HOW

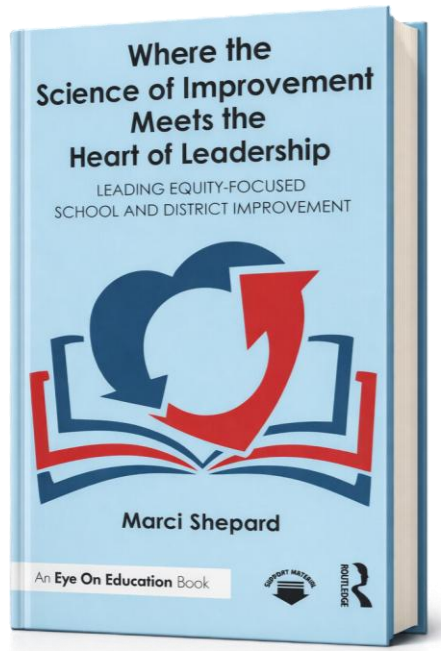
Processes, Tools, and Strategies

Marci Shepard, PhD, EdD



Where the Science of Improvement Meets the Heart of Leadership

LEADING EQUITY-FOCUSED SCHOOL AND DISTRICT IMPROVEMENT



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Session 1

Phase 1:

Understand the Problem and the System That Produces It



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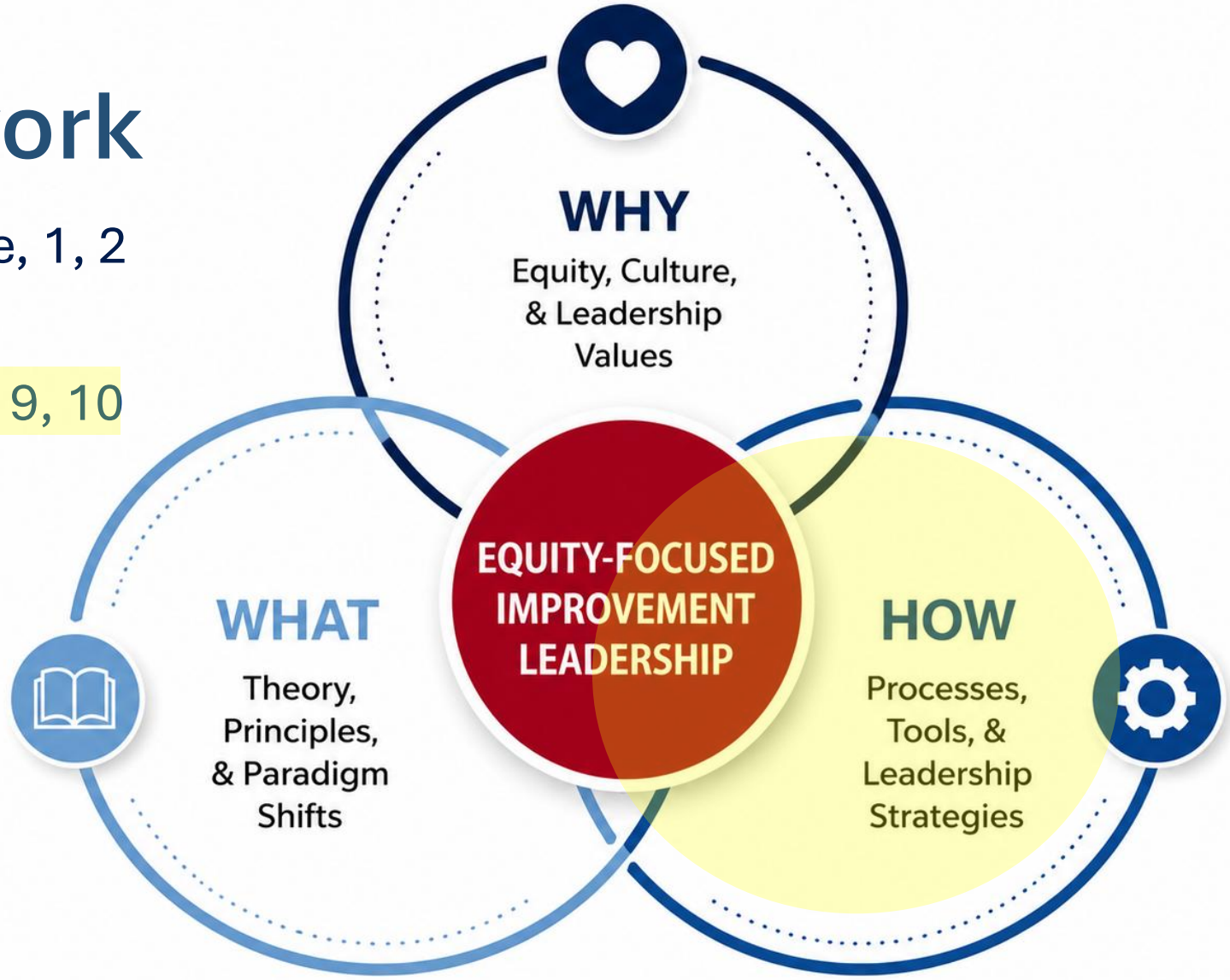
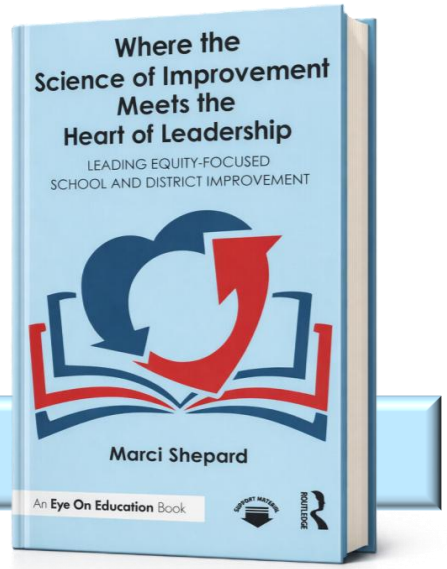
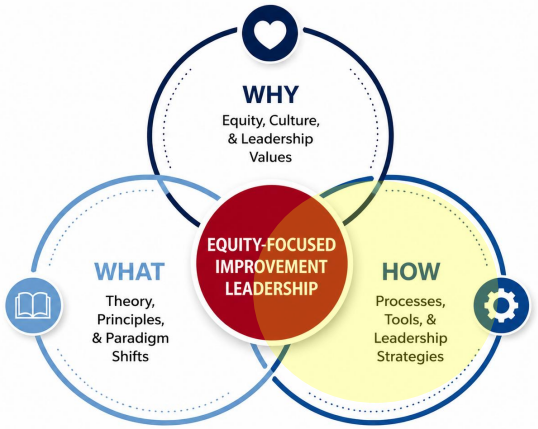
Framework

- Why: Preface, 1, 2
- What: 3, 4, 5
- How: 6, 7, 8, 9, 10







The Instructional Design of Every Chapter

A consistent structure that moves learners from understanding to leadership.

1 PREPARE TO LEARN
Establishes the WHY

- Learning Target & Success Criteria
- Relevant NELP Standards
- Icebreaker
- Case Vignette

2 BUILD UNDERSTANDING
Develops the WHAT

- Research & Content
- Voices of Leaders

3 APPLY & EXTEND LEARNING
Practices the HOW

- Reflection Questions
- Try This Activities & Downloadable Improvement Tools
- Leadership-in-Action Story
- References



FROM **WHY** → TO **HOW**

Preparing leaders who **understand improvement**

Preparing leaders who **can lead improvement**

Download at Routledge *Where the Science of Improvement Meets the Heart of Leadership* under Support Material.

