Approaches to Observing, Evaluating, and Supporting the Development of Teachers in Implementing the Common Core Standards

Workshop on Implementing Common Core State Standards for Mathematics

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Topics

- *Framework for Evaluation and Observational Tools*
- *Introduction to the Mathematical Practices of the CCSS-M*
- *Observing the practices*
- *Video samples*

Framework for Evaluation and Observational Tools

Evaluation: Current Problems

- Infrequent
- Unfocused: student academic progress rarely figures in evaluations
- Undifferentiated: “satisfactory” or “unsatisfactory”
- Unhelpful: Little or no useful feedback to teachers
- Inconsequential: not used for development, compensation, tenure, or promotion. Only punitively for dismissal.

The Widget Effect, TNTP, 2009

Guiding Principles for Evaluation

- All children can master academically rigorous material, regardless of their socio-economic status.
- A teacher's primary professional responsibility is to ensure that students learn.
- Teachers contribute to student learning in ways that can largely be observed and measured.
- Evaluation results should form the foundation of teacher development.
- Evaluations should play a major role in employment decisions.
- No evaluation system can be perfect, in teaching or any other profession.

The New Teacher Project, 2010

Framework for Evaluation

- Annual Process: All teachers should be evaluated at least annually.
- Clear, Rigorous Expectations: Evaluations should be based on clear standards of instructional excellence that prioritize student learning.
- Multiple Measures: Evaluations should consider multiple measures of performance, primarily the teacher's impact on student academic growth.
- Multiple Ratings: Evaluations should employ four to five rating levels to describe differences in teacher effectiveness.
- Regular Feedback: Evaluations should encourage frequent observations and constructive critical feedback.
- Significance: Evaluation outcomes must matter; evaluation data should be a major factor in key employment decisions about teachers.

The New Teacher Project, 2010

Multiple Measures for Evaluation

No single data point can paint a complete picture of a teacher's performance, so evaluation systems should use multiple measures to determine whether teachers have met performance expectations.

Each measure should have a specific weight, so that teachers and instructional managers understand how each component will factor into the final evaluation rating.

Suggested Multiple Measures:

- Student Academic Growth
- Classroom Observations of Instructional Practice
- Student Perceptions of the Classroom Instructional Environment
- Teacher Perceptions of Working Conditions and Instructional Support at their Schools

