On the Development of Content-Specific Practical Measures:

Assessing Aspects of the Classroom Learning Environment Associated with Student Learning

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On the Development of Content-Specific Practical Measures

Goals:

1. Delineate criteria for content-specific practical measures.

2. Articulate a general process for the development of content-specific practical measures.

Practical Measures

- The Improvement Science principle "you cannot improve what you cannot measure" (Bryk et al, 2015).

- Practical Measures:
  – Yeager, Bryk, Muhich, Hausman, and Morales (under review)
  – Bryk, Gomez, Grunow, and LeMahieu (2015)

Content-Specific Practical Measures

1. Explicitly link to **high-leverage**, **attainable improvement goals** that are compelling to both practitioners and researchers.

2. Feature data collection and analysis **routines** that are relatively **undemanding** and can be used to provide **prompt feedback** and monitor progress.

Content-Specific Practical Measures

3. **Orient educators** to aspects of instruction associated with student learning thereby serving as *levers for* change as well as *measures of* improvement.

4. Highlight aspects of instruction that are **potentially scalable** across contexts and systems .

5. Accurately **assess observed elements of instruction**, thereby producing data reflective of what happened in a classroom and/or learning context.

Research measures

- Are used to test theoretical constructs
- Usually require extensive training and researcher expertise

Accountability measures

- Are intended to assess quality rather than inform improvement
- Do not address aspects of the classroom learning environment
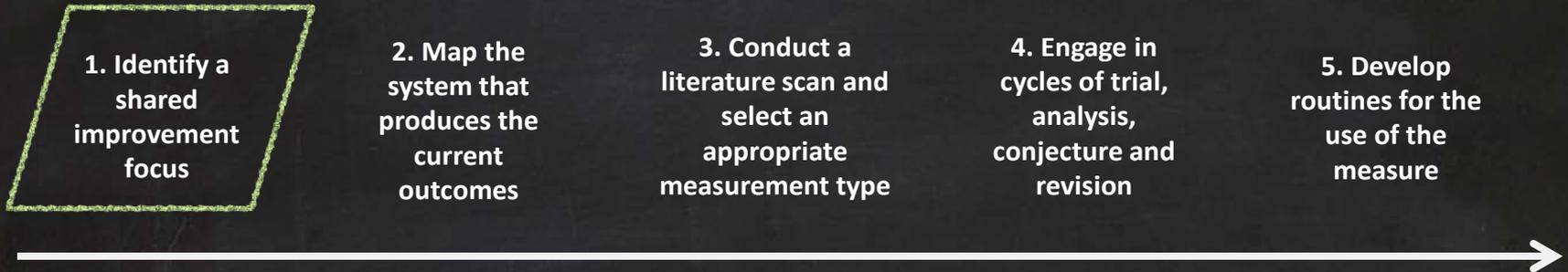
(Yeager et al.)

On the Development of Content-Specific Practical Measures

Goals for today:

1. Delineate criteria for content-specific practical measures.

2. Articulate a general process for the development of content-specific practical measures.
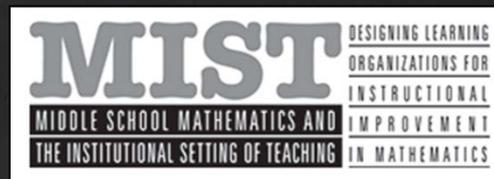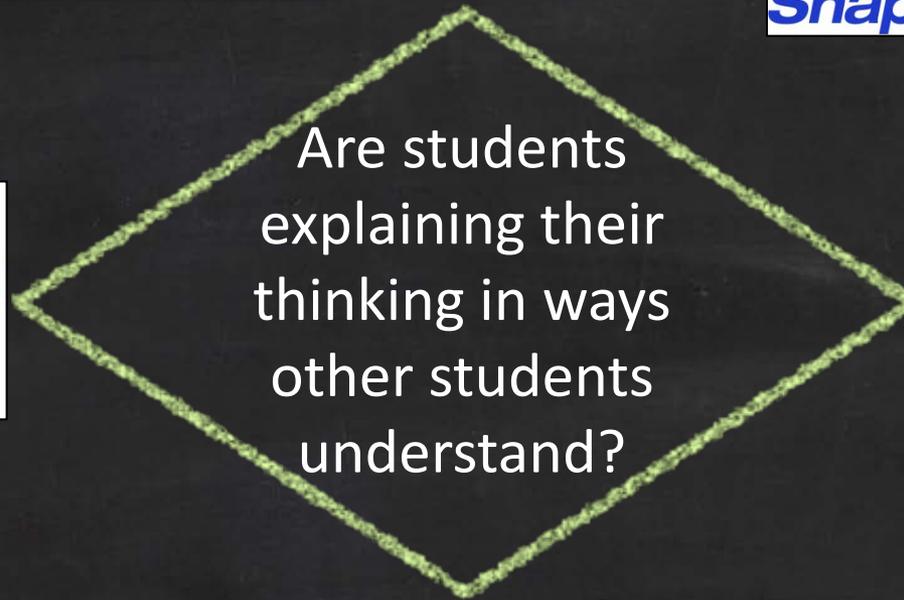
Identify a shared improvement focus

| 1. Identify a shared improvement focus | 2. Map the system that produces the current outcomes | 3. Conduct a literature scan and select an appropriate measurement type | 4. Engage in cycles of trial, analysis, conjecture and revision | 5. Develop routines for the use of the measure |

Key idea:
- Select an area to improve that is relevant for all collaborative partners.

Key Partnership Activities:
- Ensure that the focus aligns with current district initiatives and is feasible given partnership capacity

Shared Improvement Focus

Are students explaining their thinking in ways other students understand?

Map the system that produces current outcomes

1. Identify a shared improvement focus

2. Map the system that produces the current outcomes

3. Conduct a literature scan and select an appropriate measurement type

4. Engage in cycles of trial, analysis, conjecture and revision

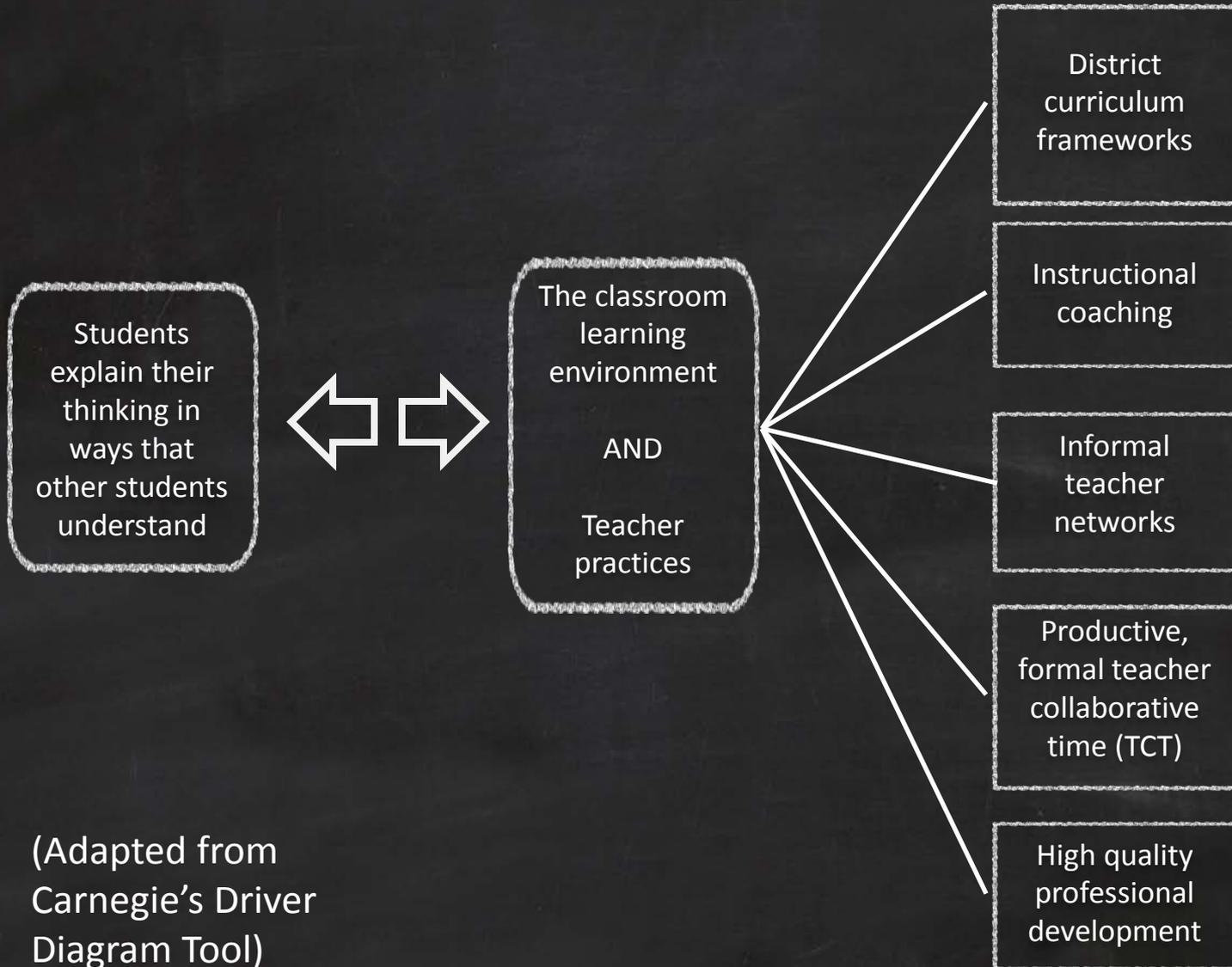5. Develop routines for the use of the measure

