




Exploring the Science of Improvement

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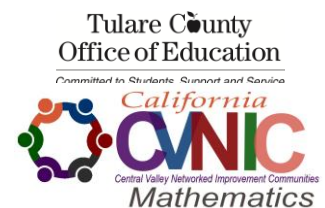
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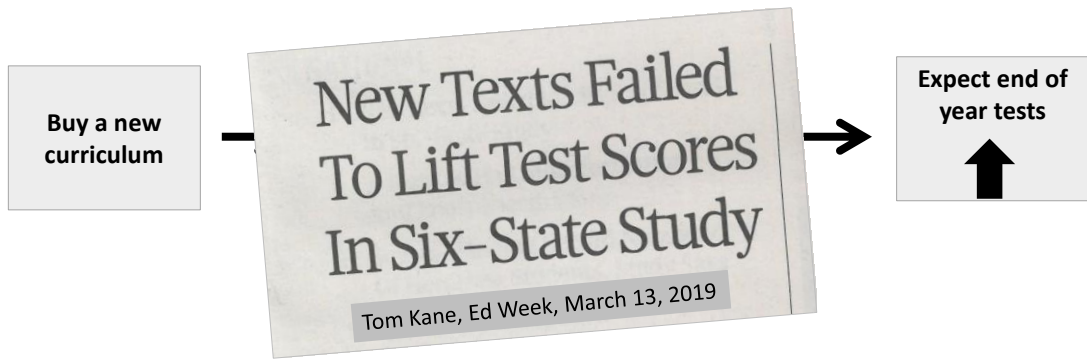
**BETTER MATH
TEACHING**
Network



NATIONAL IMPLEMENTATION
RESEARCH NETWORK &
KENTUCKY DEPARTMENT OF
EDUCATION



Challenging “Buy a New Program” Thinking



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Learning Outcomes: What are Spotlight Organizations Doing?

1. Operationalizing a small number of Specific Instructional Goals

Getting Specific about the Aim

- **Connect.** Algorithms, concepts, to real-world applications
- **Justify.** Communicate and justify mathematical thinking
- **Solve.** Challenging math problems that extend beyond rote application of algorithm

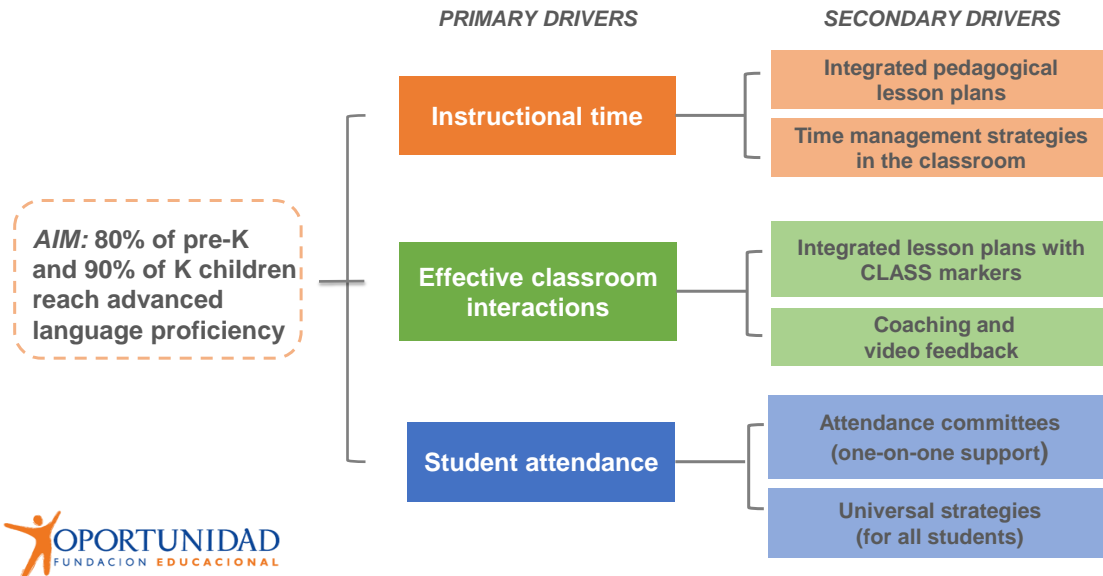


BETTER MATH
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Learning Outcomes: What are Spotlight Organizations Doing?