Hunt Institute, Issues Briefs for Governors' Education Summit, April, 2012

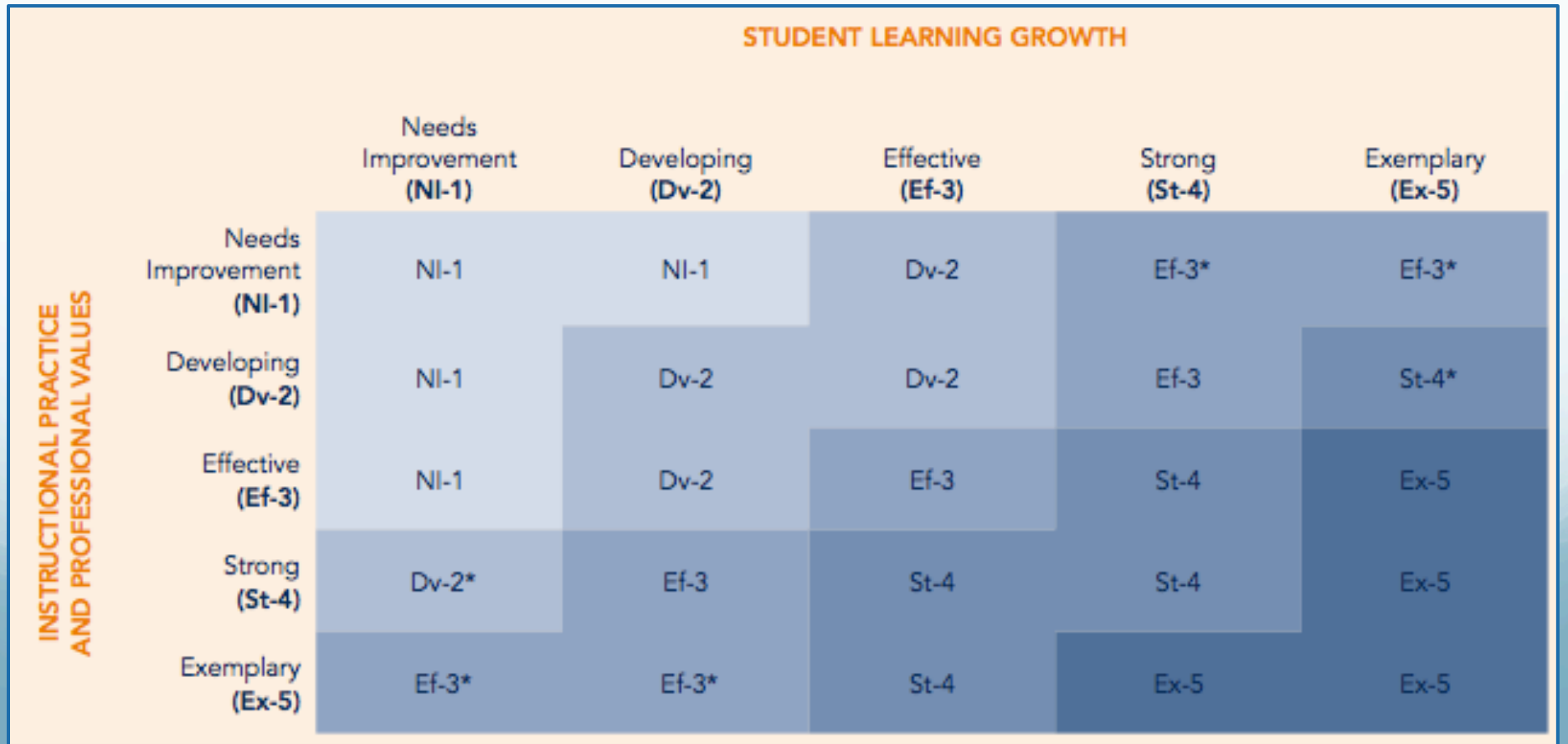
Multiple Ratings for Evaluation

Each teacher should earn one of four or five summative ratings at the end of each school year: for example, “highly effective,” “effective,” “needs improvement” or “ineffective.”

(The New Teacher Project, 2011)

Multiple Ratings for Evaluation

New Haven Public Schools (NHPS), in collaboration with local teachers' union has designed a new evaluation system centered on evidence of student learning. All teachers receive ratings in two overarching categories: "student learning growth" (student progress on standardized and teacher-generated assessments), and "instructional practice/professional values," (based on regular observations on lesson planning and preparation, classroom practice, use of data, professionalism, and high expectations for students).



Significance of an Evaluation Program

An evaluation process must have meaningful implications, both positive and negative, in order to earn sustained support from teachers and school leaders and to contribute to the systematic improvement of the teacher workforce. The evaluation program should contribute to teacher professional development, compensation, tenure, and promotion: i.e. to the partnership of supporting teachers and student learning. Not simply a punitive tool to be brought to bear for dismissal.

Observational Criteria and Tools

The Role of Criteria and Tools

- Communicate clear performance standards to teachers and evaluators that are aligned to the district's instructional model and strategy (e.g., scripted curriculum)
- Establish a common language on instructional practice that helps district leaders develop more consistent and effective professional development.
- Ensure that evaluations result in accurate distributions of performance ratings.
- Help evaluators provide high-quality developmental feedback to their teachers.