Key idea:
- It is important to understand the system to decide where to focus improvement efforts
- *What school and district supports have the potential to impact the identified improvement focus?*
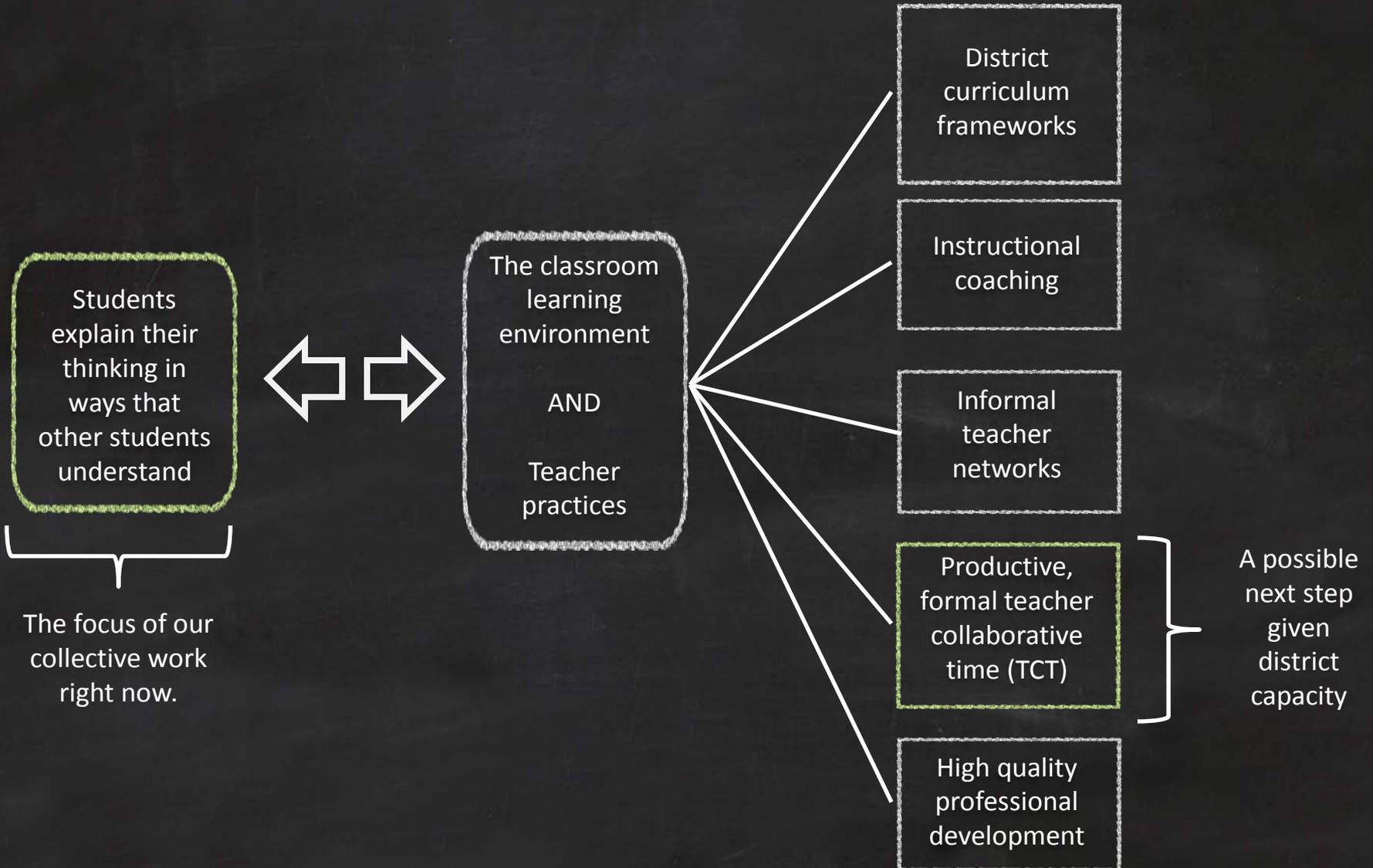
Key Partnership Activities:
- Collaborate to situate the improvement focus within a district context

