 2nd grade teachers)

- Revised PD materials and added facilitator supports

2012-13: - External pilot of program (4 cohorts)

- Revised PD materials & developed facilitator supports

2013-14: - Scale up with new facilitators (3 cohorts)

- Adapting second grade materials to first grade

2014-15: - Scale up to 1st grade (2 cohorts; 1st grade teachers)

Overall question for AIM at this point:

- How to make sure our materials support facilitators with different facilitation experience who are new to the program?
- How to make the Project AIM PD materials available to others for larger dissemination?

Agenda for the feedback session:

- Project Overview
- Share pieces of the Project AIM PD program for participants & facilitator support materials
- Elicit feedback on
  - The type and amount of support provided to facilitators for each PD program goal
  - The ways in which we are organizing and presenting the materials for facilitators
- Discuss potential next steps for development

Project AIM Overview

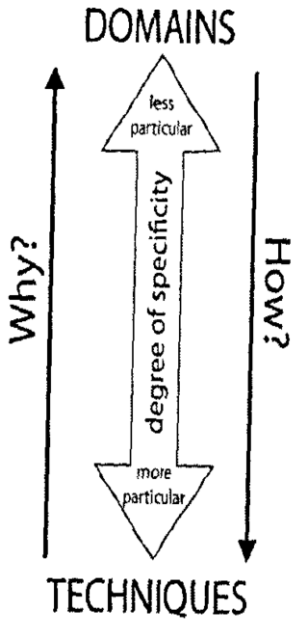
AIM Learning Outcomes

- **Discourse***:* understand what responsive discourse for all is and how it supports conceptual understanding
- **Content:** understand the importance of mathematics knowledge for teaching for supporting responsive discourse
- **Instruction:** understand how certain discourse strategies support the design and implementation of lessons that promote responsive discourse for all

Design Decisions

- Equip teachers with familiar or readily-learned pedagogical strategies that they can immediately take back and try in their mathematics instruction
- Strategies provide students with structures for learning how to participate in discourse and we use student participation to discuss discourse with teachers
- Emphasize lesson planning and instructional purposes for using the strategies to promote discourse

Design Decision Rationale



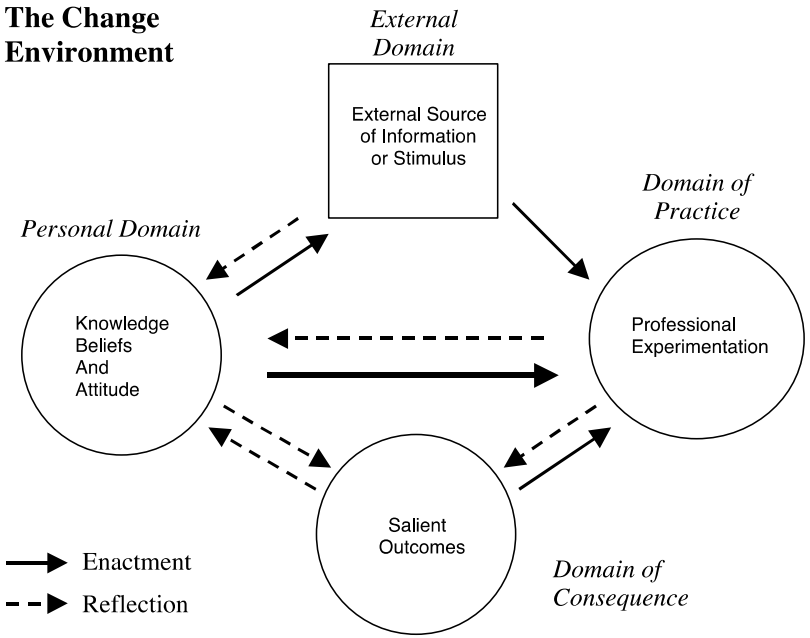


Fig. 3. The interconnected model of professional growth.

Boerst, Sleep, Ball, & Bass (2011). Preparing teachers to lead mathematics discussions.
Teachers College Records , 113 (12), 2844-2877

Clark & Hollingsworth (2002). Elaborating a model of teacher professional growth.
Teaching and Teacher Education, 18, 947-967

Foundation Documents

- Mathematics Discourse Matrix
- Mathematics Teaching Guide
- Questions to Ask Yourself

