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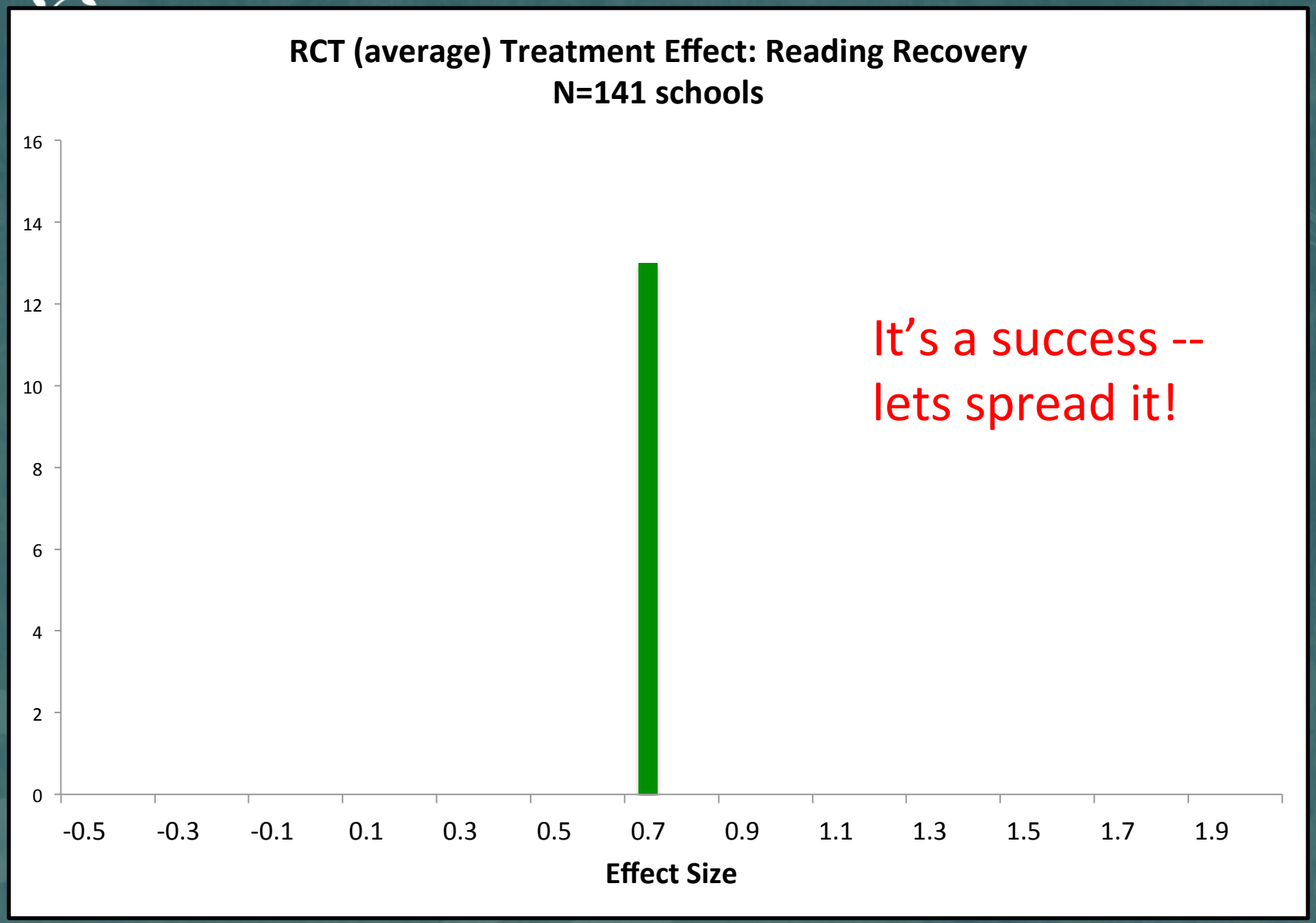
Networked communities engaged in Improvement Science: How we can get better at getting better