1. Operationalizing a small number of Specific Instructional Goals
2. Explicating the Causal Connections

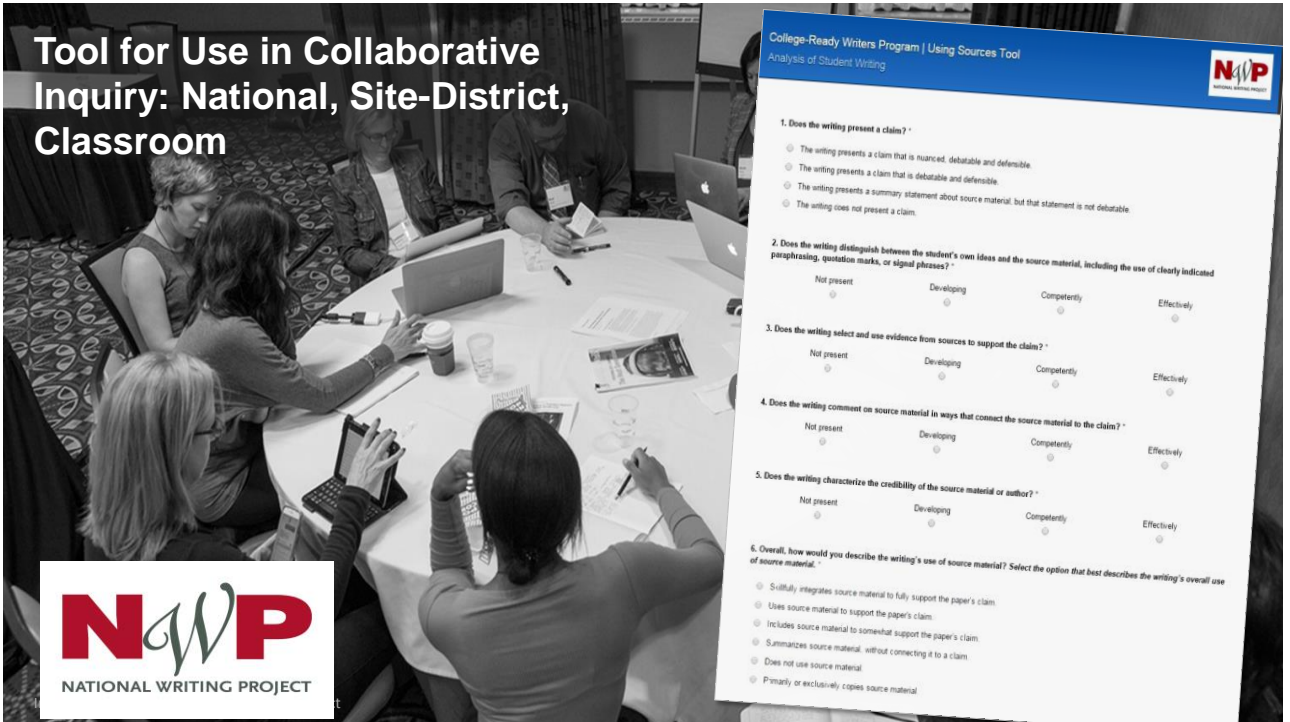
Theory of improvement: Driver Diagram



Learning Outcomes: What are Spotlight Organizations Doing?