Qualities of Observational Tools

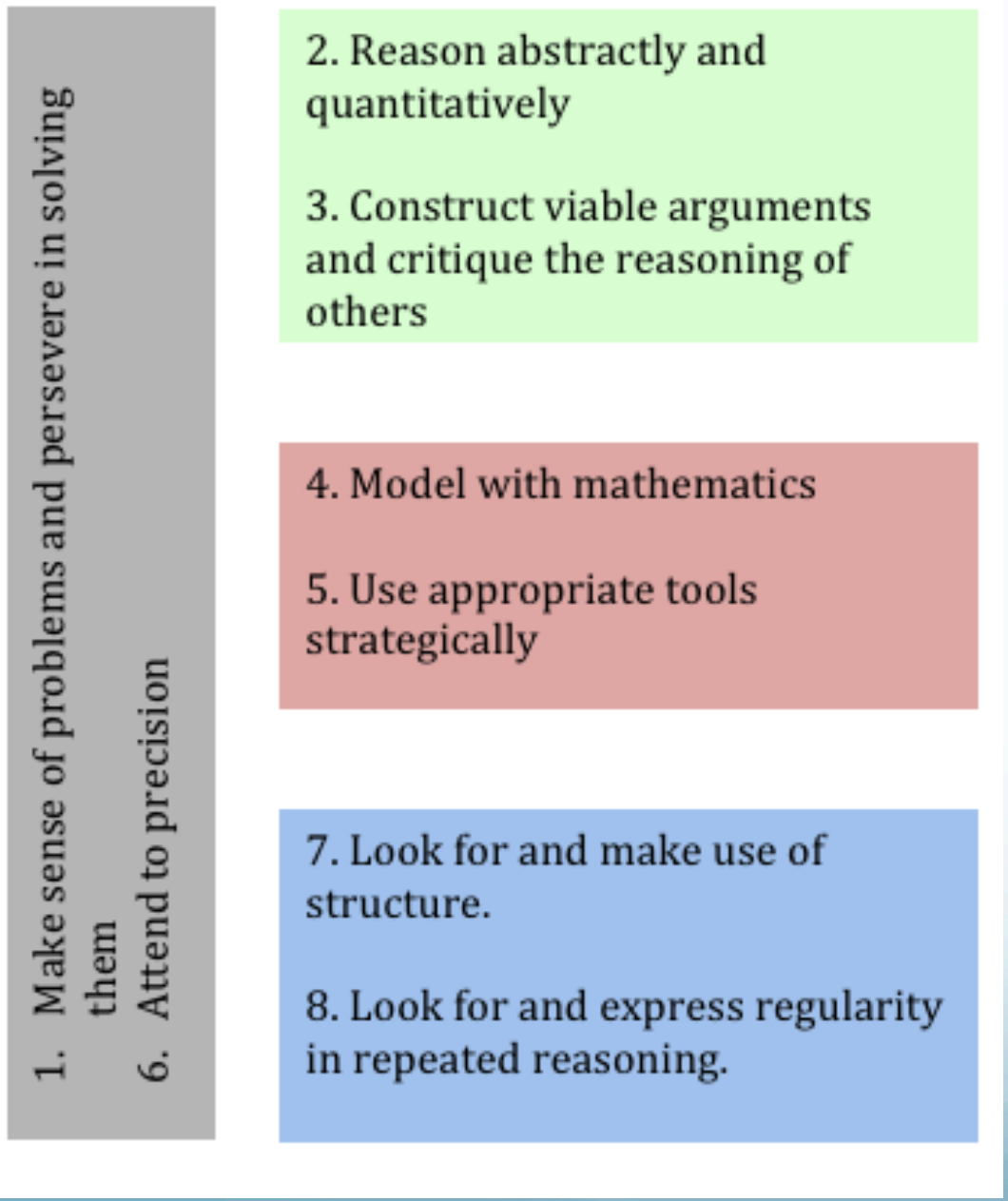
- Cover the classroom performance areas most connected to student outcomes.
- Set high performance expectations for teachers, and do not settle for minimally acceptable performance.
- Provide clear and precise performance expectations for teachers.
- Criteria and tools are student-centered, requiring direct evidence of student engagement and learning.
- Criteria and tools are concise enough for teachers to understand thoroughly and use easily?