American Association of Colleges for Teacher Education Meeting

Paul LeMahieu

27 February, 2015


RCT (average) Treatment Effect: Reading Recovery
N=141 schools
16
14
12
10
8
6
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-0.5
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0.1
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1.3
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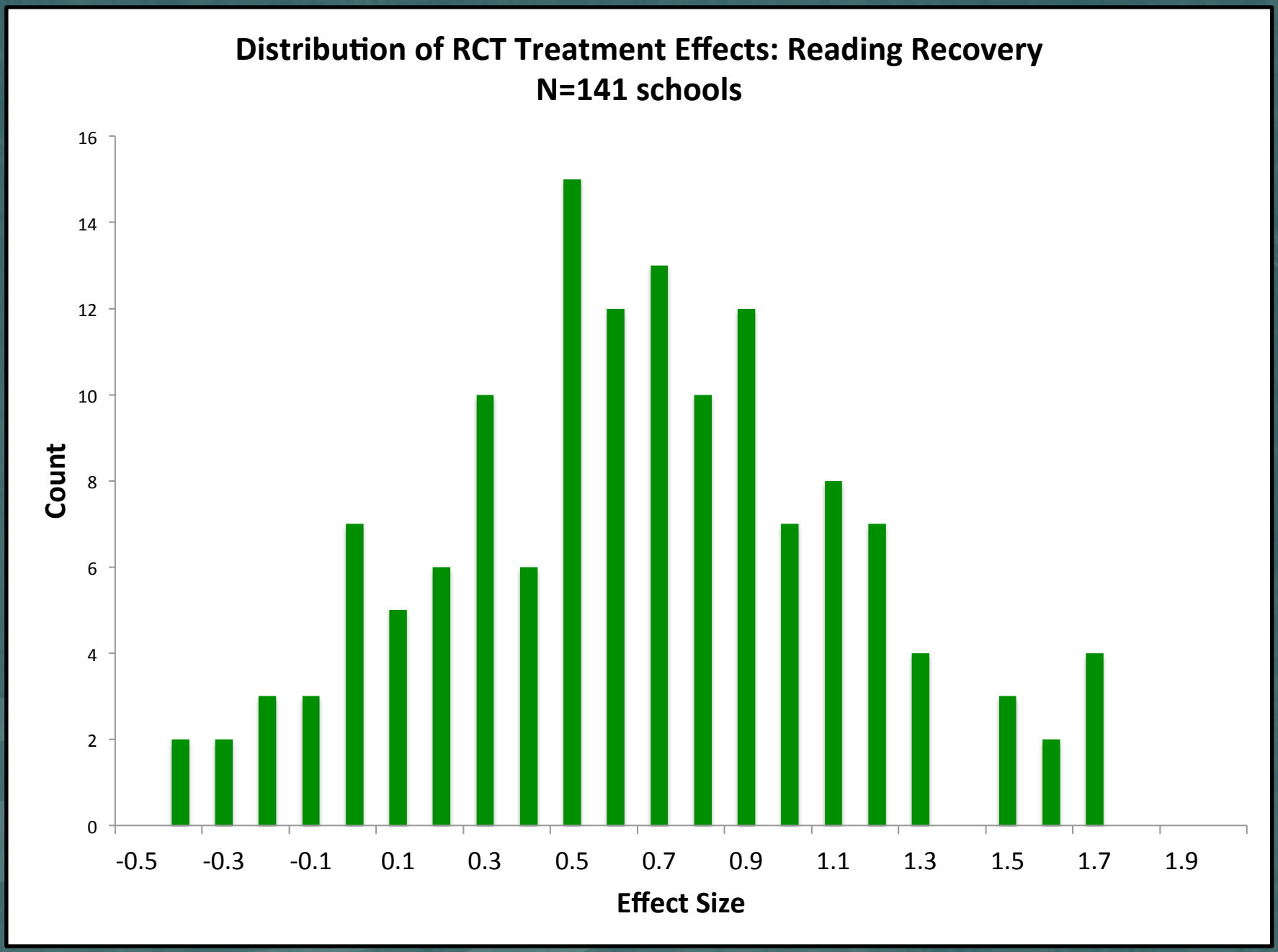
1.7
1.9
Effect Size
It's a success --
lets spread it!


Distribution of RCT Treatment Effects: Reading Recovery
N=141 schools
Count
16
14
12
10
8
6
4
2
0
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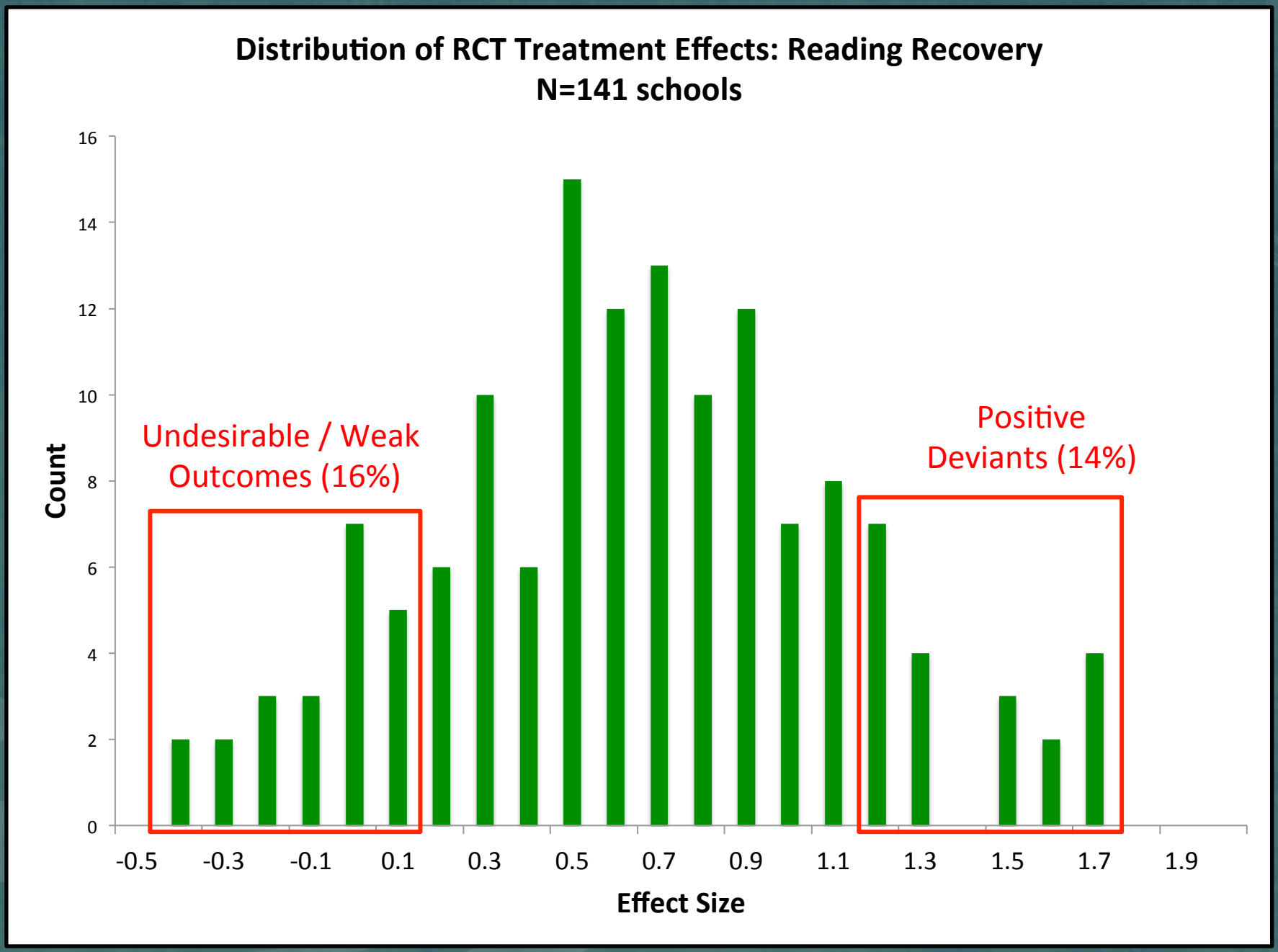
Effect Size


Distribution of RCT Treatment Effects: Reading Recovery
N=141 schools
Count
16
14
12
10
8
6
4
2
0
Undesirable / Weak Outcomes (16%)
Positive Deviants (14%)
-0.5
-0.3
-0.1
0.1
0.3
0.5
0.7
0.9
1.1
1.3
1.5
1.7
1.9
Effect Size

Reconceiving the challenge

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

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- Develop a capacity within the system to learn to improve

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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

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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.