1. Operationalizing a small number of Specific Instructional Goals
2. Explicating the Causal Connections
3. Creating Evidence needed to Guide Improvement Effort

Tool for Use in Collaborative Inquiry: National, Site-District, Classroom



Measure Practices that Matter

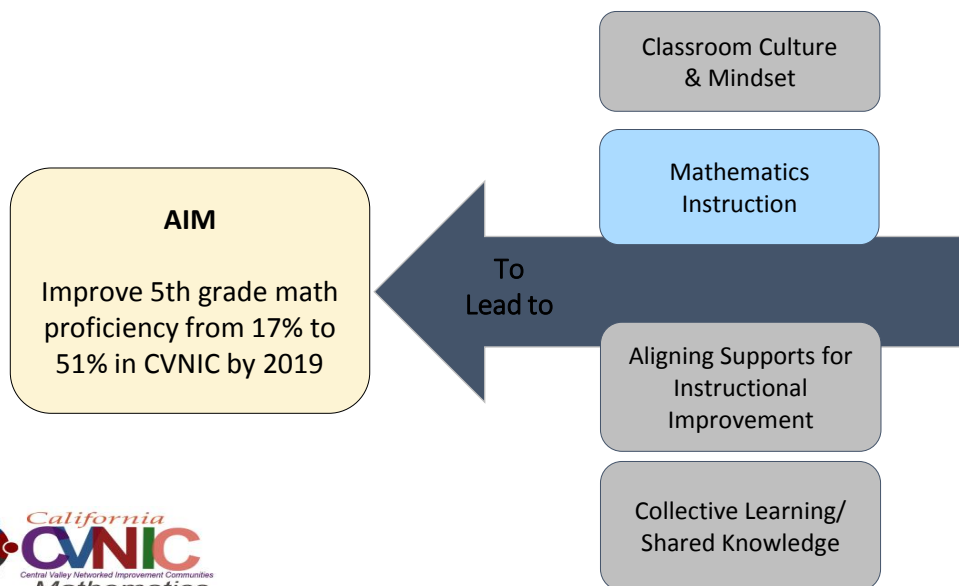
1. Are teachers, weekly, studying the lessons in teams with a content expert?
2. Are teachers reinforcing their learning by doing the student work themselves?
3. Are teachers rehearsing lessons and receiving feedback prior to teaching?