Marci Shepard

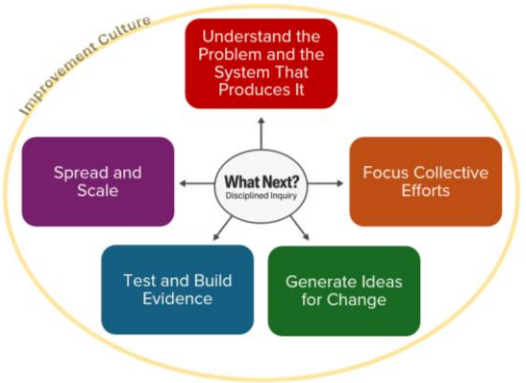
Building an Improvement Project as We Go

Choose something authentic to your work. You might:

- **IMPROVE** something
- **TEACH** improvement
- **RESEARCH** a problem
- **DESIGN** a larger improvement effort

Across our four sessions, you'll apply what we're learning to your project:

- **Session 1 →** Understand the problem & system
- **Session 2 →** Focus & generate ideas
- **Session 3 →** Plan to test and spread & scale
- **Session 4 →** Consider the improvement culture surrounding the work



Note: This four-session instructional sequence walks learners through an introductory authentic improvement project using the five-phase inquiry process and an exploration of improvement culture. Sessions, activities, and tools can be used together or independently.

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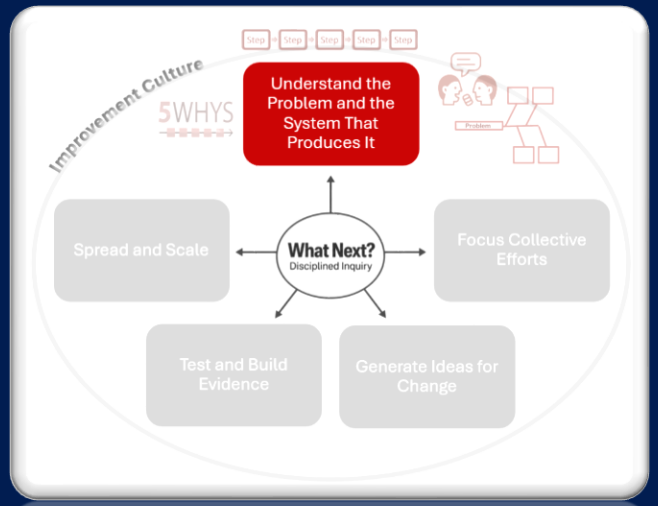
I can begin understanding a problem and the system producing it.

Success Criteria

- Connect with each other and the improvement work we bring to the community
- Experience systems thinking and why it matters for improvement
- Identify and explore a real area for improvement in our own work
- Explore ways to learn more about the problem and the system



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Three Fundamental Questions

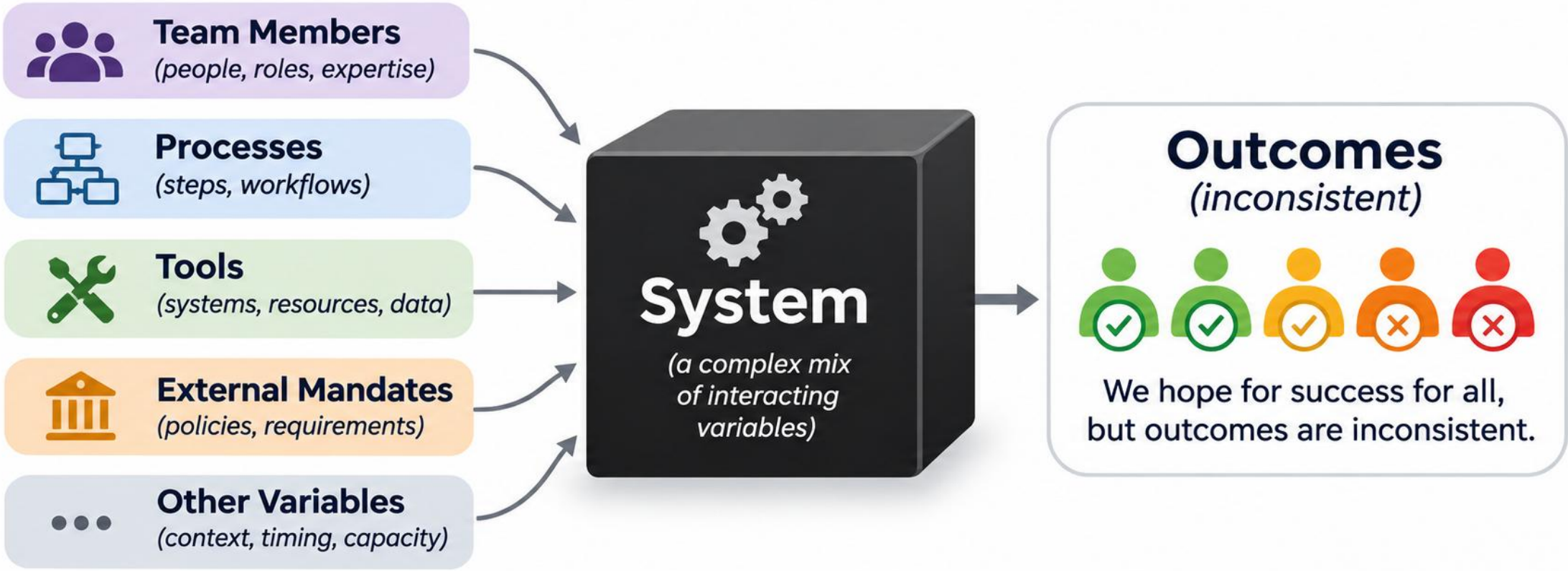
1. What are we trying to accomplish?
2. How will we know when a change is an improvement?
3. What change can we make that will result in an improvement?



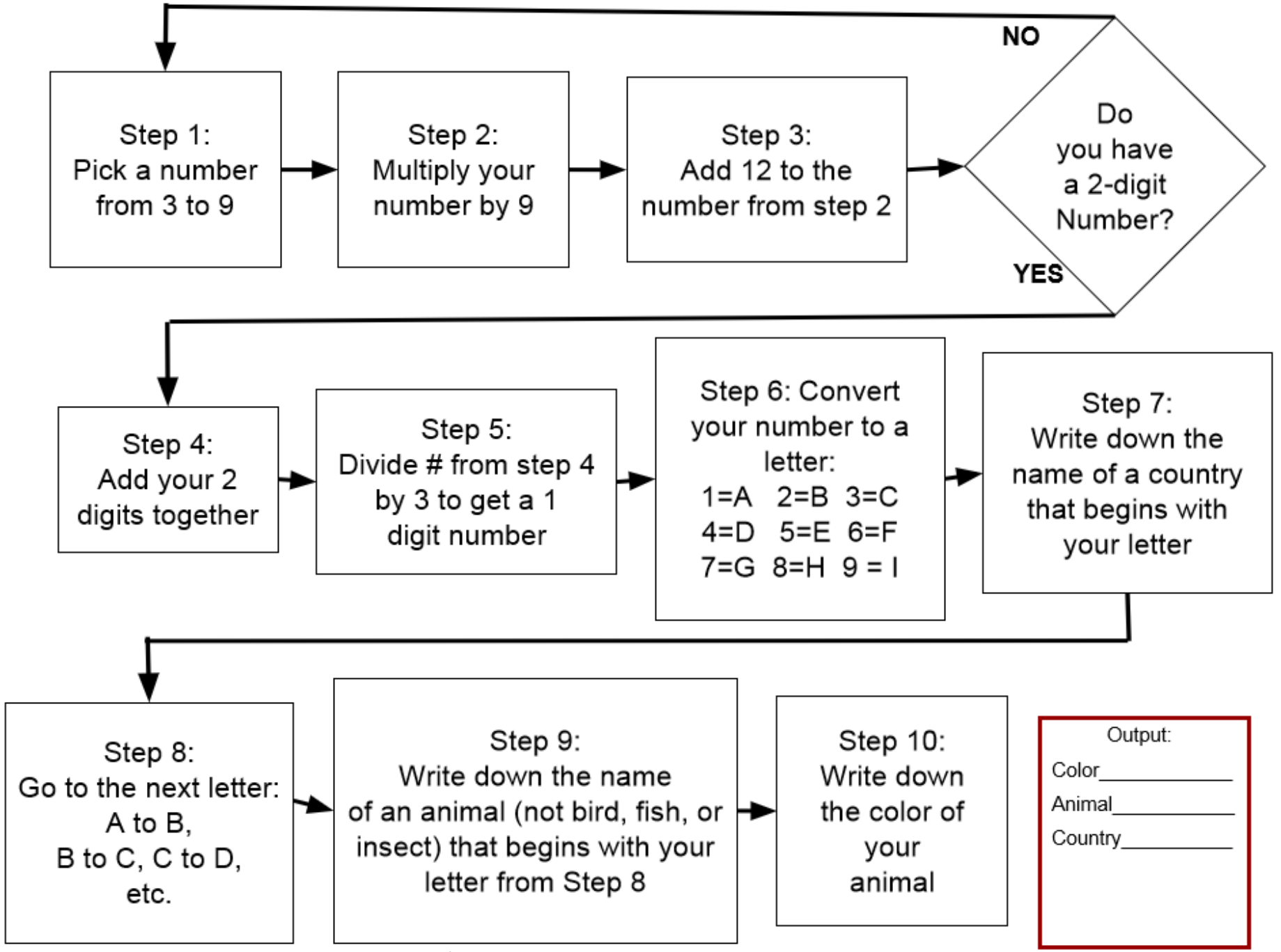
Langley et al. (2009)