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Six Principles Guide the Work

- **Problem- & User-Centered**

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- **Problem- & User-Centered**
- **Variation in Performance is the problem to solve**

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Six Principles Guide the Work

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- **Accelerate Improvement: Embrace Disciplined Inquiry**
- **Accelerate Improvement: Tap the Power of Networks**

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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

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Six Principles Guide the Work
(plus useful tools to scaffold the activity)

Taken Together:

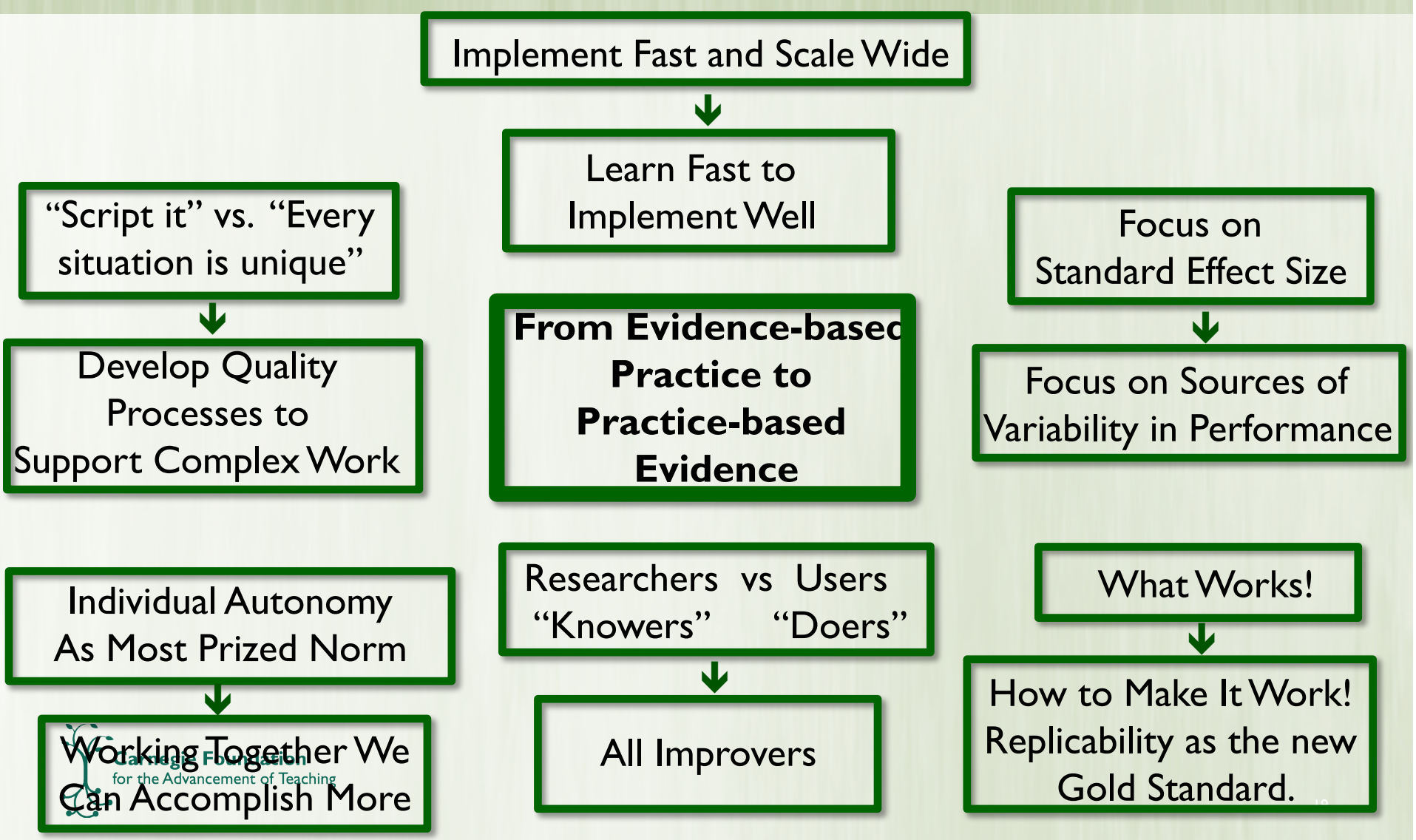
- Disciplined Inquiry
- Fundamentals of a scientific community
- Aim: systematic practice improvement
- Aim: implementation of complex ideas reliably at scale