Introduction to the Mathematical Practices of the CCSS-M

The Mathematical Practices of the Common Core Standards

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Structure of the Mathematical Practices



Reasoning and explaining

Modeling and using tools

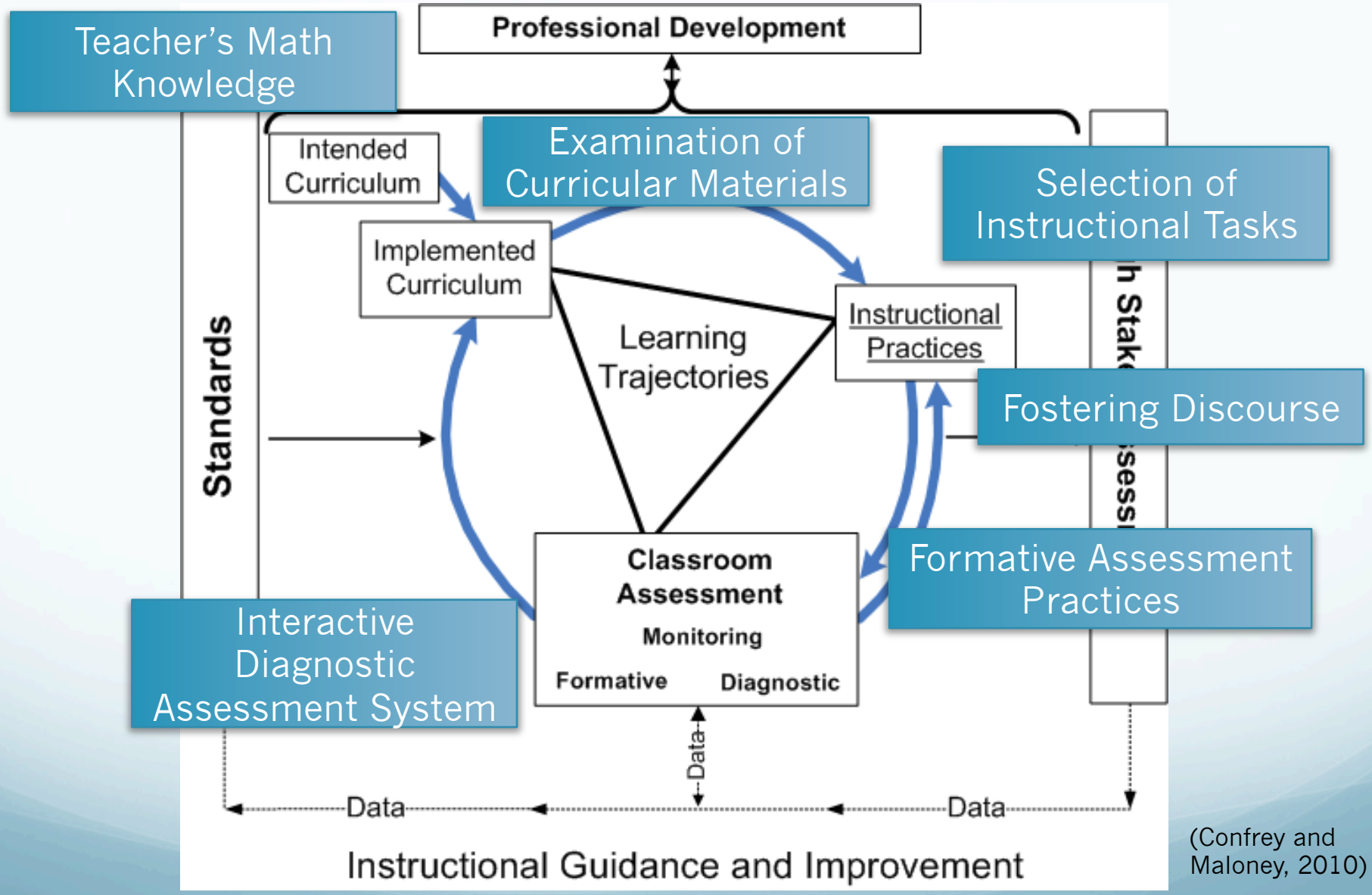
Seeing structure and generalizing

Overarching habits of mind of a productive mathematical thinker.