Project AIM Session Map

Summer Institute						Academic Year Sessions						
Session 1 *Defining Mathematics Discourse*	**Session 2** *Importance of Mathematics Knowledge for Promoting Responsive Discourse*	**Session 3** *Organizing Mathematics Lessons for Responsive Discourse: The Launch*	**Session 4** *Using the Talk Triangle & the Talk Chain to Scaffold Student Engagement in Responsive Discourse*	**Session 5** *Engaging in Responsive Discourse About Subtraction for Teachers*	**Session 6** *Cultivating a Responsive Discourse Community in your Mathematics Class*	**Session 7** *Selecting Responsive Discourse-promoting Tasks*	**Session 8** *Examining Different Problem Types*	**Session 9** *Using the Bet Lines & Draft and Final Copy to Promote Student Engagement in Responsive*	**Session 10** *Asking Probing & Pressing Questions to Push for Mathematical Connections and Sense-making*	**Session 11** *Examining Instructional Moves for Promoting Responsive Discourse*	**Session 12** *Preparing and Planning for Responsive Discourse*	**Session 13** *Revisiting Foundational Ideas and Strategies for Promoting Responsive Discourse in Mathematics*
Building Foundational Ideas Around Mathematics Discourse		**Launch, Explore, Discuss: Discourse Strategies**			**Establishing Norms**	**Task Selection**	**Problem Types**	**Launch, Explore, Discuss: Discourse Strategies**		**Instructional Moves**	**Planning**	**Closure**

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- Build foundational ideas
- Experience discourse strategies
- Engage in mathematics as adults

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- Develop foundational ideas
- Experience more discourse strategies
- Engage in mathematics as adults
- Apply knowledge & strategies to practice

Discourse Goal

- Understand what responsive discourse for all is and how it supports conceptual understanding
  - Define discourse
  - Analyze classroom discourse
  - Engage in responsive discourse as learners
  - Reflect on the nature of discourse in their own classroom