Diagram of Supports

Students explain their thinking in ways that other students understand

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The classroom learning environment

AND

Teacher practices

District curriculum frameworks

Instructional coaching

Informal teacher networks

Productive, formal teacher collaborative time (TCT)

High quality professional development

(Adapted from Carnegie's Driver Diagram Tool)

Diagram of Supports

District curriculum frameworks

Instructional coaching

Informal teacher networks

Students explain their thinking in ways that other students understand

The classroom learning environment

AND

Teacher practices

The focus of our collective work right now.

Productive, formal teacher collaborative time (TCT)

A possible next step given district capacity

High quality professional development

Conduct a literature scan and select an appropriate measurement type

1. Identify a shared improvement focus

2. Map the system that produces the current outcomes

3. Conduct a literature scan and select an appropriate measurement type

4. Engage in cycles of trial, analysis, conjecture and revision

5. Develop routines for the use of the measure

Key Idea:
- Understand current findings and available measures related to the identified improvement focus
- *What measurement type meets the criteria and can potentially be implemented across a large, urban district?*

Key Partnership Activity:
- Ensure the measurement type is feasible given district capacity and resources.

Student survey to assess whether 1) students understand other students' explanations and 2) the nature of classroom discourse

Benefits to Student Surveys:

1. Students are the targets of instruction
2. Simple data collection and analysis routines
3. Low cost: Expense of administration is minimal
4. Data from MET study indicates that student perception surveys were reliable across classrooms and schools

Fit our criteria and with district capacity.

