



Developing A System of Practical Measures, Routines and Representations to Inform and Enhance Middle-Grades Mathematics Instructional Improvement Initiatives

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Goal

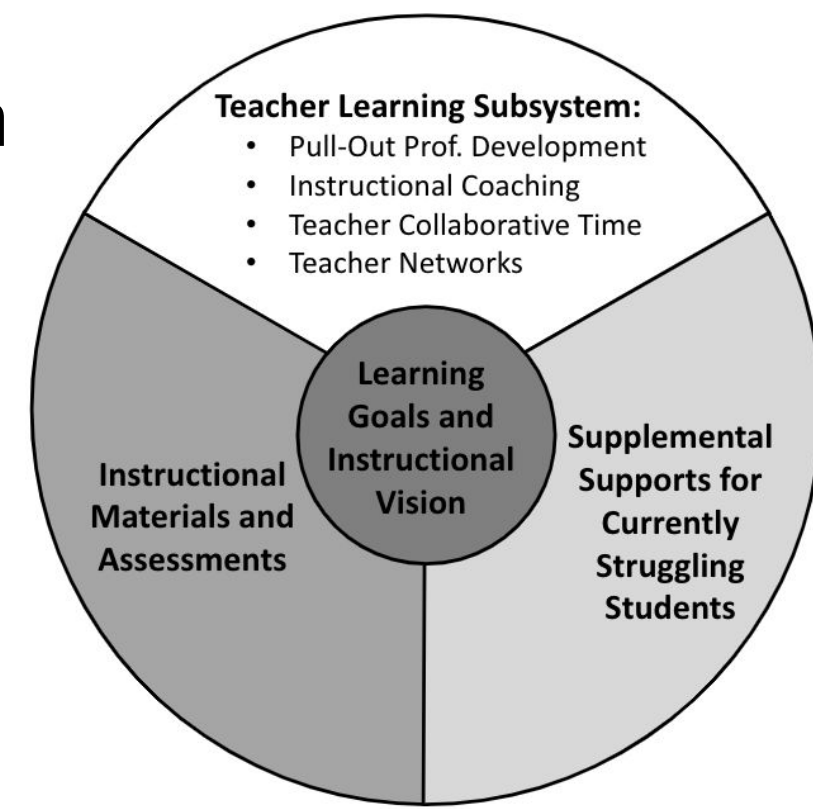
To develop a **system of measures, routines, and representations** that can support the implementation of **strategies** aimed at improving the quality of middle-grades mathematics teaching, and thus student learning.

Theory of System-Wide Improvement

Prior research: Identify potentially productive instructional improvement strategies

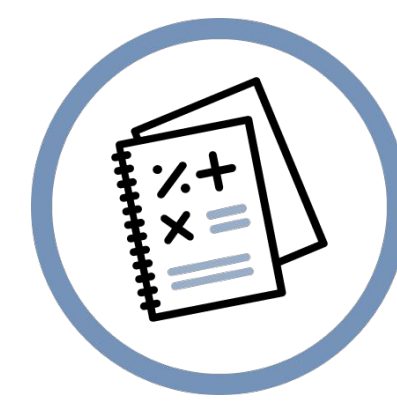
- o Coherent instructional system
- o School leadership
- o District leadership

Current research: Reliably implement improvement strategies

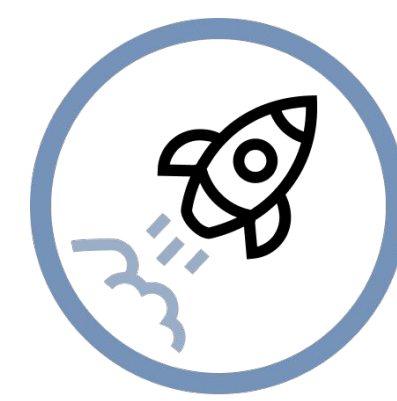


System of Practical Measures, Routines & Representations

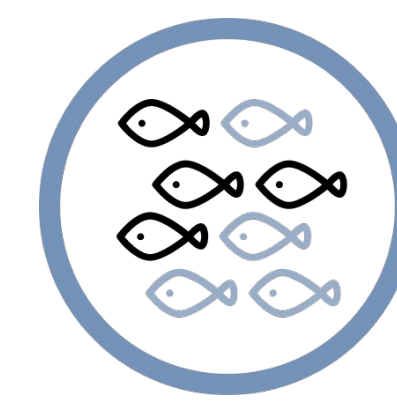
Measures of Key Aspects of High-Quality Mathematics Instruction



