Networked communities engaged in Improvement Science: How we can get better at getting better

American Association of Colleges for Teacher Education Meeting

Paul LeMahieu
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RCT (average) Treatment Effect: Reading Recovery
N=141 schools

It’s a success -- lets spread it!
Distribution of RCT Treatment Effects: Reading Recovery
N=141 schools
Distribution of RCT Treatment Effects: Reading Recovery
N=141 schools

Effect Size

Count

Undesirable / Weak Outcomes (16%)
Positive Deviants (14%)
Reconceiving the challenge

• Learn how to implement complex ideas effectively, reliably, and at scale
Reconceiving the challenge

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• Develop a capacity within the system to learn to improve
Reconceiving the challenge

• Learn how to implement complex ideas effectively, reliably, and at scale

• Develop a capacity within the system to learn to improve

• Learn how to move from *fidelity* of implementation to *integrity* of implementation
Networked Improvement Communities: What are they?

Integrating Two Big Ideas:

• The tools and methodologies of Improvement Science

joined to

• The Power of Networks

A shift to Learning Fast to Implement Well.
Six Principles Guide the Work

• Problem- & User-Centered
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• Variation in Performance is the problem to solve
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• Accelerate Improvement: Embrace Disciplined Inquiry
Six Principles Guide the Work

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• You cannot improve at scale what you cannot measure
• Accelerate Improvement: Embrace Disciplined Inquiry
• Accelerate Improvement: Tap the Power of Networks
Networked Improvement Communities: What are they?

NICs are scientific learning communities distinguished by four essential characteristics:

- **focused** on a well specified common aim,

- **guided** by a deep understanding of the problem, the system that produces it, and a theory of improvement,

- **disciplined** by the rigor of improvement science, and

- **coordinated** to accelerate the development, testing and refinement of interventions and their effective integration into varied educational contexts.
The Power of Structured Networks

• An enormous source of innovation

• Diverse contexts accelerate knowledge acquisition from testing

• Social connections accelerate testing and diffusion

• Seeing patterns that otherwise look particular

• A safe environment to engage comparative results
  – moral urgency “if others can, why not us”;
  – the “learning exchange”

• Eases translational research—a developed infrastructure plus the social connections
Six Principles Guide the Work  
(plus useful tools to scaffold the activity)

Taken Together:

• Disciplined Inquiry

• Fundamentals of a scientific community

• Aim: systematic practice improvement

• Aim: implementation of complex ideas reliably at scale
Summing Up: Improvement Science Carried Out through Networked Communities

A Distinct “Third Way”

- Builds on but different from more fundamental (constitutive) social science.

- Different from communities of practice—”sharing”

- A diverse colleagueship, including academics and practitioners, engaged in systematic clinical inquiry on the implementation of complex ideas and practice improvement.
The Networked Improvement Paradigm

- Implement Fast and Scale Wide
  - Learn Fast to Implement Well
    - From Evidence-based Practice to Practice-based Evidence
      - Researchers vs Users “Knowers” “Doers”
        - All Improvers
  - Focus on Standard Effect Size
  - Focus on Sources of Variability in Performance
  - What Works!
    - How to Make It Work! Replicability as the new Gold Standard.

- "Script it" vs. “Every situation is unique”
- Develop Quality Processes to Support Complex Work
- Individual Autonomy As Most Prized Norm
- Working Together We Can Accomplish More
Thank you
It is all about increasing capacities to learn in and through practice to improve.
The Work of the Hub

- Beginning Teaching Effectiveness
- Assessing Teaching Collaboratory
- Student Agency Improvement community
- Analytics
- Quality Control Processes
- Tech Platforms
- Problem Specification
- Improvement Research
- Nurture & Expand Network
- Promoting Knowledge Use
- Explore New Rays
- Culling Knowledge
- Scanning Field
- Build Human Capacity
- Initiate Networks
A Strong Contrast to An Increasingly Popular View

• Performance management
  – Set targets
  – Create incentives
  – Collect data/dashboards
  – Hold individuals accountable

• No working theory of improvement, tied to measures, tied to processes

“Go figure it out on your own or else…”
Education reform is “miracle goals without methods.”
-W. Edwards Deming

- Quote 1991 about Goals 2000

- NCLB, “all children proficient by 2014.”