Not all **change** is improvement,
but all **improvement** is **change.**

Commonly attributed to Donald Berwick, MD



If we want more reliable outcomes, we need **more reliable processes.**

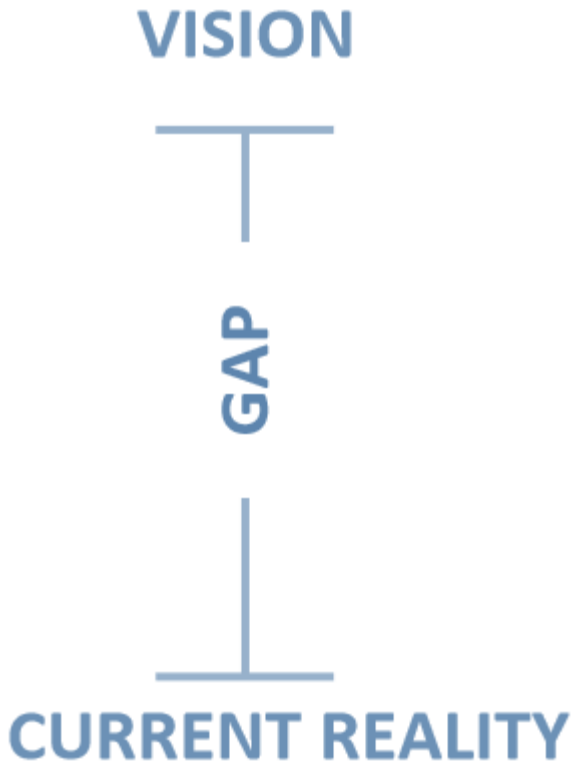


The system is perfectly designed to get the results it is getting.

Let's disrupt that!

Source: Institute for Healthcare Improvement / R. Lloyd (2013).

Change begins with a dissatisfaction with the status quo.



What is one inequitable outcome or problem in your work that keeps you up at night?

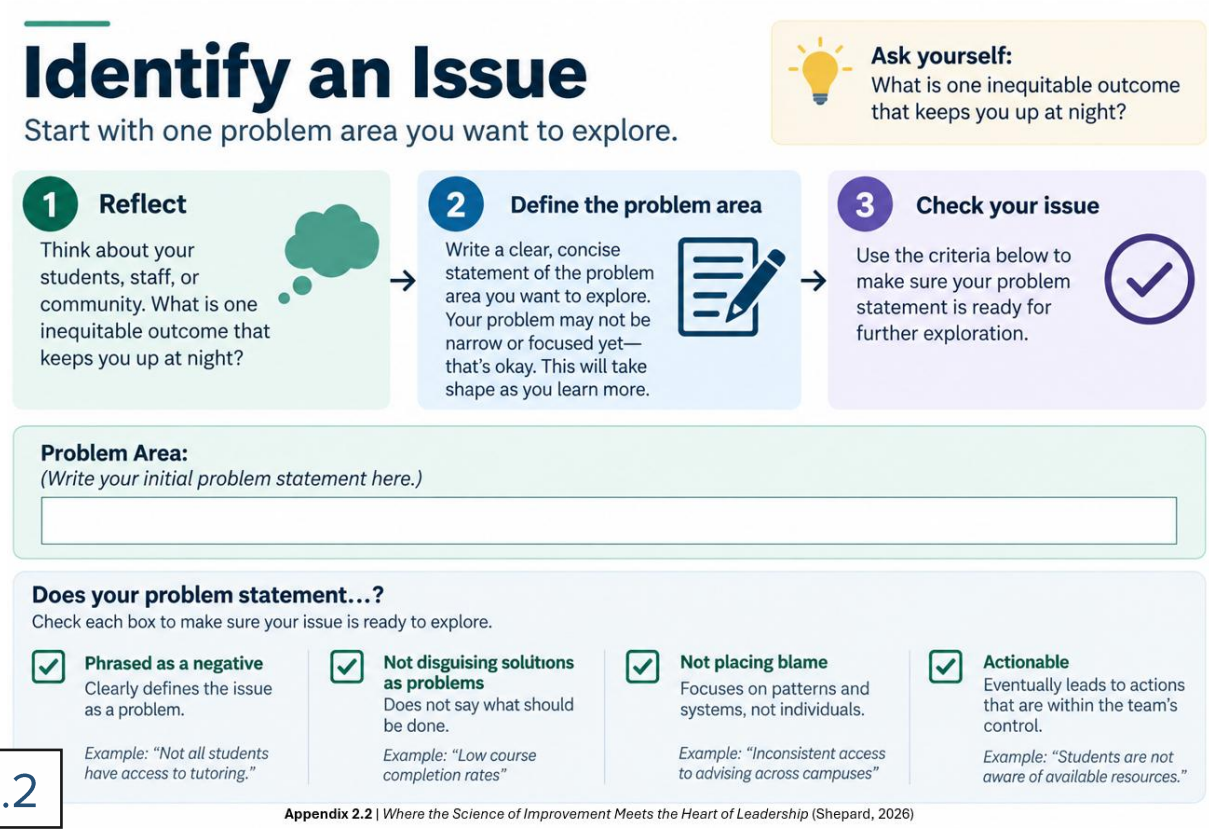


Independent Think Time:

What is the problem you might explore?

Characteristics of problems:

- ☐ are *negative*
- ☐ are *not disguised solutions*
- ☐ *do not assign blame*
- ☐ are an appropriate *scale*



Identify an Issue

Start with one problem area you want to explore.

Ask yourself:
What is one inequitable outcome that keeps you up at night?

1 Reflect
Think about your students, staff, or community. What is one inequitable outcome that keeps you up at night?

2 Define the problem area
Write a clear, concise statement of the problem area you want to explore. Your problem may not be narrow or focused yet—that's okay. This will take shape as you learn more.