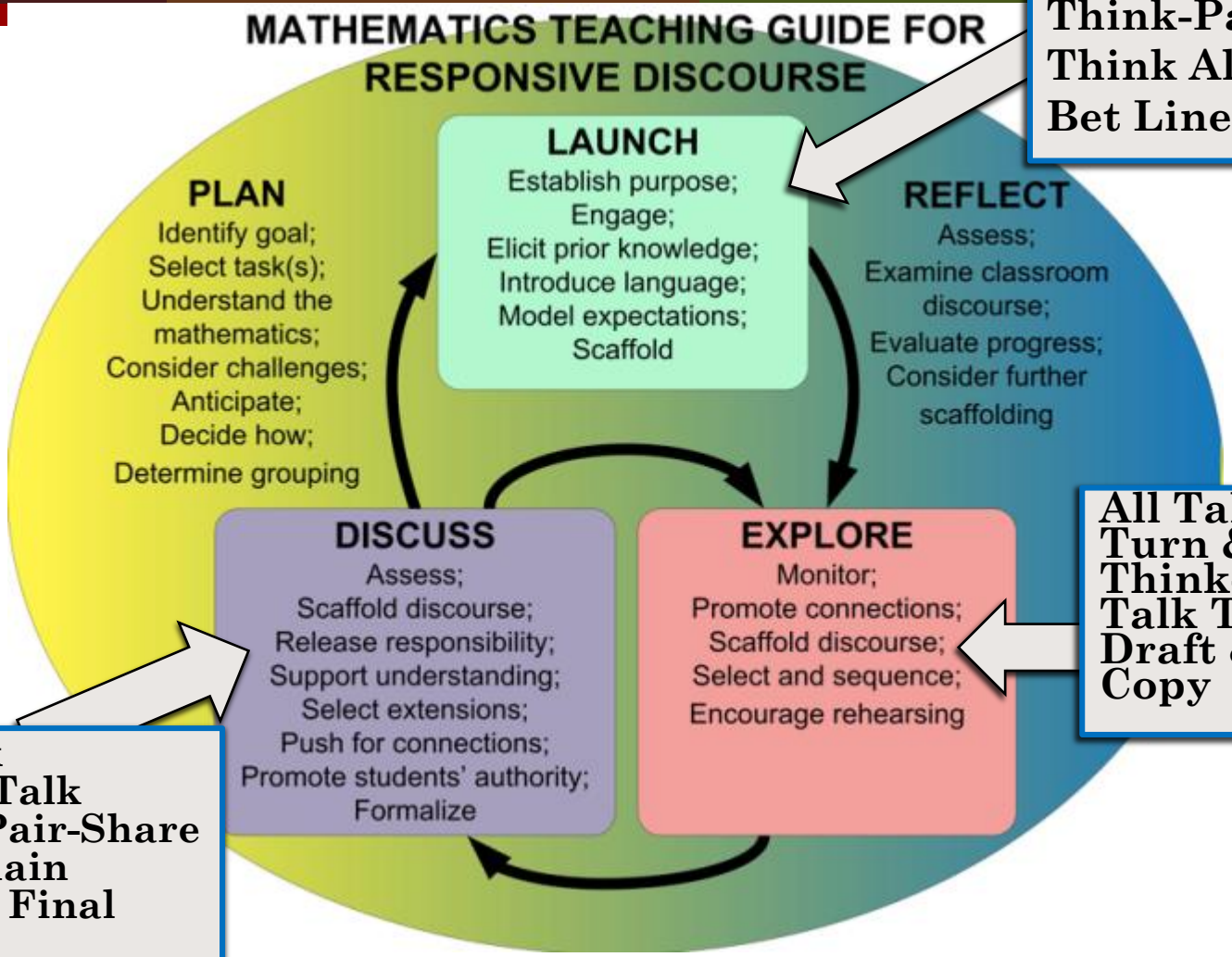
Content Goal

- Understand the importance of MKT for supporting responsive discourse
  - Focus on narrow content slice
  - Analyze instruction to identify evidence of MKT in use
  - Engage with mathematics for adults
    - Solving mathematics tasks for adults
    - Examining students' alternative subtraction methods
  - Engage with Addition/Subtraction problem types and task selection.

Instructional Goal

- Understand how discourse strategies support lessons that promote responsive discourse for all
  - Engage in discourse strategies
    - Experience as learners
    - See in action
    - Rehearse as teachers
  - Plan, implement, and reflect on use of strategies
    - Questions to Ask Yourself
    - Discourse strategy handouts
    - Debrief at start of session
  - Map strategies to purposes in Mathematics Teaching Guide

Discourse Strategies



All Talk
Turn & Talk
Think-Pair-Share
Think Aloud
Bet Lines

All Talk
Turn & Talk
Think-Pair-Share
Talk Triangle
Draft & Final Copy

All Talk
Turn &Talk
Think-Pair-Share
Talk Chain
Draft & Final Copy

FACILITATOR SUPPORT

General Facilitator Resources

- Front materials
  - PD Storyline
  - Facilitation FAQ
- Session plans & slides
  - Overviews, rationales, key ideas, timing, materials
  - General facilitation guidance
  - Learning format icons
  - Guiding questions
- Separate resources
  - Anticipated participants strategies
  - Annotated transcripts
  - Selecting & sequencing charts

Content-Related Facilitator Support

- Front Material
  - Why Subtraction?
  - Problem Types
- Within session supports
  - Main ideas to highlight
  - Guidance to push on the mathematics
  - Anticipated responses
  - Possible modifications
- Separate resources
  - Annotated case narrative
  - Anticipated solutions to a problem
  - Selecting and Sequencing chart
  - Journal articles (Thames & Ball, 2010)

Instruction-Related Facilitator Support

- Front Materials: Commentaries
  - Foundation Documents
  - Discourse Strategies
- Within session supports
  - Main ideas to highlight
  - Facilitator notes
- Within session supports (cont)
  - Guidance to push on purpose and connections to *Mathematics Teaching Guide* and discourse
- Separate resources
  - Strategy handouts
  - Annotated video transcripts
  - Journal articles (Jackson, Shahan, Gibbons, & Cobb, 2012)

Questions for You

1. What do you think about the amount of support and the level of detail of the support for each goal? What to keep? What to change?
2. What additional information or type of facilitator support related to each goal would be helpful to include either upfront or within the plans?
3. What are some different modes in which we could deliver the facilitator support for each goal?

Original Format

- Session plans begin with an overview, the main ideas, and general facilitation notes

- Information about individual activities is provided in a three column format
  - Column 1 provides information about timing of and materials needed for different activities
  - Column 2 outlines the activities
  - Column 3 provides additional information for the facilitators

Original Format Evolution

- Added in additional facilitator support in the third column
  - Guiding questions
  - Anticipated Responses
  - Additional Implementation Notes
- Made changes to how much information was provided in Column 2
- Created additional Facilitator Support Documents

Original Format Challenges

- Essential information was contained in multiple documents
- Information was repeated in multiple places within Column 3
- Column 2 instructions did not line up with relevant Column 3 notes

New Format: Positives

- Present material as more of a narrative
- Incorporate as much as possible into one document
- Reduce redundancy
  - Group activities into bigger chunks to avoid repetition of main ideas and rationale/purpose
  - Group relevant information for an instruction

New Format: Remaining Challenges

- No quick view of what to do when to use when implementing
- Very scripted
- What constitutes a bullet is not defined
  - a point already on a slide
  - an additional talking point
  - an additional instruction
- Overwhelming amount of written information

Questions for You

1. How can we make the facilitator support materials more user friendly?
2. What works and what doesn't work about the current format of the materials?

Questions for You

1. Should we continue to use the moodle platform for larger dissemination?
2. What are other ways to have our materials in a more technological and layered way?

Thank you!

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