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



Thank you

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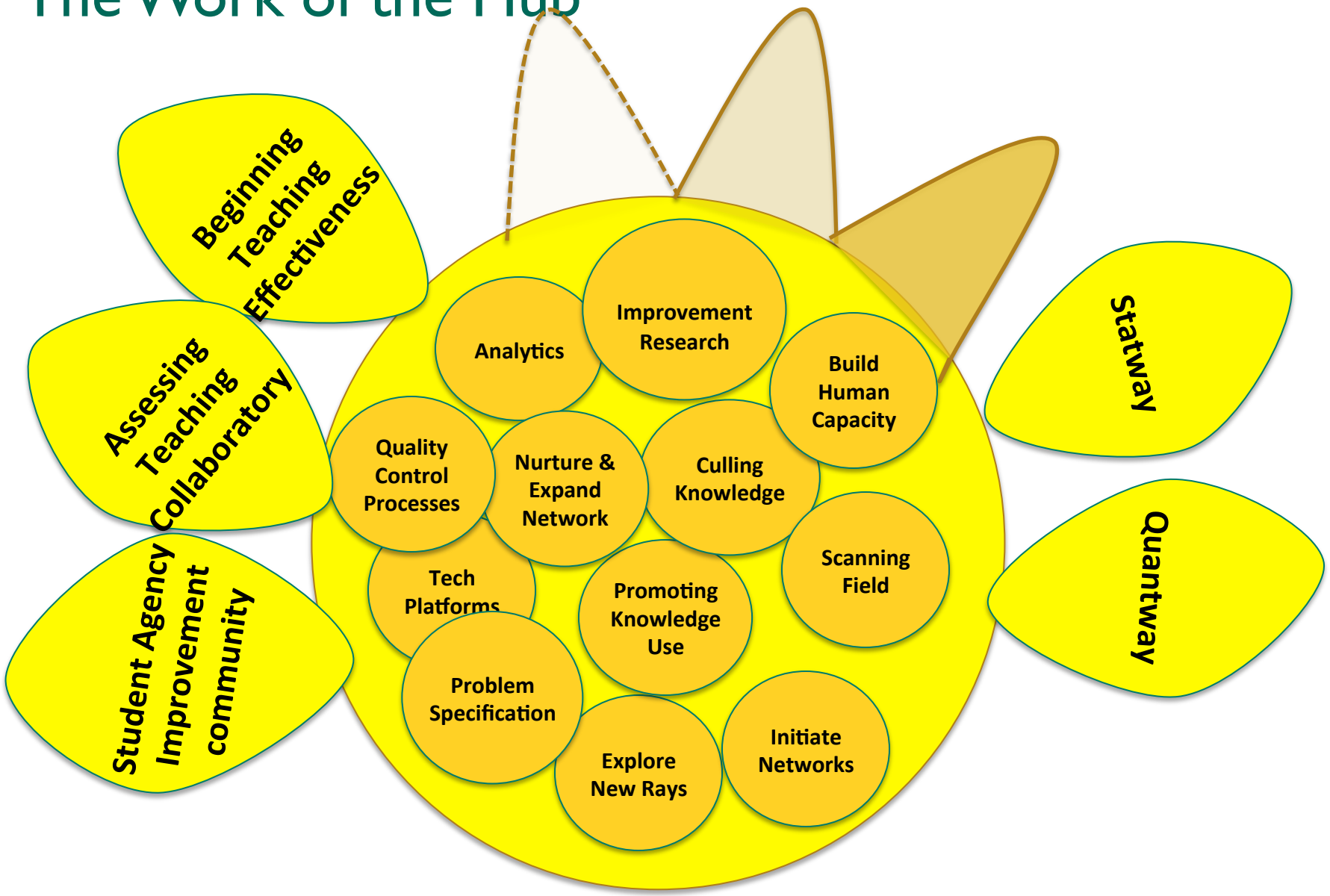
It is all about increasing capacities
to learn in and through practice to improve.

The Work of the Hub



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…"

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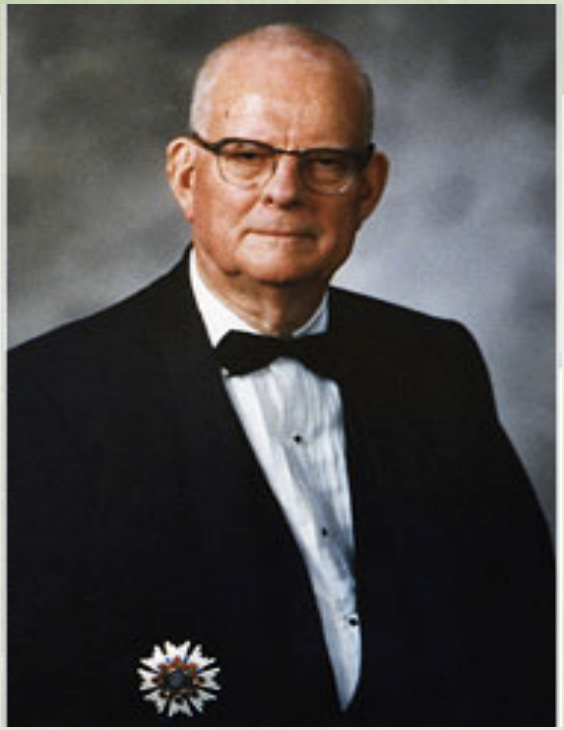
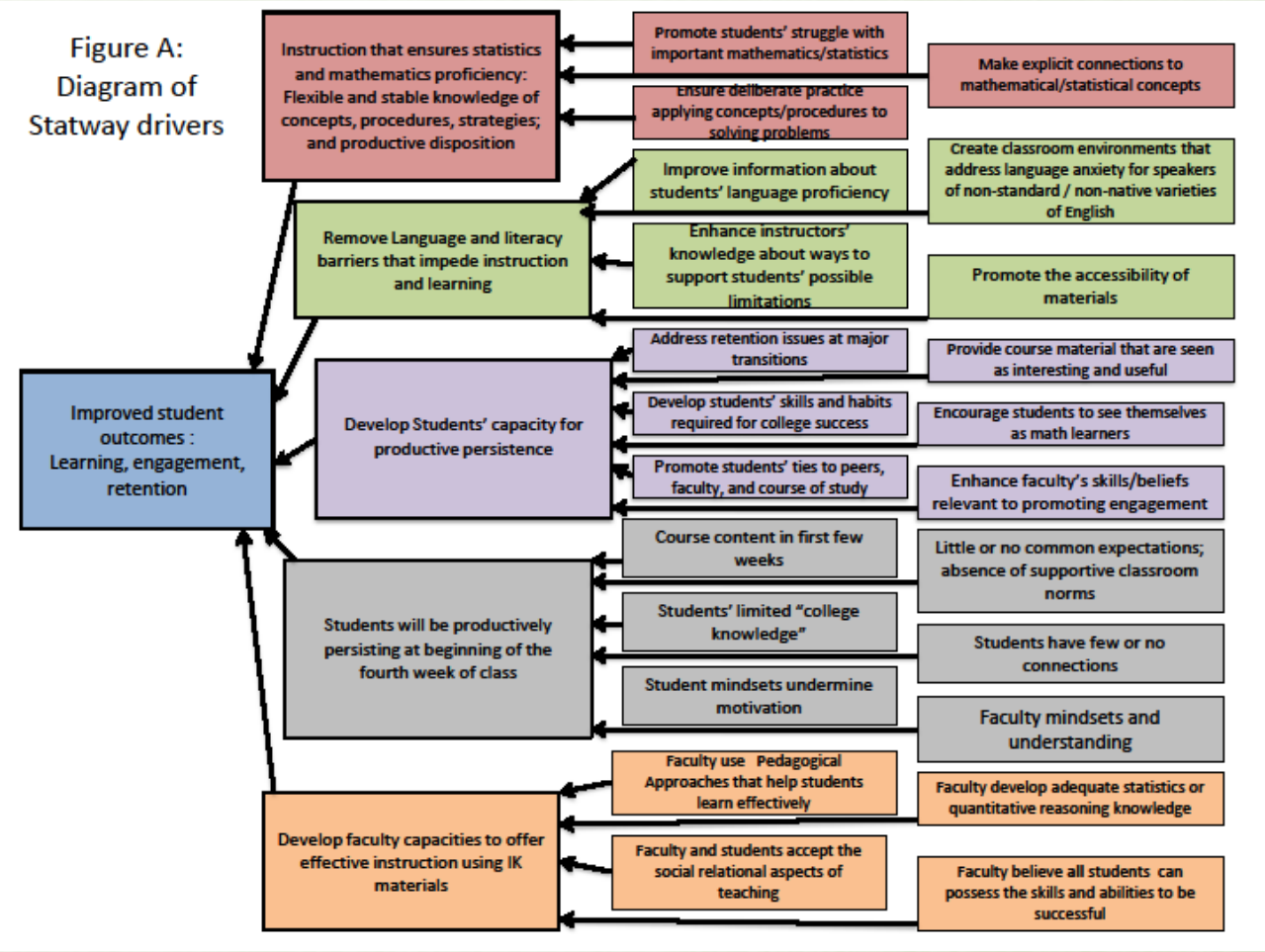
Education reform is "miracle goals without methods."
-W. Edwards Deming