3 Check your issue
Use the criteria below to make sure your problem statement is ready for further exploration.

Problem Area:
(Write your initial problem statement here.)

Does your problem statement…?
Check each box to make sure your issue is ready to explore.

- ☑ **Phrased as a negative**
  Clearly defines the issue as a problem.
  Example: "Not all students have access to tutoring."
- ☑ **Not disguising solutions as problems**
  Does not say what should be done.
  Example: "Low course completion rates"
- ☑ **Not placing blame**
  Focuses on patterns and systems, not individuals.
  Example: "Inconsistent access to advising across campuses"
- ☑ **Actionable**
  Eventually leads to actions that are within the team's control.
  Example: "Students are not aware of available resources."

Appendix 2.2

Appendix 2.2 | *Where the Science of Improvement Meets the Heart of Leadership* (Shepard, 2026)



In your improvement group…

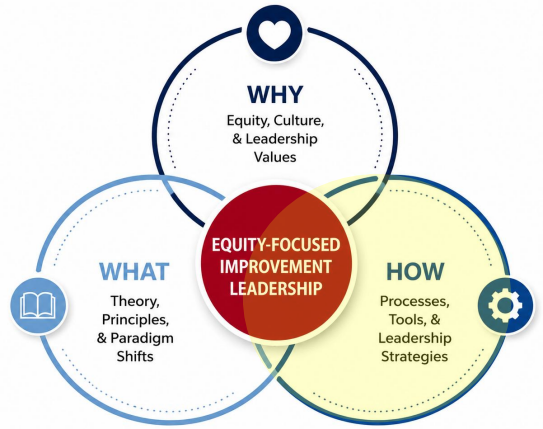
Take turns sharing a problem you *might* want to explore.
Help each other clarify the problem.

Don't solve the problem yet!

- What outcome or recurring challenge is concerning you?
- Who is experiencing it, and what does it look like in practice?
- Is this a problem you can reasonably influence and explore?

Goal: Leave with an idea of the problem you want to investigate further.

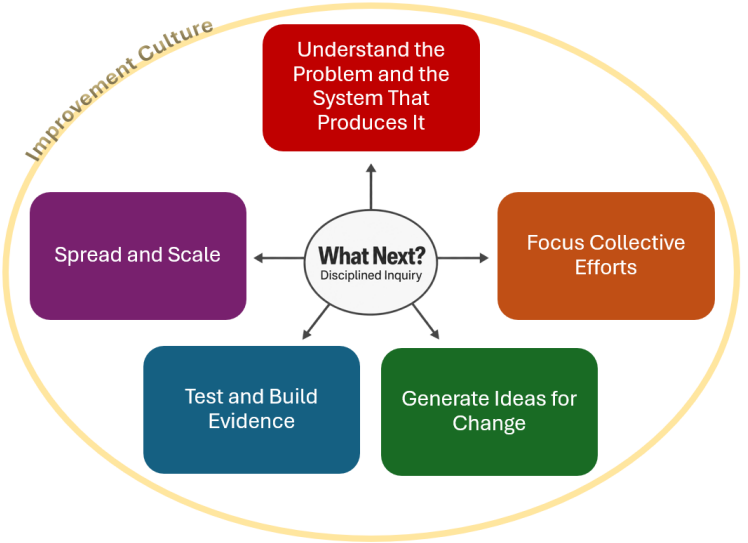




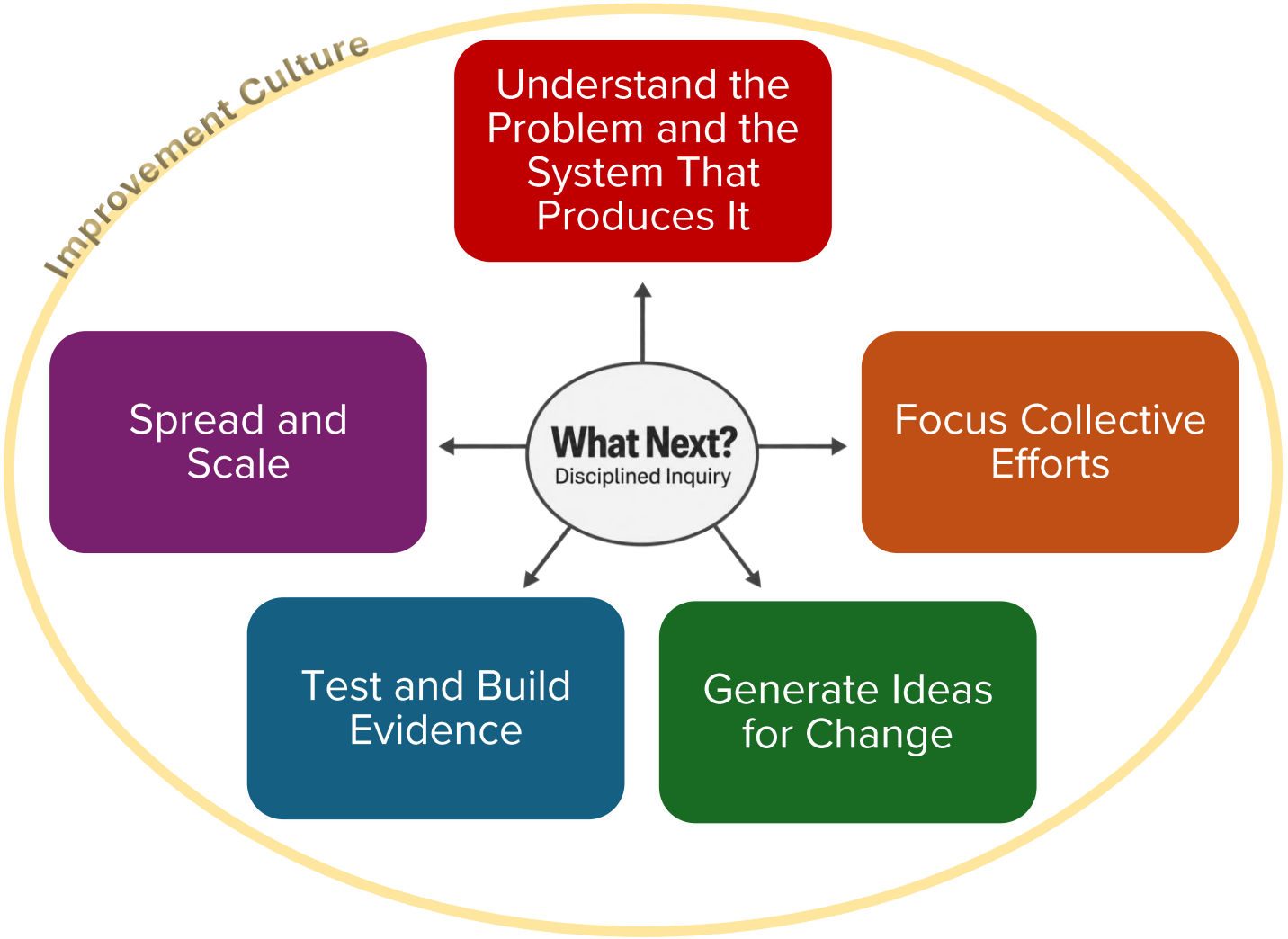
APPENDIX 2 CHAPTER 6

But what do I *DO*?