- Is the next chapter the Common Core?

- If we continue to do what we have always done, we will continue to get what we have always gotten.

- We have to find a better way to accelerate learning in and through practice to improve.
Figure A: Diagram of Statway drivers

- Improved student outcomes: Learning, engagement, retention

- Instruction that ensures statistics and mathematics proficiency: Flexible and stable knowledge of concepts, procedures, strategies, and productive disposition
  - Promote students’ struggle with important mathematics/statistics
  - Make explicit connections to mathematical/statistical concepts

- Remove language and literacy barriers that impede instruction and learning
  - Improve information about students’ language proficiency
  - Enhance instructors’ knowledge about ways to support students’ possible limitations
  - Create classroom environments that address language anxiety for speakers of non standard/non-native varieties of English
  - Promote the accessibility of materials

- Develop Students’ capacity for productive persistence
  - Address retention issues at major transitions
  - Provide course material that are seen as interesting and useful
  - Encourage students to see themselves as math learners
  - Enhance faculty’s skills/beliefs relevant to promoting engagement

- Students will be productively persisting at the beginning of the fourth week of class
  - Course content in first few weeks
  - Little or no common expectations; absence of supportive classroom norms
  - Faculty mindsets and understanding

- Develop faculty capacities to offer effective instruction using JK materials
  - Faculty use Pedagogical Approaches that help students learn effectively
  - Faculty believe all students can possess the skills and abilities to be successful
  - Faculty develop adequate statistics or quantitative reasoning knowledge

- Students have few or no connections
  - Student mindsets undermine motivation
  - Faculty and students accept the social relational aspects of teaching
An Inspiration: Improvement Science in Healthcare
Protecting 5 Million from Harm, Saving 100,000 Lives
Another source of inspiration: We can accomplish more together, than even the best of us can alone.
So How Are We Working on This?

• Analogical Scavengers

• Learning by Doing—Can we actually make the ideas work?

• Engaging others—joining the journey
  • A network of networks—learning from each other; accelerating our field’s capacity for learning to improve.
Our Three “Learning By Doing NICs”

• The Developmental Math Ed Problem
  – Quantway and Statway Pathways Networks
  – Reclaiming students’ mathematical lives

• The Learning to Teach Problem
  – The Beginning Teacher Effectiveness Network
  – Develop teachers - better, faster, and hold on to them

• The student effort problem
  – The Student Agency Improvement Community
  – Develop student motivation, engagement, success
## Moving Toward Implementation

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<th>Resistant</th>
<th>Indifferent</th>
<th>Ready</th>
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<td>Cost of</td>
<td>Very Small Scale Test</td>
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Measurement for improvement

- Measurement model examining accomplishment of network Aim
  - Leading indicators
  - Lagging indicators

- Measurement model for testing innovations
  - Process measures
  - Outcome measures
  - Balancing measures
Pulsing Through the Network: the 4 Questions of Improvement Science

What specifically are we trying to accomplish?
What change might we introduce?
Why do we think those changes will make an improvement?
How will we know that the changes are an improvement?
Practice Data + Working Theory
+ Lots of Tests of Change

More Effective Practices, Deeper Understandings

Learning Theory + Psychology of Change

Initiating Resources

Reframing Dispositions, Building Will

Theories Ideas

DATA
A Networked Community Accelerating Learning for Improvement

Measureable improvement at scale

1 to 5 to 25 to spread

Multiple cycles in multiple contexts

Occurring Simultaneously in Multiple Sites

Data

More effective practices, deeper understandings

The sociology of improvement + refining common language + building network culture
Key structuring agents of a Networked Improvement Community

- An explicit problem to solve
- Measureable aims (what, by when, for whom)
- Shared working theory of practice improvement
- Common measures for intermediate targets, key processes
- Disciplined inquiry organized by the “Four Improvement Questions” (e.g. PDSA cycles)
- A commitment to document and share what you did, what you learned, what you might try next.
Standing Behind All of This a Social Learning Theory

(Englebart, 1992)