Engage in cycles of trial, analysis, conjecture and revision

1. Identify a shared improvement focus

2. Map the system that produces the current outcomes

3. Conduct a literature scan and select an appropriate measurement type

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5. Develop routines for the use of the measure

Key idea:

- Understand if the measure accurately assesses the improvement goal.
- *Does the measure accurately assess what we are trying to measure and provide meaningful information for improvement?*

Partnership work:

- Interpret the data together to build a shared understanding around the benefits and limitations of the measure

Trial and collect data:
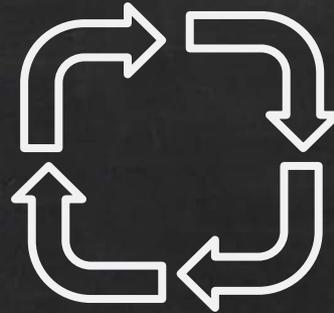- Trial the measures in classrooms representing a range of instructional quality**.**

Our work:
- Observed classroom discussions, administered the surveys, and conducted cognitive interviews
- Trialed the measures in classrooms demonstrating different levels of instructional sophistication.
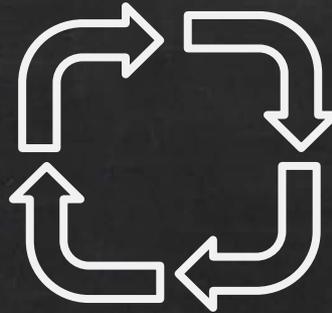
Trial and collect data:
- Trial the measures in classrooms representing a range of instructional quality.

Analysis:
- Test the trial data against the practical measures criteria and our goals for the work.
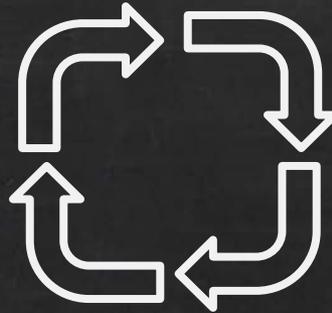
For our work:
- Some responses did not align with our observations.
- Student responses did not differentiate between differences in the quality of math discussion.

Trial and collect data:
- Trial the measures in classrooms representing a range of instructional quality.

Analysis:
- Test the trial data against the practical measures criteria and our goals for the work.

Conjecture:
- Develop conjectures about problems in the measurement items.

For our work:
- Cognitive interviews revealed how students understood the questions and why they selected a response.
- Example: students had different interpretations of "understand" and "explain" depending on the nature of the learning environment.
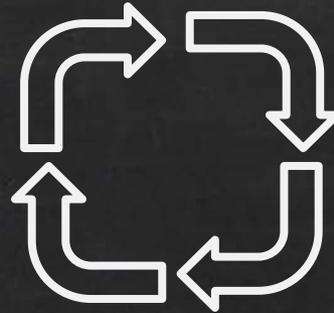
For our work:

- Rewrite problematic questions.
- Consider new, more appropriate measurement types.

Trial and collect data:

- Trial the measures in classrooms representing a range of instructional quality.

Revise:

- Adjust the questions in response to conjectures

Analysis:

- Test the trial data against the practical measures criteria and our goals for the work.

Conjecture:

- Develop conjectures about problems in the measurement items.