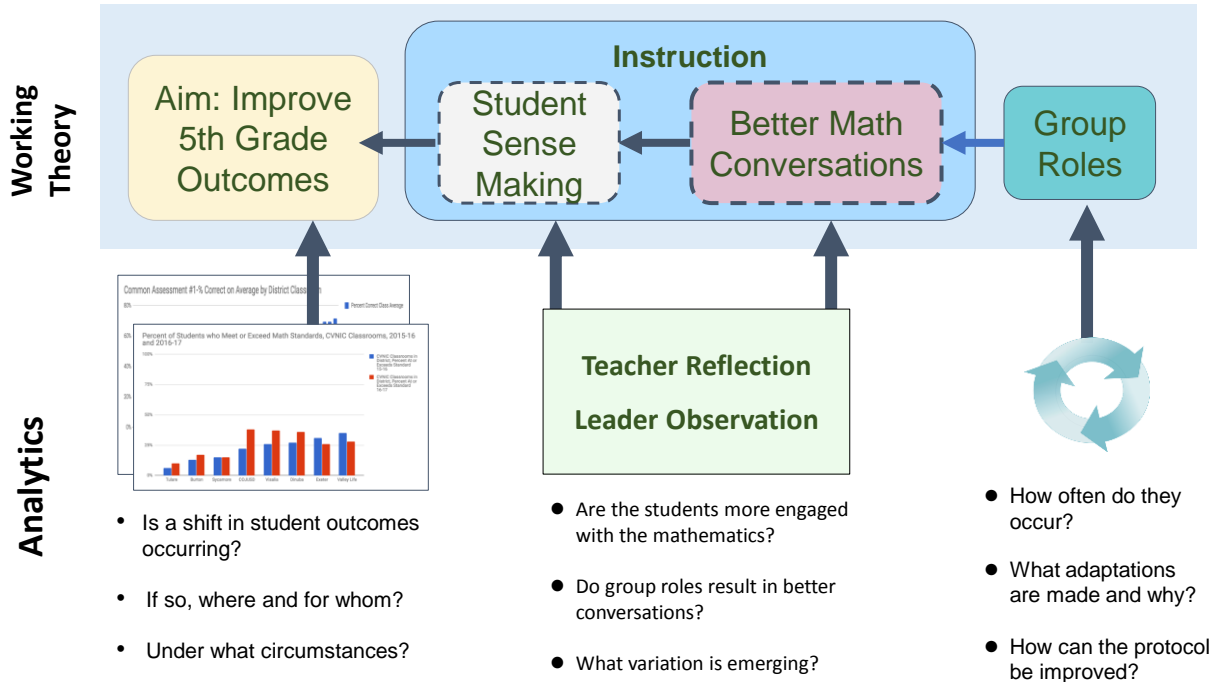


Learning Outcomes: What are Spotlight Organizations Doing?

1. Operationalizing a small number of Specific Instructional Goals
2. Explicating the Causal Connections
3. Creating Evidence needed to Guide Improvement Effort
4. Wondering, "Have we got it right?"

Theory of Practice Improvement





Learning Outcomes: What are Spotlight Organizations Doing?

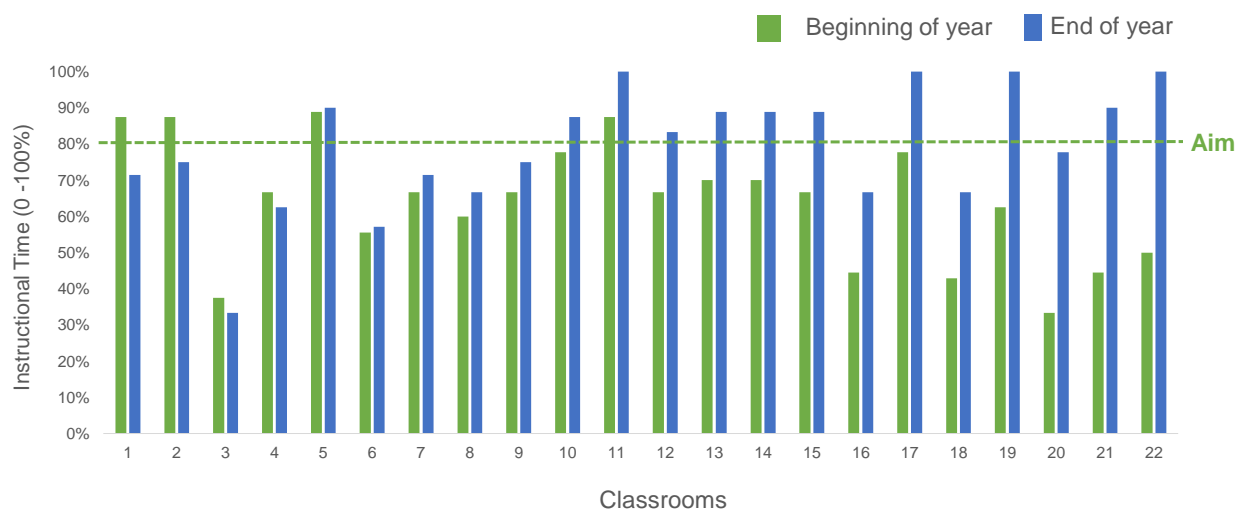
1. Operationalizing a small number of Specific Instructional Goals
2. Explicating the Causal Connections
3. Creating Evidence needed to Guide Improvement Effort
4. Wondering, "Have we got it right?"
5. Relentlessly focusing on Variation in Performance

Charting the Progress of Every Child Over Time

Results: Language Outcomes, Formative Evaluation
Percent of Children Achieving Advanced, Intermediate and Initial Levels