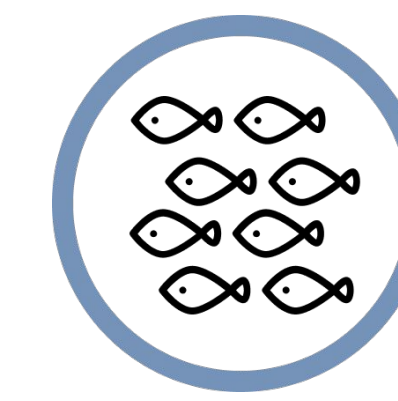
rigor of the task
 rubric designed to be used by a coach or district leader with a teacher to assess and discuss the rigor of the task(s) used for a specific lesson



launch of the task
 student survey that assesses whether students can begin to work productively on the task



small-group work
 student survey that provides information about students' experiences with key aspects of small group work



whole-class discussion
 student survey that provides information about students' experiences with whole-class discussion in a specific lesson

Multiple Users and Routines of Use

The measures & representations were designed to be meaningful to **users** at different levels of the system:



The measures & representations have been **used** to inform the implementation of a range of improvement strategies in our partner districts, including:

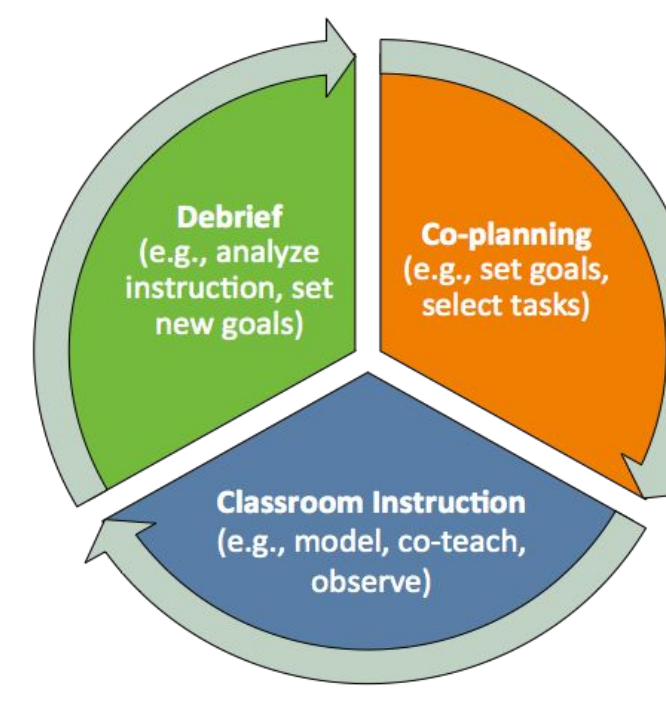
- (1) curriculum guide writing initiative
- (2) one-on-one coaching
- (3) professional development program

Routines (e.g., protocols) have been developed to support using the resulting data to guide inquiry into *mathematics teaching* and *professional learning*

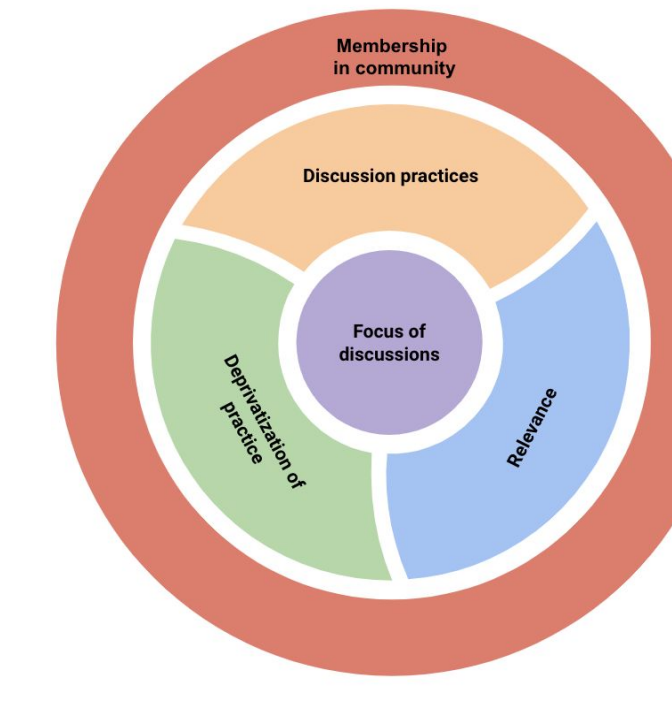
Measures of Key Aspects of High-Quality Professional Learning



one-on-one coaching
 two teacher surveys that provide information about teachers' experiences during the co-planning and debrief phases of a one-on-one coaching cycle