- **Disciplined inquiry** slows the rush to solutions
- **Five phases** make improvement practical and manageable
- **The process** centers equity, collaboration, and context-specific learning
- **Tools and protocols** make disciplined inquiry actionable



5-Phases (The Carnegie Foundation for the Advancement of Teaching, 2018). Used with permission.
Improvement Culture (Shepard, 2026)



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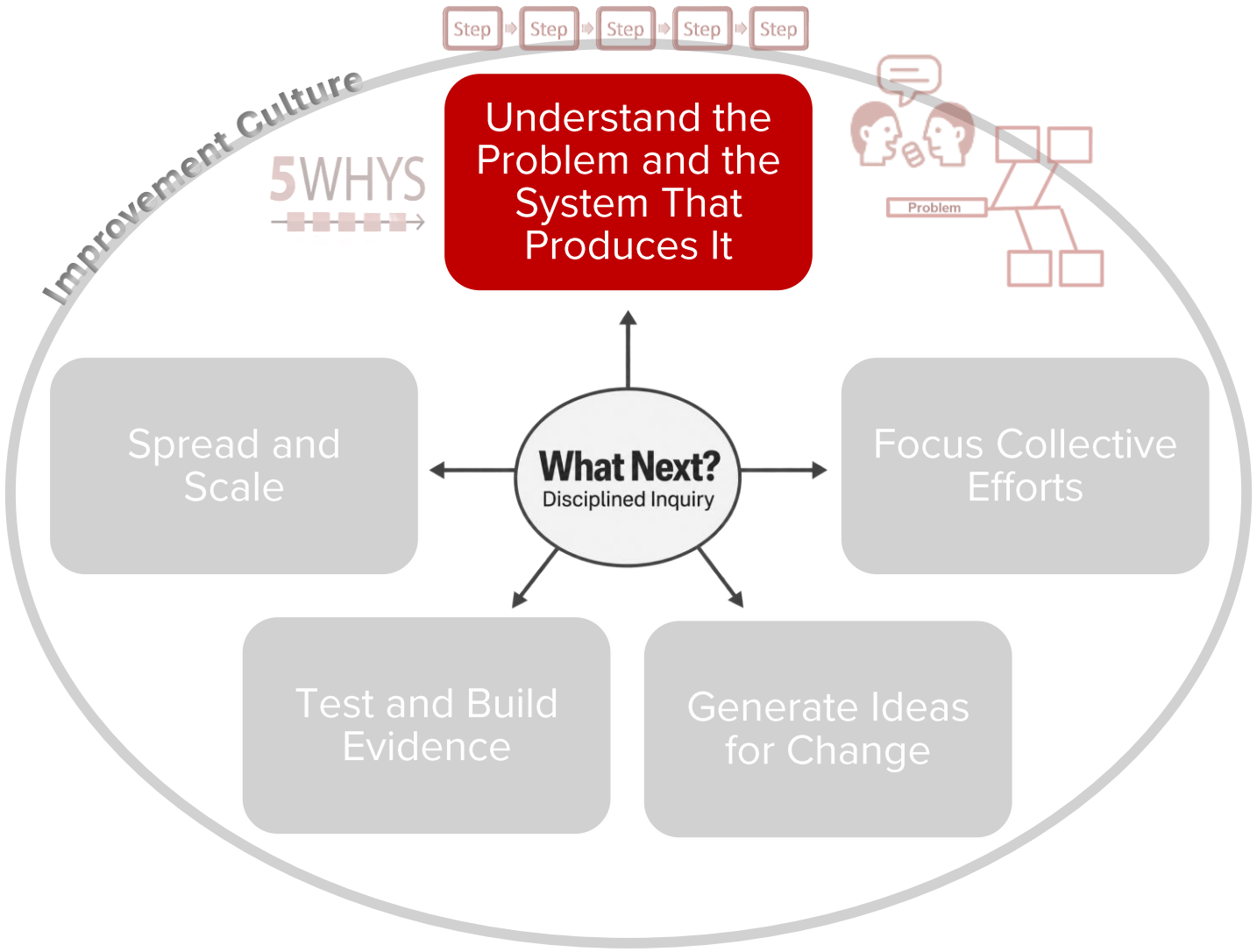
Step
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Improvement Culture
5WHYS
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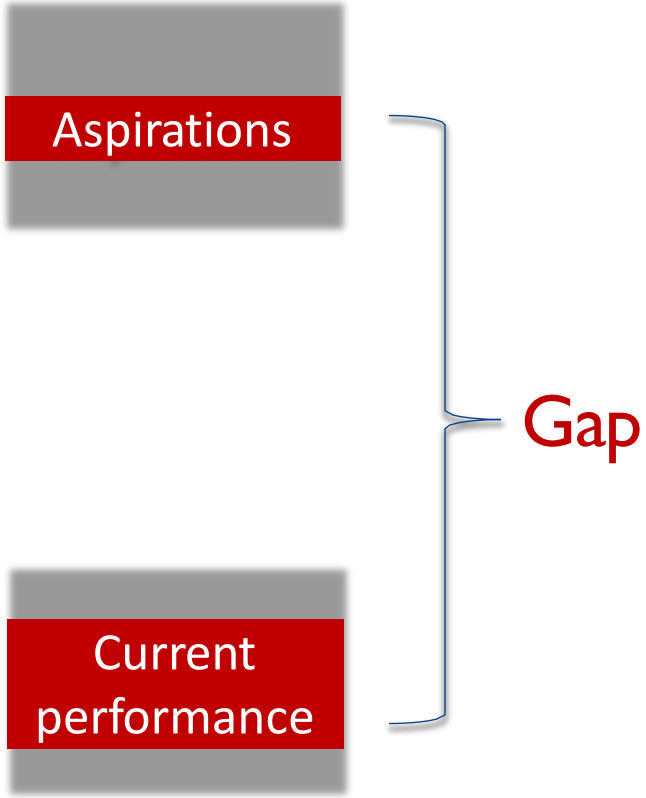
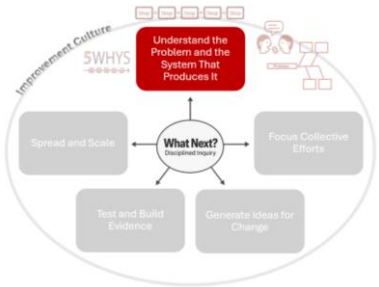
Spread and Scale
What Next?
Disciplined Inquiry
Focus Collective Efforts
Test and Build Evidence
Generate Ideas for Change



Why are we getting the outcomes we are currently getting?

Let's go investigate.

Make Meaning of Data



Appendix 2.3

Data Analysis Protocol

Use data to explore what's happening, find patterns, and generate hypotheses about root causes.

Data helps us move from opinions to evidence and opens up new questions.

1 Data Overview and Understanding

Get clear on what data you're looking at.

- What dataset are we analyzing?
- What is the timeframe of the data?
- Who is represented in the data?
- What is being measured?

2 Notice–Identify Patterns and Trends

Look for what stands out.

- What do we see? (Record observations without interpretation or judgment.)
- Examples: trends, differences between groups, variations

3 Wonder—Generate Questions

Let the data spark curiosity.

- What questions emerge from the patterns?
- Why are certain student groups outperforming or underperforming?
- What additional data or information do we need to deepen our understanding?

4 Interpret—Hypothesize Root Causes

Use what you've learned to develop explanations.

- What might be contributing to these trends?
- What additional data or information is needed to confirm or challenge these hypotheses?

Goal: Use data to deepen your understanding of the problem and inform next steps.

Appendix 2.3 | *Where the Science of Improvement Meets the Heart of Leadership* (Shepard, 2026)

Data is good, but wait... there's more!

Let's inspect the system!



Affinity Protocol

Use insights from multiple sources to identify key themes and narrow in on a specific problem to prioritize.

Turn lots of information into a clear focus.

The affinity protocol helps teams find common themes and identify where to focus.

1 Gather insights

Use your assigned resource to identify your top 1–2 insights about the problem. Write each insight on a sticky note.



2 Cluster similar ideas

Work together to group sticky notes based on common themes or similarities.