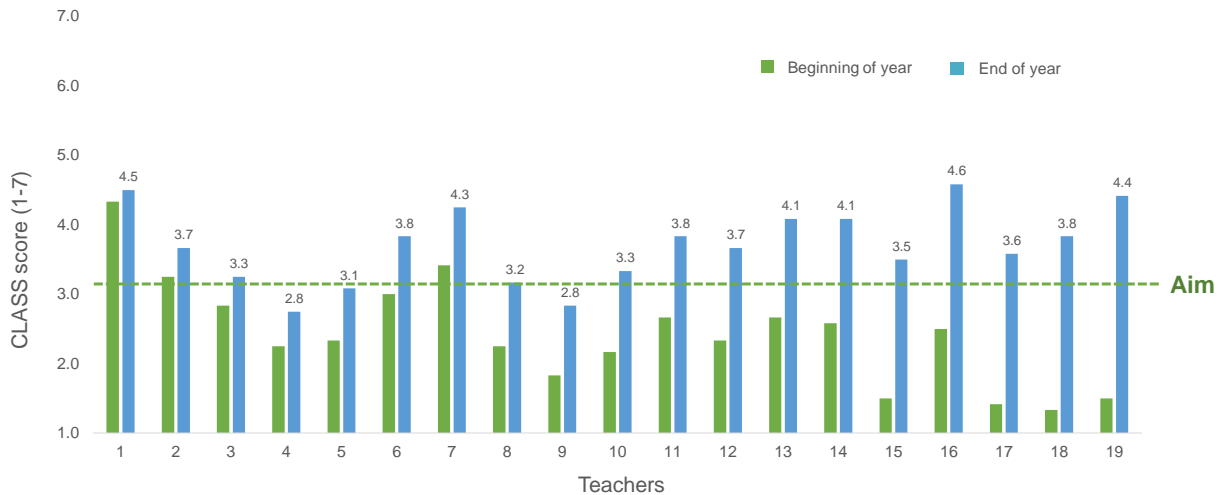
Seeing the Variation in Instructional Time



+ 18 of 22 teachers improved
+ 50% of teachers met the aim



Seeing the Variation in the Quality of Learning Environments



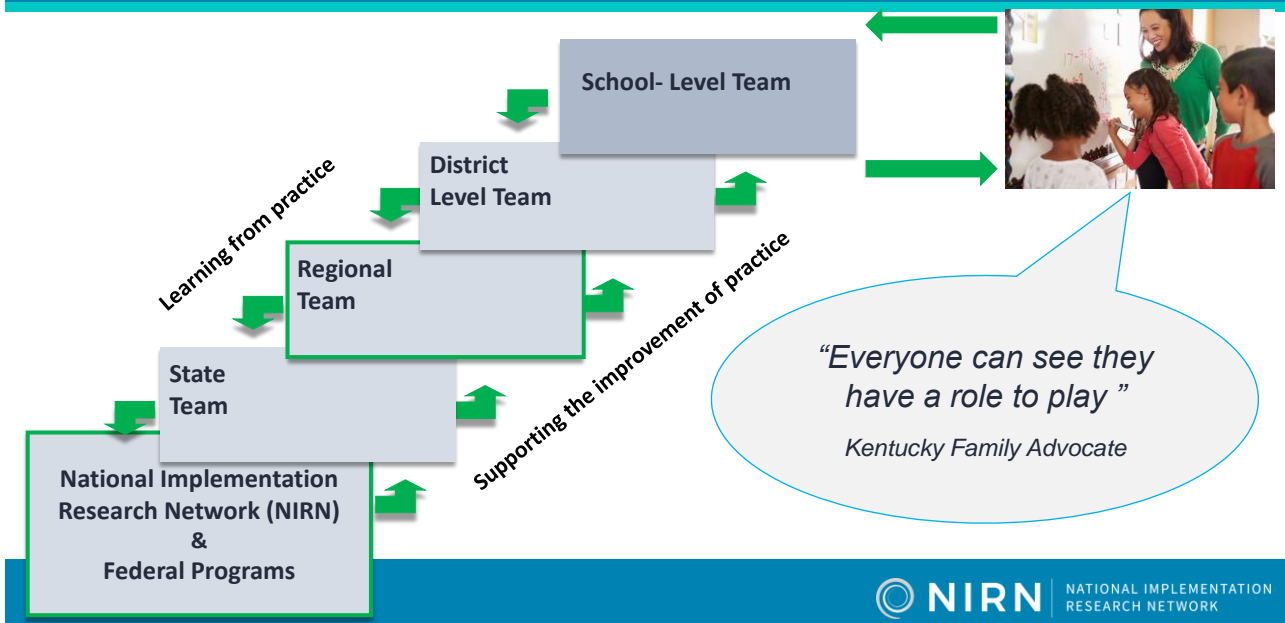
- + All teachers improved
- + 84% of teachers met the aim (>3.25)