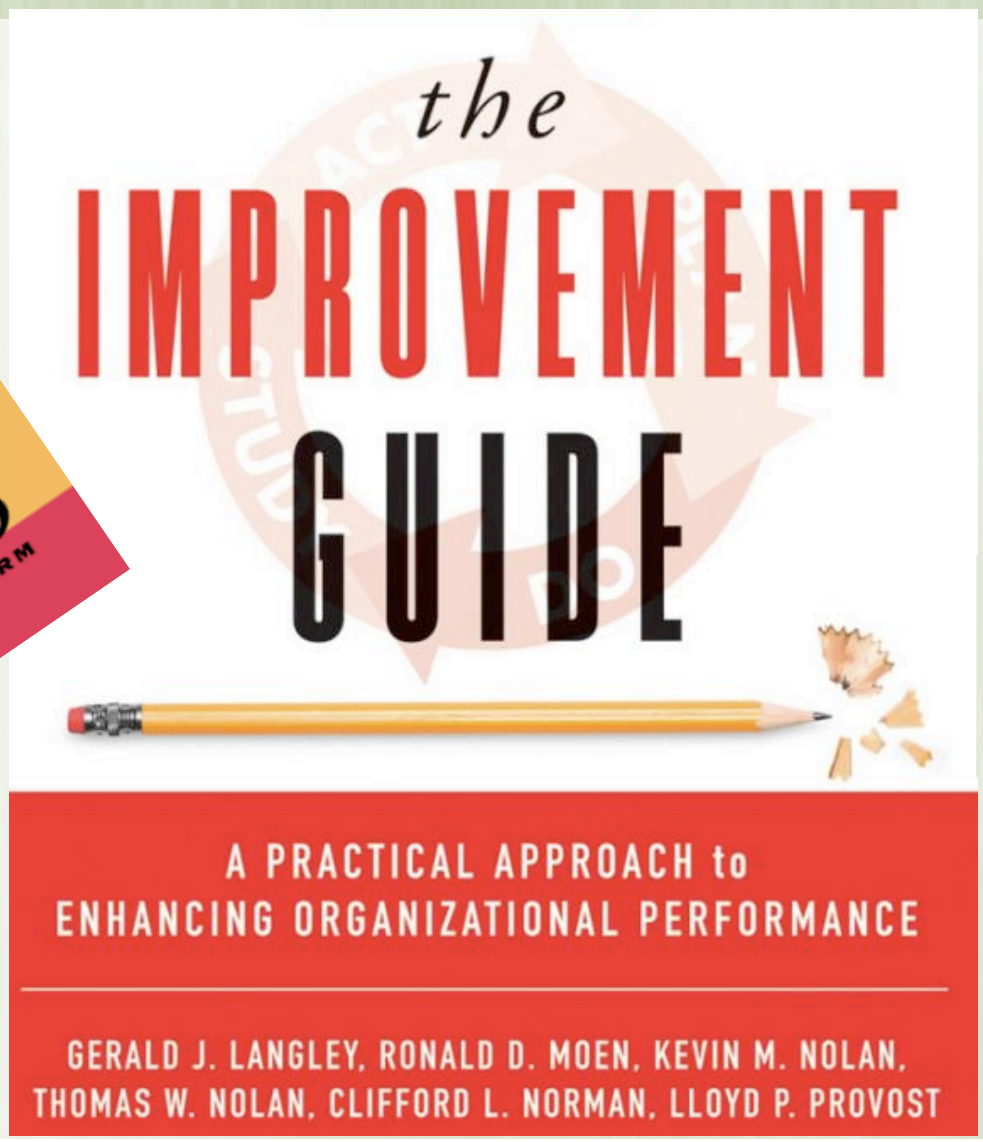


- Quote 1991 about Goals 2000
- NCLB, "all children proficient by 2014."
- Is the next chapter the Common Core?
- If we continue to do what we have always done, we will continue to get what we have always gotten.
- We have to find a better way to accelerate learning in and through practice to improve.