3 Label categories

Name the major themes that emerge from your clusters.



4 Discuss key takeaways

Look across the themes and discuss what you're learning. Identify major patterns or insights about the problem.

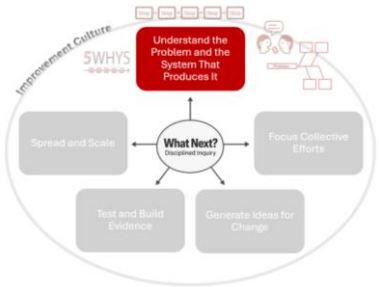


5 Choose where to focus

Use your findings to hone in on the team's specific problem. Consider:

- Which part can we most effectively address right now?
- Wh
  the
- What is within our control?

Appendix 2.9



Outcome

A clear, narrowed problem area to prioritize for the next phase of work.

Many perspectives.
Shared understanding.
A clearer path forward.

Appendix 2.9 | *Where the Science of Improvement Meets the Heart of Leadership* (Shepard, 2026)

Appendix 2.4

5 Whys

Ask "why?" repeatedly to get to the root cause of a problem.

Define the Problem
What are you trying to u

1 Why is this a p

2

Caution
If your last answe
something you c
control, back up
previous answer.

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Wh

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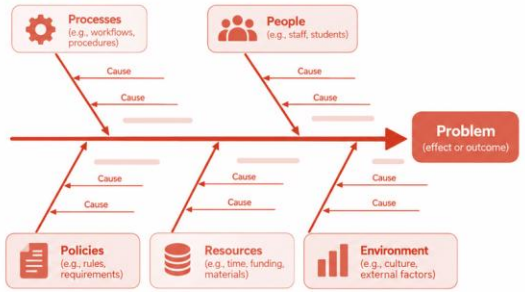
Appendix 2.5

Fishbone Diagram

Identify multiple lines of reasoning that point to the root causes of a problem.



Tip: Look for multiple perspectives.
A fishbone diagram helps you see the many factors—across people, processes, policies, resources, and the environment—that contribute to the problem.

1 **Define the**
Write the pro
"head" of the
or outcome).

2 **Choose categories**
Create major bones (categories) of contributing factors (e.g., processes, policies, resources, training, student factors).

3 **Brainstorm causes**
Identify sub-causes under each category by asking "Why?" multiple times.

4 **Analyze and prioritize**
Ask:
- What trends or patterns do we see?
- Which root causes are within our control?
- Which root cause(s) would make the biggest impact?

Select the most impactful cause(s) to focus on.

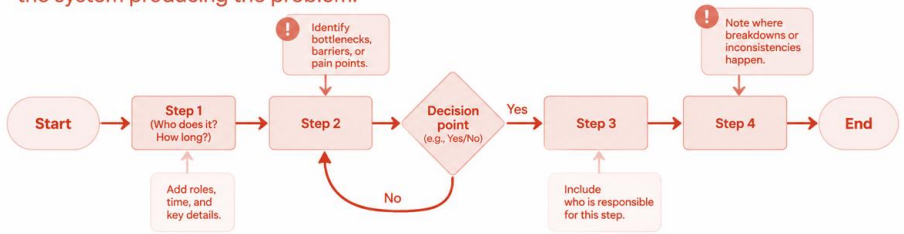
Goal:
Move beyond symptoms to identify the underlying (root) causes.

Appendix 2.5 | *Where the Science of Improvement Meets the Heart of Leadership* (Shepard, 2026)

Appendix 2.6

Process Map

Create a visual representation of how the work is currently done to understand the system producing the problem.



1 **Identify the process**
What process produces or influences this outcome?

2 **Map the steps**
List the major steps, decision points, and flow in order.

3 **Add details**
Include time for each step, roles (who is involved), and who is responsible.

4 **Analyze and improve**
Look for breakdowns, bottlenecks, or lack of clarity. Identify opportunities for improvement.

Use it as a team.
Compare maps, look for differences, and discuss what you learn.

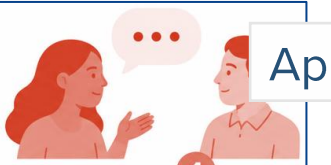
No peeking!
Have each team member create their own map first.

Appendix 2.6 | *Where the Science of Improvement Meets the Heart of Leadership* (Shepard, 2026)

Appendix 2.7

Empathy Interview

Listen to understand the experiences, needs, and perspectives of those affected by the problem.



1 **Plan**
Identify whose perspectives you need to hear (e.g., students, staff, families). Consider diverse voices and experiences.

2 **Prepare**
Brainstorm questions that will help you understand the problem. Narrow to ~5 open-ended questions that invite storytelling (e.g., "Tell me about a time...").

3 **Listen**
Conduct the interviews. Be curious and open. Ask follow-up questions and allow time for stories. Build trust—honest responses give the richest insights.

4 **Capture and Share**
Take notes and record key quotes (with permission). Look for patterns and insights to inform your understanding of the problem.

Tip: Listen more than you talk.
The goal is not to convince or solve the problem, but to understand the other person's experience.

Sample Interview Questions
- Tell me about a time when...
- What is that like for you?
- What do you find most difficult (or helpful) about...?
- What would make a bigger difference?
- Is there anything else we should know?

Appendix 2.7 | *Where the Science of Improvement Meets the Heart of Leadership* (Shepard, 2026)

Appendix 2.8

Research and Evidence to Understand the Problem

Explore what is already known and what has worked to deepen your understanding and inform possible solutions.

1 **Define Your Focus**
Identify the specific problem area you want to explore more deeply.

"What do we want to learn more about?"

2 **Search for Relevant Evidence**
Look for research and other sources of information, such as:
- Research articles
- Improvement science case studies or process stories
- Reports or white papers from trusted education organizations
- Practitioner resources
- Other schools or districts engaging in similar efforts

3 **Summarize What You Find**
Identify 2–3 key ideas, findings, or strategies related to your problem or practice.

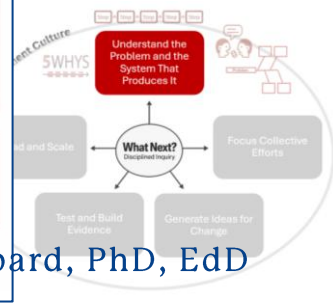
4 **Make Meaning as a Team**
Discuss and reflect:
- What insights feel relevant or transferable to our context?
- What surprised or challenged our assumptions?
- How might we apply or adapt these ideas?
- What additional information do we need?

Connect to Root Cause Analysis
Use what you learn from research and evidence to inform your understanding of the root causes of your problem and identify potential strategies for change.

Look Both Inside and Outside
Combine local data and experience with external research and evidence to get a more complete picture.

Good research doesn't give you all the answers, but it helps you ask better questions and find more promising solutions.

Appendix 2.8 | *Where the Science of Improvement Meets the Heart of Leadership* (Shepard, 2026)



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Identify your top 1-2 insights about the problem from the various data sources & write them on sticky notes (1 per sticky note).



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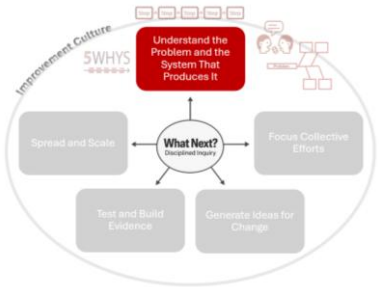

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Affinity Protocol
Sharing Learning

- **1-by-1 Share:** What did you learn about the problem AND what data source did the information come from? *(Read post-it aloud and stick on chart.)*
- **Cluster:** Move post-its into clusters based on similar themes (if any). Label the clusters.
- **Insights:** Discuss and record major learning from looking across the insights.

Where Should We Focus?