Mathematical Practices and Content

- Practices are always interrelated with content. They must be addressed in tandem.
- Practices may provide a way to observe classrooms to see how the content is made understandable, challenging and engaging to students.

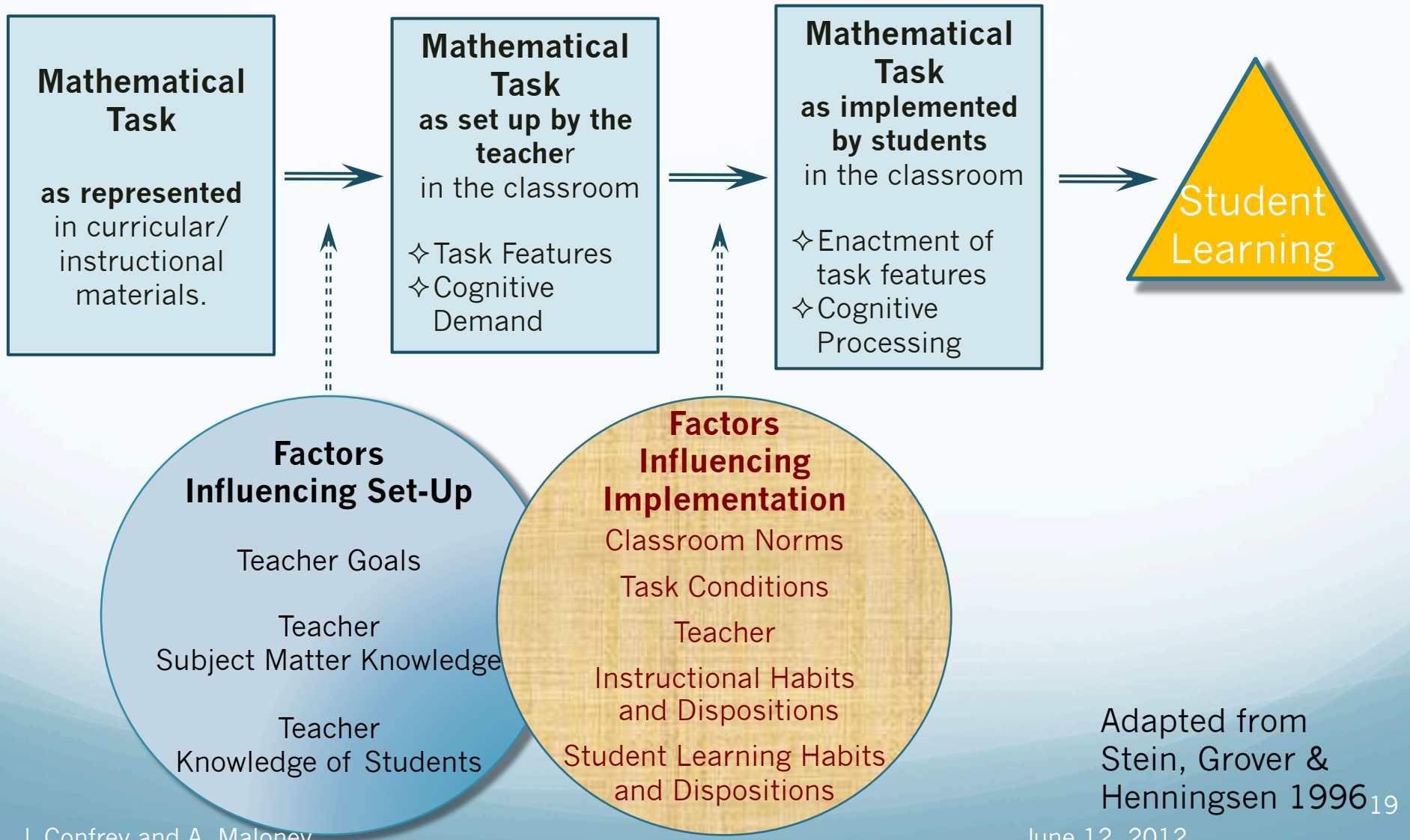
Learning Trajectories as Boundary Objects