Develop routines for the use of the measure

1. Identify a shared improvement focus

2. Map the system that produces the current outcomes

3. Conduct a literature scan and select an appropriate measurement type

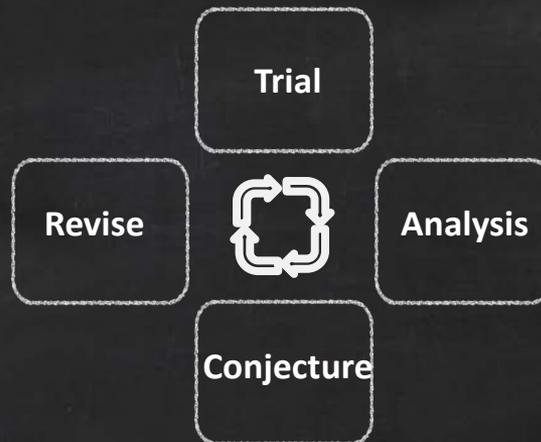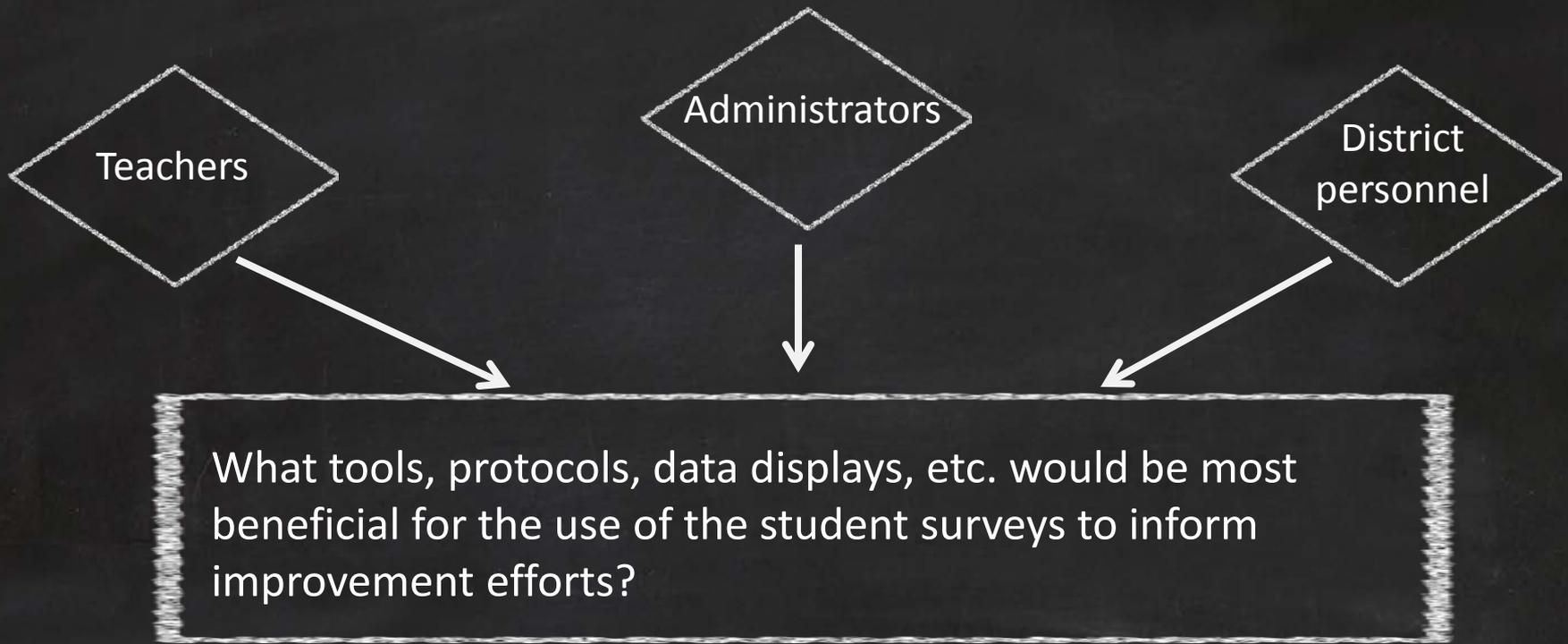**4. Engage in cycles of trial, analysis, conjecture and revision**

5. Develop routines for the use of the measure

Key idea:
- Improvement work requires simple data collection and analysis routines

Partnership work:
- Collaboratively develop processes for districts to do this work within the day to day district constraints

Next steps

- Suite of practical measures related to instructional practices in mathematics
  - Measure to assess the introduction of a math lesson
  - Measure to assess teacher questioning
- Practical measures to assess aspects of the system of supports
  - Teacher Collaborative Meetings

Considerations

- A measure on its own will not support teachers to fundamentally reorganize their practice
- Effective use of practical measures as a support for instructional improvement has implications for the practices of school and district leaders
  - Inappropriate use of measure (evaluative versus improvement)

Thank you!

For additional information, please contact

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