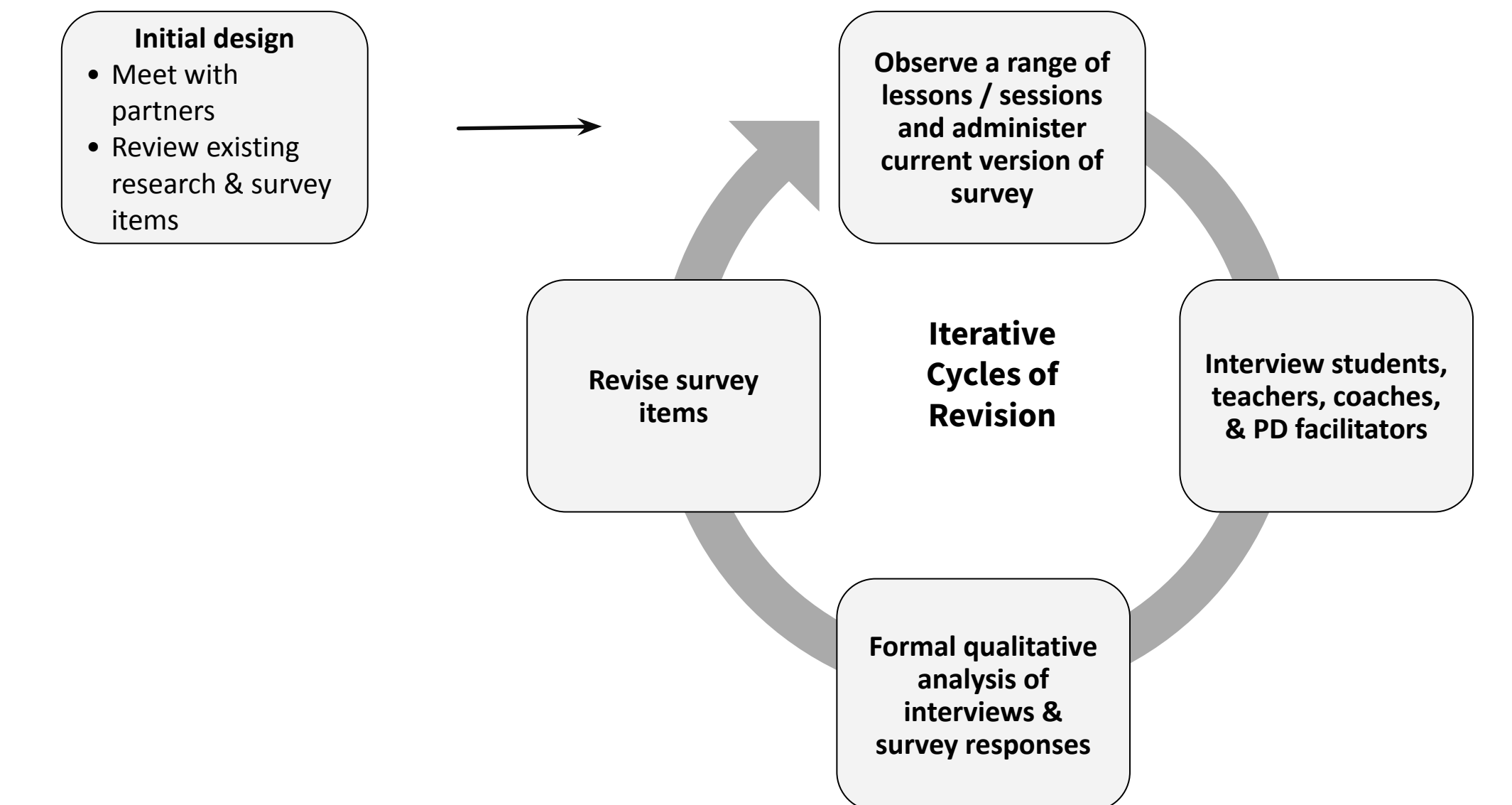
collaborative professional learning
 teacher survey which provides information about teachers' experiences of key aspects of collaborative professional learning



Attending to Validity

In Design

The measures were developed through multiple rounds of design, analysis and revision:



In Use

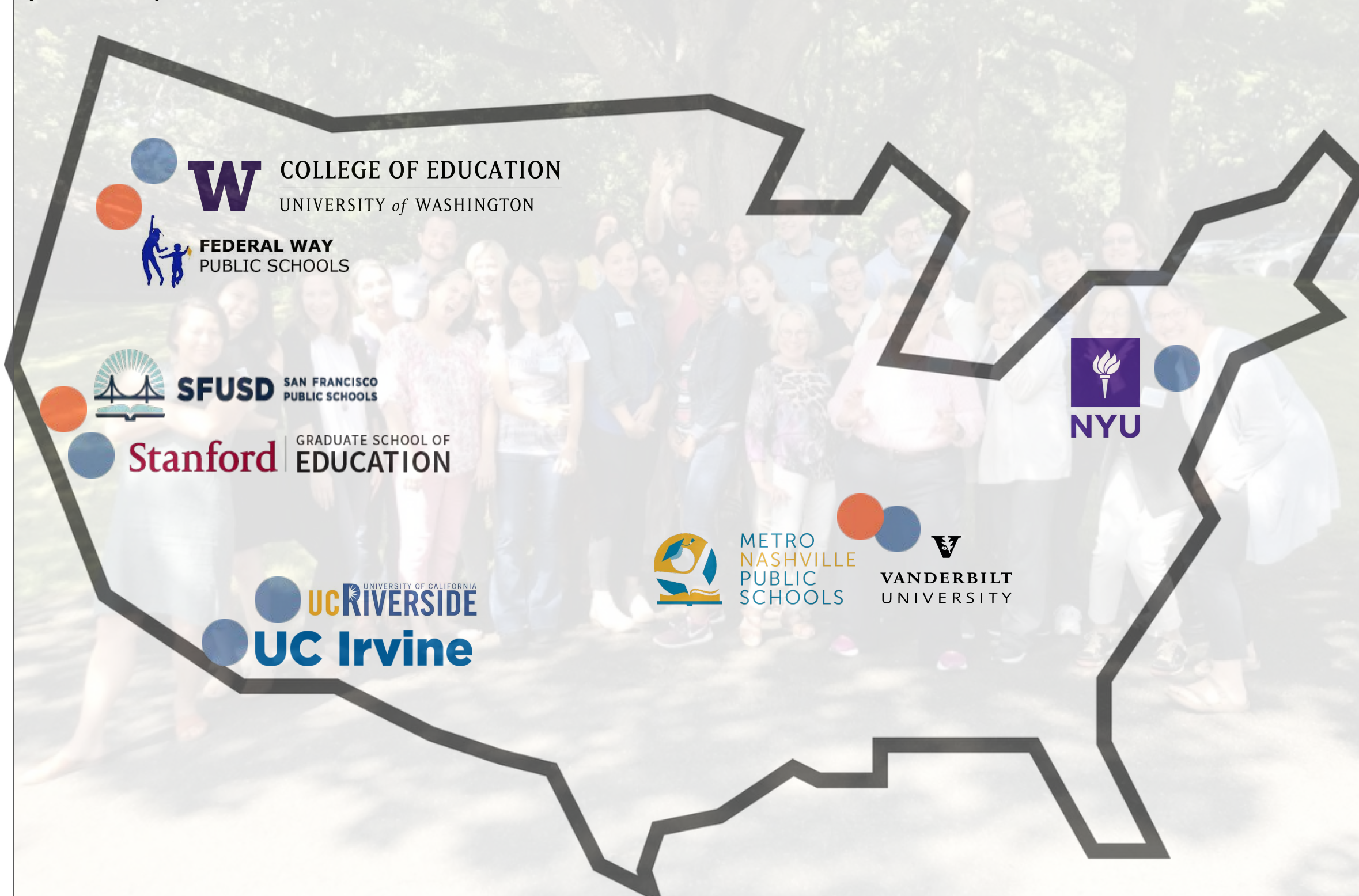
Systematically investigating the inferences made and actions taken by the various users in relationship to the specific **purposes, key aspects of school and district contexts, and users' current perspectives and practices.**

Practical Measures for Improvement

- Unobtrusive and minimally burdensome to users
 - o Quick to administer (< 3 minutes)
 - o Easy to analyze
 - o Enable practitioners to assess and adjust their practices
- Intended for improvement work, not for accountability purposes
- Used to determine whether a deliberate change in practice is an improvement
- Analyses indicate the use of the measures can enhance the quality of supports for teachers' learning

Partnerships

Our team is comprised of three Research-Practice Partnerships (RPPs) between U.S. school districts and universities.



Infrastructure for Storing, Analyzing, and Representing Data

edsight.io



EdSight provides users (e.g., coaches, teachers) with an opportunity to investigate data from the measures for individual sessions/lessons and longitudinally. Users can set and track goals.

A coach / district leader-facing snapshot of the Edsight platform with data from administrations of the survey with a group of 6th, 7th, and 8th grade teachers over time:



This work is supported by the National Science Foundation (grants #1719744, #1620851, #1621238, and #1620863). Any opinions, findings, and conclusions or recommendations expressed in these materials are those of the authors and do not necessarily reflect the views of the National Science Foundation.

