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



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## About Research Practice Partnerships

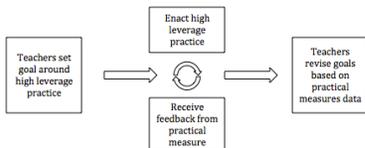
- Research Practice Partnerships (RPPs) are "long-term, mutualistic collaborations between practitioners and researchers that are intentionally organized to investigate problems of practice and solutions for improving district outcomes" (Coburn, Penuel, Giel, 2013).
- RPPs are increasingly seen as a 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:
  - Highlighting 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 end 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:

<http://vanderbi.it/mist>

VANDERBILT

Jefferson County Public Schools

SFUSD SAN FRANCISCO PUBLIC SCHOOLS

CSET Stanford University

UNIVERSITY OF CALIFORNIA RIVERSIDE Graduate School of Education

UNIVERSITY OF MARYLAND

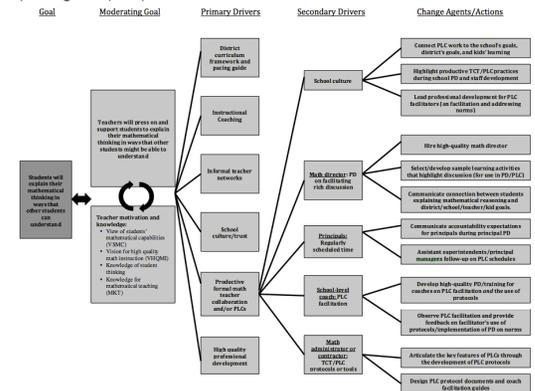
SERP Strategic Education Research Partnership

## 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.

## 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.

## 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:

<p>1) We worked in groups during math today. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>2) Today, I explained my thinking to another student in my group. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>3) I changed my mind/thinking because of another student's explanation. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>4) Working with other students in my group helped me understand the math today. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>5) When I had a question about the math, I asked another student. <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>6) I helped another student in my group understand the math today. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>7) Students in my group solved the problem differently than me. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>8) Everyone in my group tried to help each other understand the math. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>9) Other students in my group asked me questions about the math today. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>10) I understand when other students in my group explain their thinking. <input type="checkbox"/> Yes <input type="checkbox"/> No</p>
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