- Based on what you're learning, what feels most important to address?
- What feels within your influence?
- What might be too broad or too narrow?



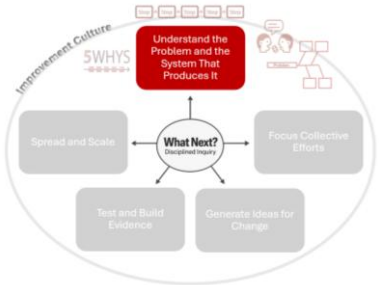
Appendix 2.9

Which Tools Might Help You Learn More?

Think about the problem you identified.

Consider Phase 1 tools that could help you understand it.

With your group, share:
My problem is…
I might use **(tools)** because I want to learn…



2.1 Assemble a Team Check-In
2.2 Identify an Issue
2.3 Data Analysis Protocol
2.4 5 Whys Protocol
2.5 Fishbone Diagram
2.6 Process Mapping
2.7 Empathy Interviews
2.8 Research and Evidence to Understand the Problem
2.9 Affinity Protocol



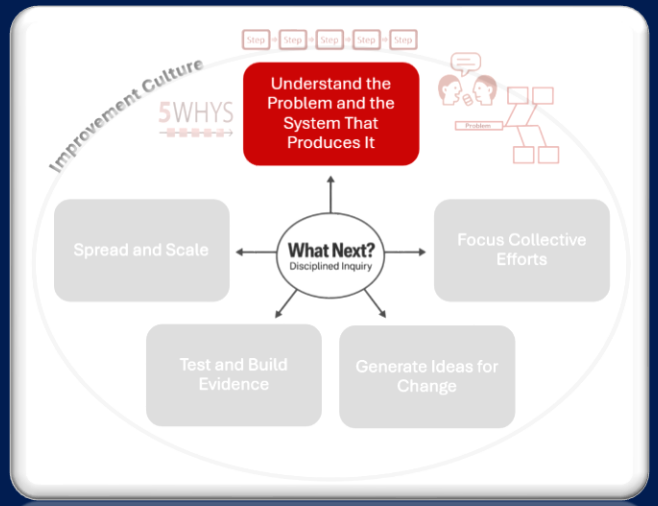
Marci Shepard, PhD, EdD



I can begin understanding a problem and the system producing it.

Success Criteria

- Connect with each other and the improvement work we bring to the community
- Experience systems thinking and why it matters for improvement
- Identify and explore a real area for improvement in our own work
- Explore ways to learn more about the problem and the system



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Building the Improvement Project As We Go

Engage in Phase 1: Understand the Problem and the System that Produces It

Between now and Session 2: Continue exploring your problem and use the Phase 1 tools that are useful for learning more about it.

Session 2

Phases 2 & 3:

Focus Efforts and Generate Ideas



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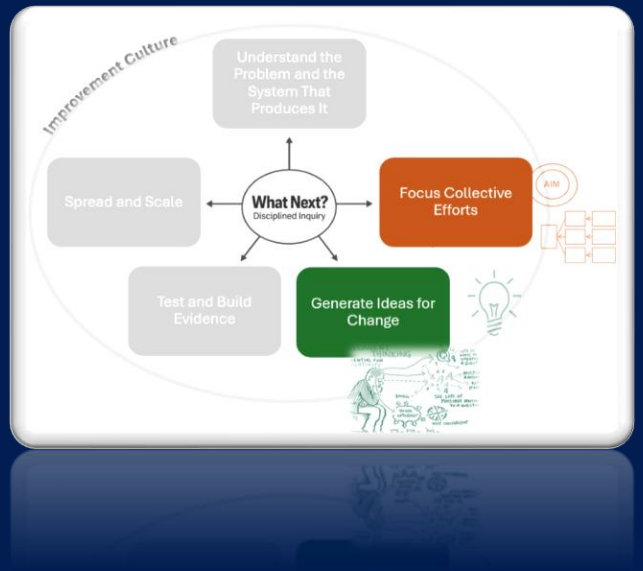
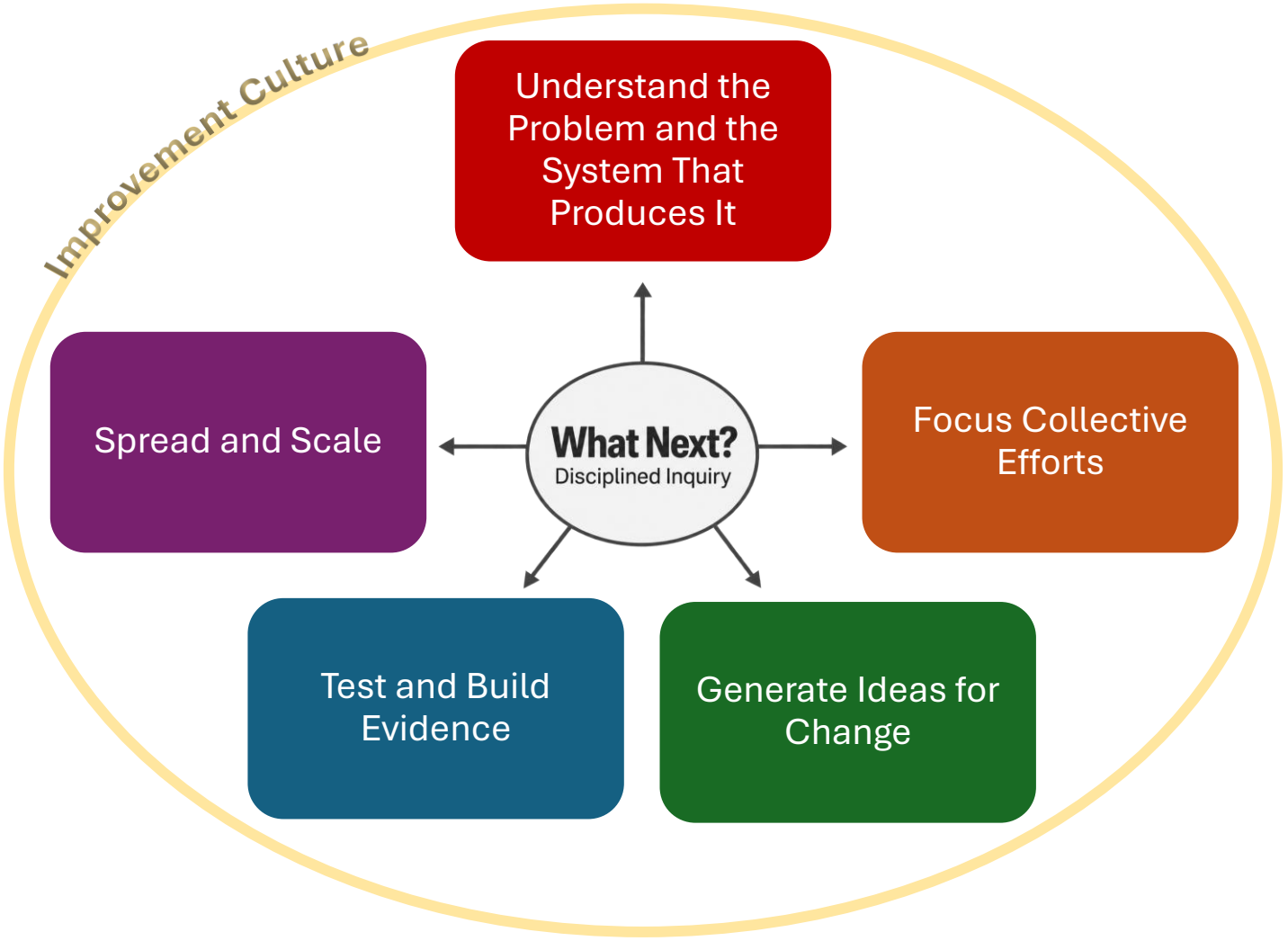
I can begin narrowing the focus of my improvement effort and generating ideas for change.