- Figure A: Diagram of Statway drivers

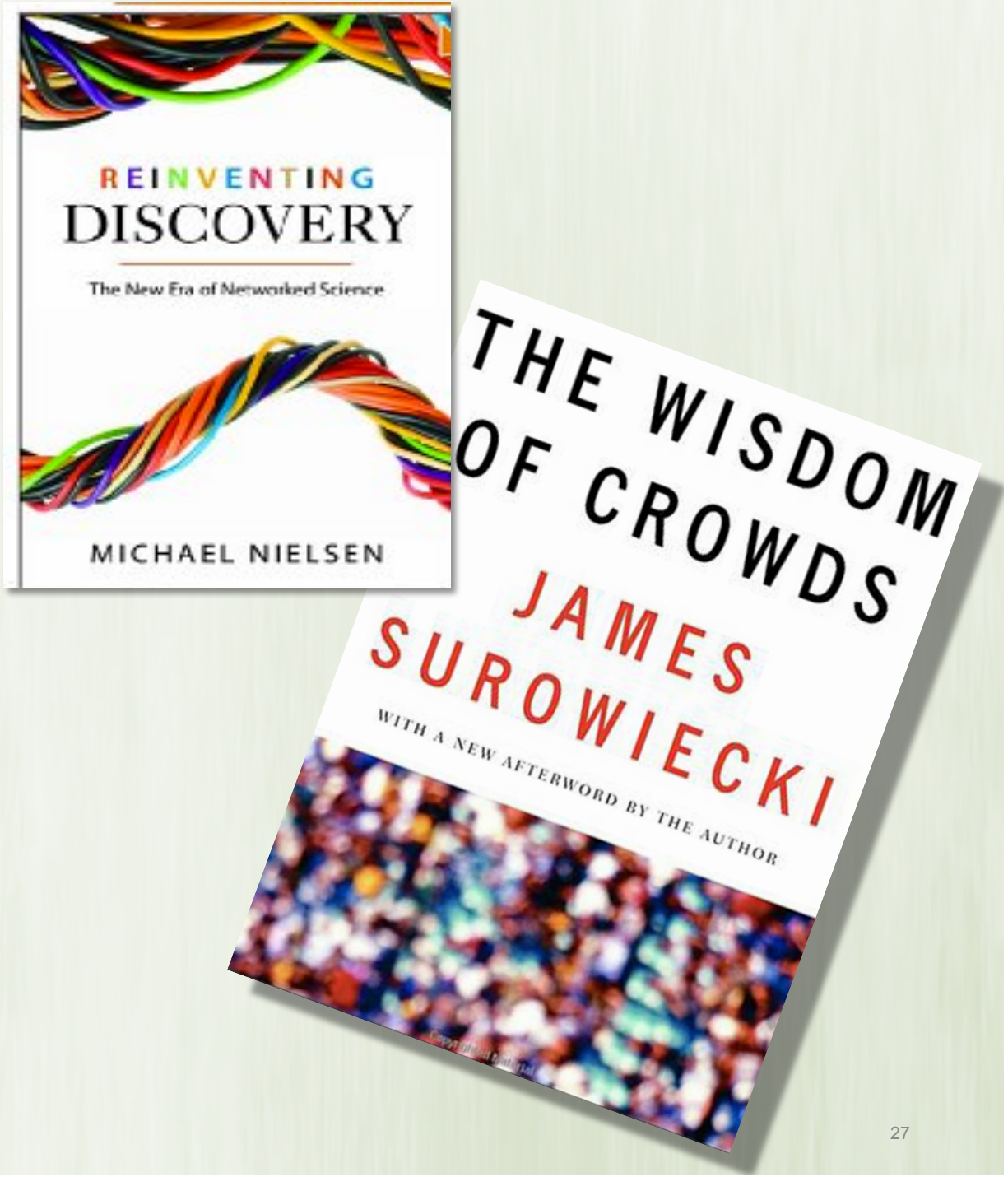


An Inspiration: Improvement Science in Healthcare Protecting 5 Million from Harm, Saving 100,000 Lives



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

Current Situation		Resistant	Indifferent	Ready
LOW Confidence that current change idea will lead to Improvement	Cost of failure **large**	Very Small Scale Test	Very Small Scale Test	Very Small Scale Test
	Cost of failure **small**	Very Small Scale Test	Very Small Scale Test	Small Scale Test
HIGH Confidence that current change idea will lead to Improvement	Cost of failure **large**	Very Small Scale Test	Small Scale Test	Large Scale Test
	Cost of failure **small**	Small Scale Test	Large Scale Test	**Implement**

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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**

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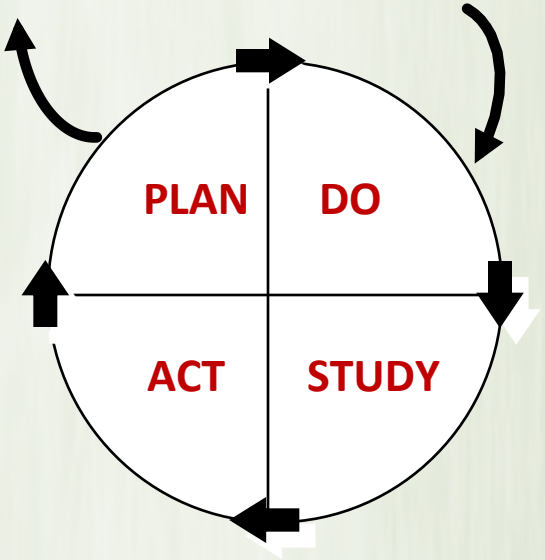
Pulsing Through the Network: the 4 Questions of Improvement Science

What specifically are we trying to accomplish?