Learning Outcomes: What are Spotlight Organizations Doing?

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3. Creating Evidence needed to Guide Improvement Effort
4. Wondering, "Have we got it right?"
5. Relentlessly focusing on Variation in Performance
6. Aligning the work of Everyone Involved

Kentucky's Networked Implementation and Improvement Teams



Learning Outcomes: What are Spotlight Organizations Doing?

1. Operationalizing a small number of Specific Instructional Goals
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3. Creating Evidence needed to Guide Improvement Effort
4. Wondering, "Have we got it right?"
5. Relentlessly focusing on Variation in Performance
6. Aligning the work of Everyone Involved
7. Organizing a Hub to sustain Networked Social Learning

Three Domains of Knowledge

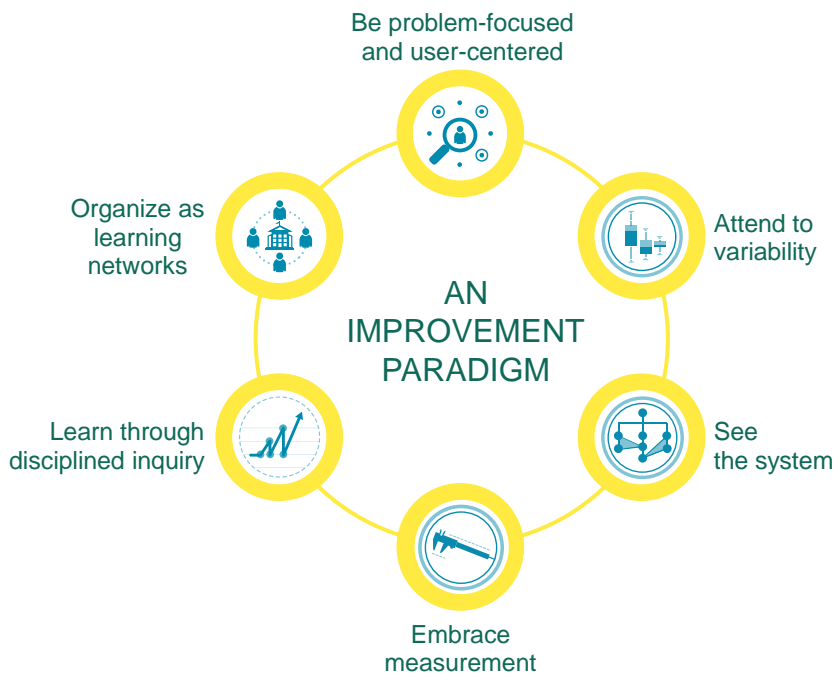


A Hub of diverse expertise
to support effective and
lasting instructional
improvements.

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Diverse expertise coming together





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... and Finally “Why a science?”

- Formally this a scientific practice and a scientific community
- Empowering educational professionals
- Demonstrating efficacy-in-action as a field
- Bridging the Research–Practice Gap from the practice side