Developing Practical Improvement Measures for Research-Practice Partnerships that Aim to Improve the Quality STEM Instruction

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About Research Practice Partnerships

- Research Practice Partnerships (RPPs) are "long-term, mutualistic collaborations between practitioners and researchers that are intentionally organized to investigate problems of practice and solutions for improving district outcomes" (Coburn, Penuel, Giel, 2013).
- RPPs are increasingly seen as a potentially productive way of conducting research that directly informs districts' instructional improvement efforts.

Defining Practical Measures

- Practical measures are:
  - Explicitly linked to high-leverage, attainable improvement goals that are compelling to both practitioners and researchers.
  - Actionable and potentially scalable.
  - Characterized by data collection that is relatively undemanding for participants, and can be conducted on a monthly, weekly, or even daily basis.
  - Designed to be analyzed rapidly, allowing for prompt feedback on instructional improvement and progress.
  - Interpretable by many role groups (such as teachers, district leaders, and researchers).

- Practical measures also:
  - Have face validity for members of multiple role groups (such as teachers, district leaders, and researchers).
  - RPPs currently lack a common set of practical measures, tools, and routines for data analysis specific to partnership work.

The Potential of Practical Measures

- Practical measures can:
  - Highlight potential areas for improvement.
  - Measuring improvement on attainable goals for learning.
  - Making specific aspects of the classroom visible to teachers as an avenue for continued learning.
  - Serve as both measures of and levers for improvement.
  - Assessing extent to which improvement is occurring in a rapid fashion.

A Collective Effort

- A group of RPPs are collaborating to develop a common set of practical measures of instructional improvement that can be used across partnerships, in the process collecting and analyzing actionable data that is comparable across sites and partnerships.
- Participants included representatives from:
  - MIST
  - Vanderbilt
  - SFUSD
  - SRC
  - Stanford
  - UC Riverside
  - U of Maryland
  - SERP

Understanding the Problem

- As part of this work, the collaboration is attempting to identify drivers for improving the quality of student discourse:
  - Improving the quality of PLCs is a primary goal of both collaborating districts.
  - Next steps involve developing a measure of the extent to which PLCs support teachers to improve their practice.

Defining a Collective Goal

- The collaboration is developing a practical measure to assess the extent to which students are explaining their mathematical thinking in ways that other students understand.
- Research findings indicate that the majority of classroom discussions are, at best, "show and tell."
- Classroom discussions thus do not support students to deepen their mathematical understandings.
- Improving the quality of classroom discourse is also a primary goal for Jefferson County Public Schools and San Francisco Unified School District.

Constructing Practical Measures

- Three measures of student discourse: teacher press, whole class discussions, and small group discussions.
- This is a sample measurement instrument for small group discussion that the collaboration is currently cognitively interviewing.