Exploring the Science of Improvement

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Challenging “Buy a New Program” Thinking

Buy a new curriculum

New Texts Failed To Lift Test Scores In Six-State Study
Tom Kane, Ed Week, March 13, 2019

Expect end of year tests

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

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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**

**PRIMARY DRIVERS**
- Instructional time
- Effective classroom interactions
- Student attendance

**SECONDARY DRIVERS**
- Integrated pedagogical lesson plans
- Time management strategies in the classroom
- Integrated lesson plans with CLASS markers
- Coaching and video feedback
- Attendance committees (one-on-one support)
- Universal strategies (for all students)

**AIM:** 80% of pre-K and 90% of K children reach advanced language proficiency

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**Learning Outcomes: What are Spotlight Organizations Doing?**

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2. Explicating the Causal Connections
3. Creating Evidence needed to Guide Improvement Effort
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?

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4. Wondering, “Have we got it right?”

Theory of Practice Improvement

AIM
Improve 5th grade math proficiency from 17% to 51% in CVNIC by 2019

To Lead to

Classroom Culture & Mindset
Mathematics Instruction
Aligning Supports for Instructional Improvement
Collective Learning/Shared Knowledge
Aim: Improve 5th Grade Outcomes

Instruction

Student Sense Making

Better Math Conversations

Group Roles

Working Theory

Analytics

- Is a shift in student outcomes occurring?
- If so, where and for whom?
- Under what circumstances?

Teacher Reflection

Leader Observation

- Are the students more engaged with the mathematics?
- Do group roles result in better conversations?
- What variation is emerging?

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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

- Initial
- Intermediate
- Advanced

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)

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6. Aligning the work of Everyone Involved
Kentucky’s Networked Implementation and Improvement Teams

“Everyone can see they have a role to play”
Kentucky Family Advocate

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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.

Diverse expertise coming together

- 3 early childhood education experts
- 6 improvement experts
- 6 preschool education coaches
- 148 preschool teachers and aides
- 118 school leaders
- 15 local education authorities
AN IMPROVEMENT PARADIGM

Be problem-focused and user-centered
Organize as learning networks
Learn through disciplined inquiry
Embrace measurement
Attend to variability
See the system

... 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