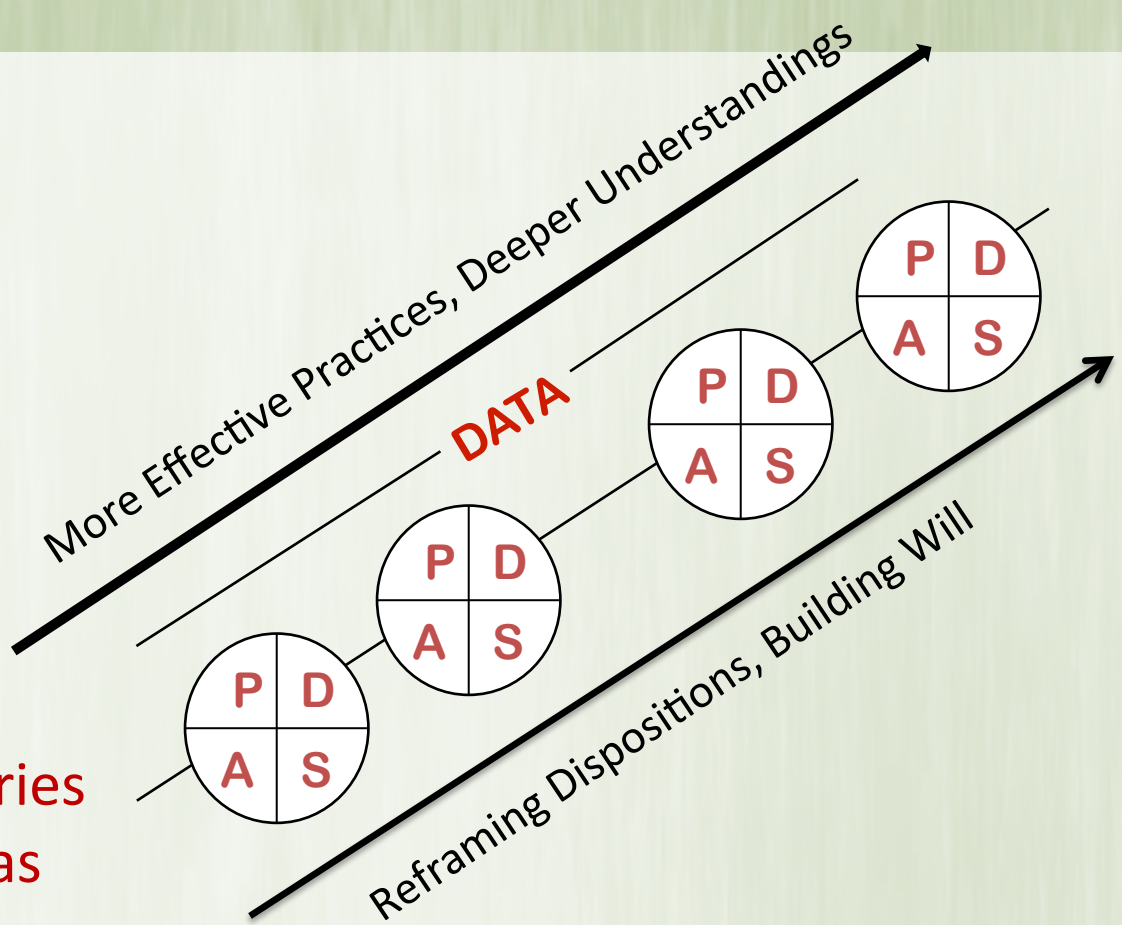
What change might we introduce?