(Confrey and Maloney, 2010)

Observing the practices

Selection of Instructional Tasks:
Mathematical Task Variables and Student Learning



Adapted from Stein, Grover & Henningsen 1996

Strategies for Implementing Mathematical Practices

Instructional Implementation Sequence: Strategies

1. Initiating think, pair-share
2. Showing thinking in classrooms
3. Questioning and wait time
4. Grouping and engaging problems
5. Using questions and prompts with groups
6. Allowing students to struggle
7. Encouraging reasoning

Proficiency Matrix:

Standards of Student Practice in Mathematics

Instructional Strategy Code:
- PS: Pair-share
- ST: Showing thinking in classrooms
- QW: Questioning and wait time
- GE: Grouping and engaging problems
- QP: Using questions and prompts with groups
- SS: Allowing students to struggle
- ER: Encouraging reasoning

	Students:	(I) = Initial	(IN) = Intermediate	(A) = Advanced
1a	**Make sense of problems**	Explain their thought processes in solving a problem one way. PS	Explain their thought processes in solving a problem and representing it in several ways. QW	Discuss, explain, and demonstrate solving a problem with multiple representations and in multiple ways. GE
1b	**Persevere in solving them**	Stay with a challenging problem for more than one attempt. QW	Try several approaches in finding a solution, and only seek hints if stuck. GE	Struggle with various attempts over time, and learn from previous solution attempts SS
2	**Reason abstractly and quantitatively**	Reason with models or pictorial representations to solve problems. GE	Are able to translate situations into symbols for solving problems. GE	Convert situations into symbols to appropriately solve problems as well as convert symbols into meaningful situations. ER
3a	**Construct viable arguments**	Explain their thinking for the solution they found. ST	Explain their own thinking and thinking of others with accurate vocabulary. QW	Justify and explain, with accurate language and vocabulary, why their solution is correct. GE
3b	**Critique the reasoning of others.**	Understand and discuss other ideas and approaches. PS	Explain other students' solutions and identify strengths and weaknesses of the solution. QW	Compare and contrast various solution strategies and explain the reasoning of others. GE
4	**Model with Mathematics**	Use models to represent and solve a problem, and translate the solution to mathematical symbols. GE	Use models and symbols to represent and solve a problem, and accurately explain the solution representation. QP	Use a variety of models, symbolic representations, and technology tools to demonstrate a solution to a problem. SS

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5	**Use appropriate tools strategically**	Use the appropriate tool to find a solution. GE	Select from a variety of tools the ones that can be used to solve a problem, and explain their reasoning for the selection. GE	Combine various tools, including technology, explore and solve a problem as well as justify their tool selection and problem solution. SS
6	**Attend to precision**	Communicate their reasoning and solution to others. ST	Incorporate appropriate vocabulary and symbols in others. SS	Use appropriate symbols, vocabulary, and labeling to effectively communicate and exchange ideas. ER
7	**Look for and make use of structure**	Look for structure within mathematics to help them solve problems efficiently (such as 2 x 7 x 5 has the same value as 2 x 5 x 7, so instead of multiplying 14 x 5, which is (2 x 7) x 5, the student can mentally calculate 10 x 7. QP	Compose and decompose number situations and relationships through observed patterns in order to simplify solutions. SS	See complex and complicated mathematical expressions as component parts. ER
8	**Look for and express regularity in repeated reasoning**	Look for obvious patterns, and use if/ then reasoning strategies for obvious patterns. GE	Find and explain subtle patterns. SS	Discover deep, underlying relationships, i.e. uncover a model or equation that unifies the various aspects of a problem such as a discovery of an underlying function. ER

Videos of Tasks Illustrating the Mathematical Practices

1. http://www.learner.org/series/modules/express/pages/ccmathmod_15.html (Standard 6: Attending to precision: circumference and diameter)
2. http://www.learner.org/series/modules/express/pages/ccmathmod_04.html (Standard 2 Reasoning Abstractly and Quantitatively: cranberry estimation)