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



Theories
Ideas
Initiating Resources

Learning Theory +
Psychology of Change

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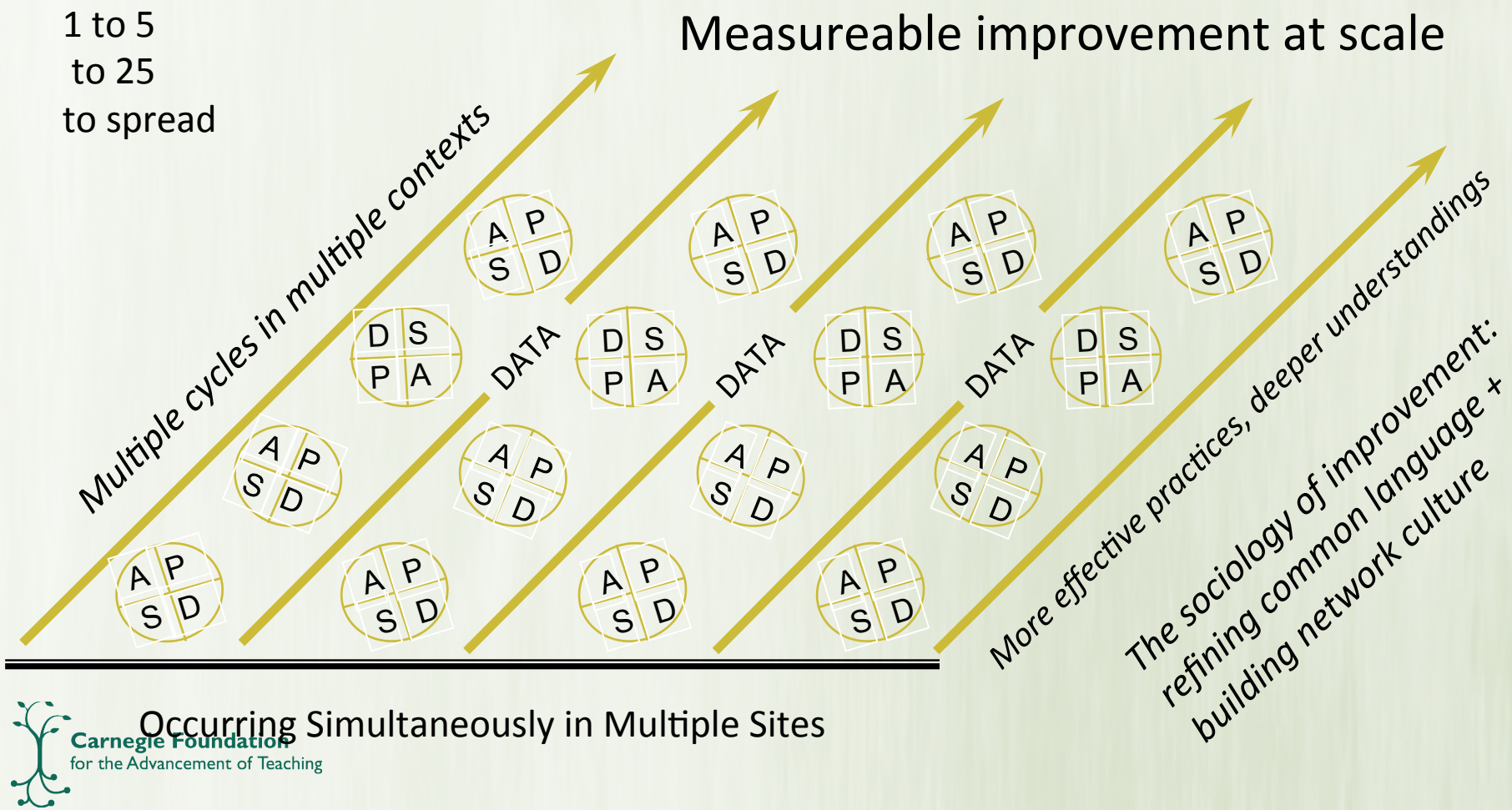
A Networked Community Accelerating Learning for Improvement



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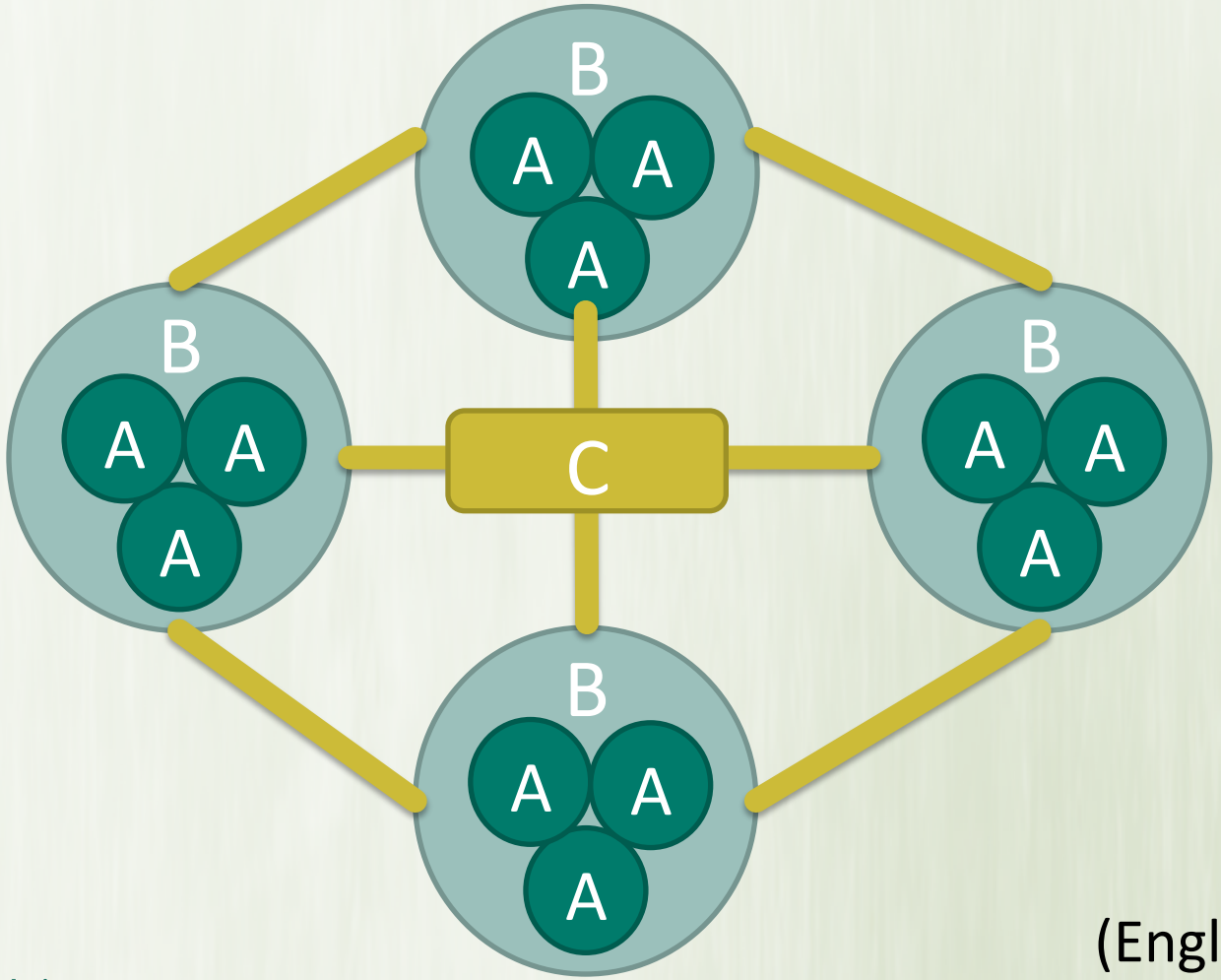
Key structuring agents of a Networked Improvement Community

- 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)

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