Success Criteria

- Share what we're learning about our problems and systems
- Develop an aim for the improvement effort
- Identify key drivers that could influence the aim
- Generate and connect change ideas to what we want to improve

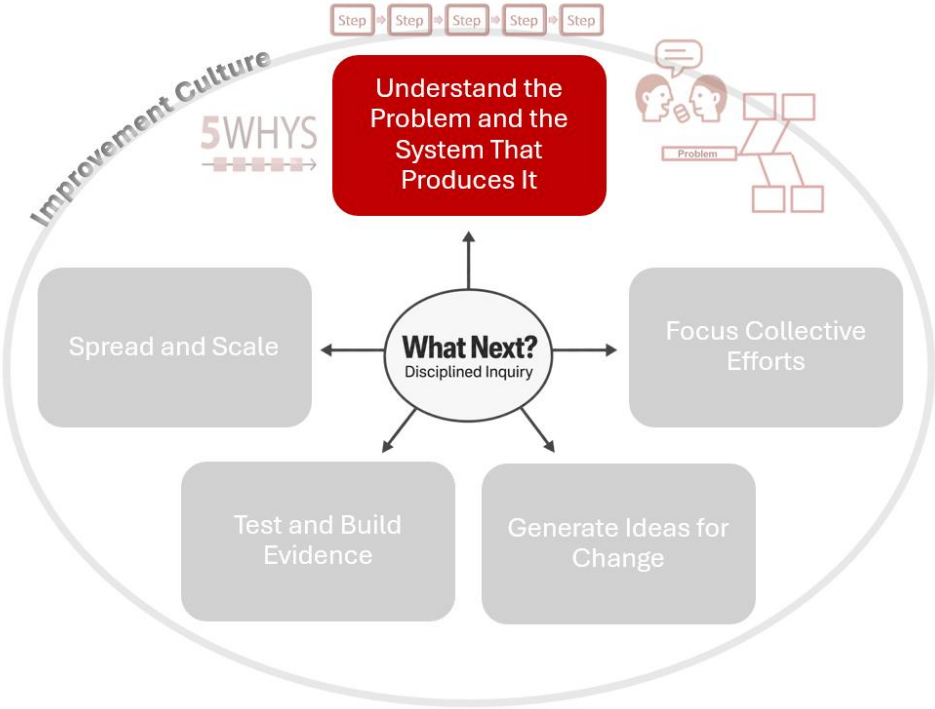

Improvement Culture
Understand the Problem and the System That Produces It
Spread and Scale
What Next?
Disciplined Inquiry
Focus Collective Efforts
Test and Build Evidence
Generate Ideas for Change

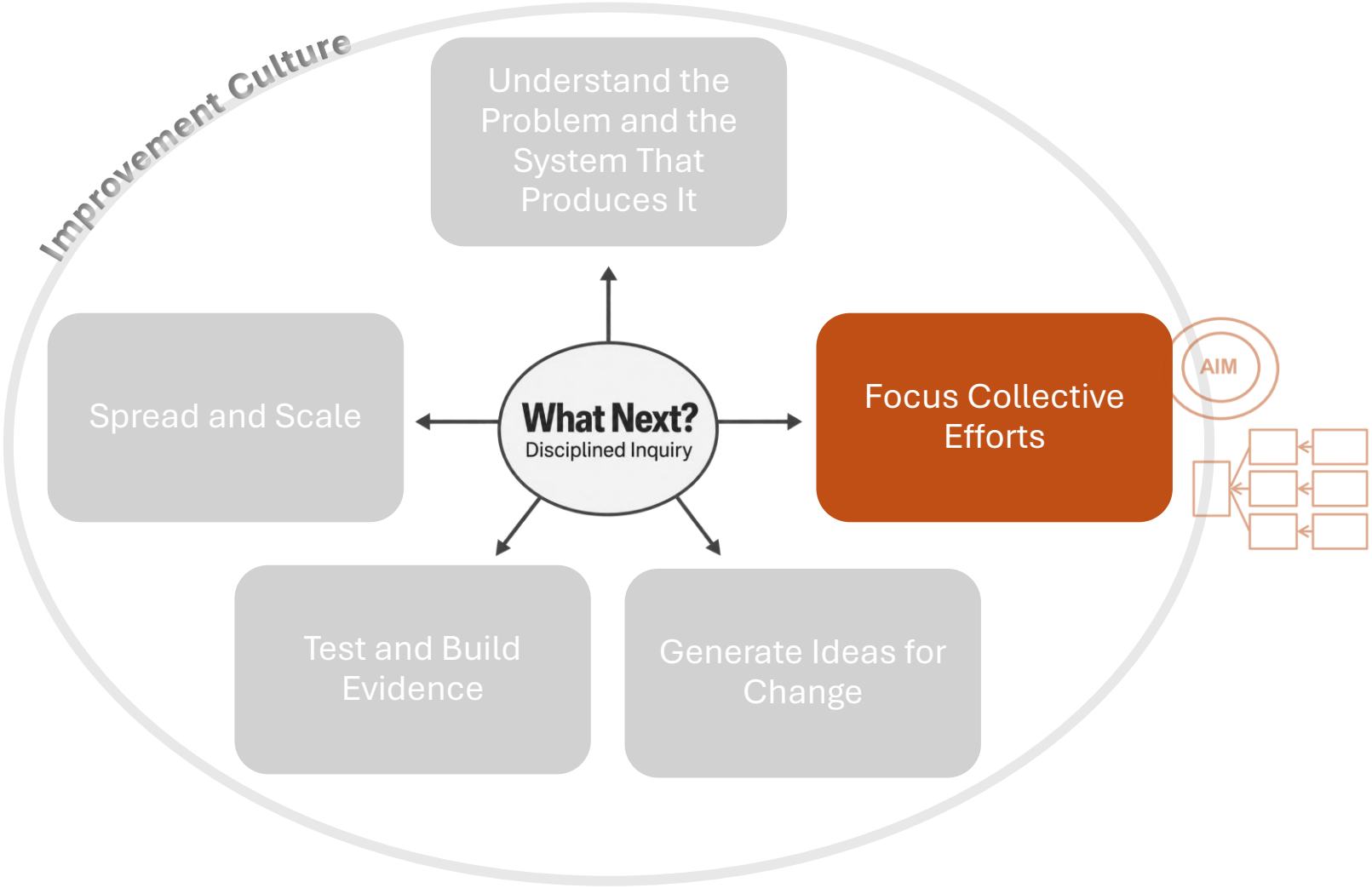
In Your Improvement Group

From our last session…

My problem: What am I trying to understand or improve?

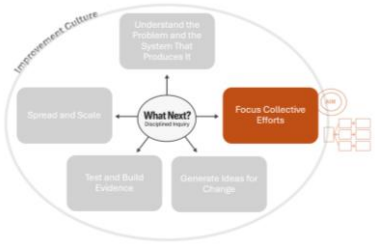
My learning: What have I learned, noticed, or questioned since we last met? Has my understanding of the problem or system shifted?





5-Phases (The Carnegie Foundation for the Advancement of Teaching, 2018). Used with permission.
Improvement Culture (Shepard, 2026)

- **WHAT** are we trying to improve?
- **WHO** will experience the improvement?
- **HOW MUCH** improvement are we aiming for?
- **BY WHEN** do we expect to see it?



Set an Aim

Create a clear, measurable, and time-bound aim statement to guide your team's improvement work.

A good aim gives your team a **clear target**, a way to measure progress, and a timeline—so everyone is working toward the same goal.

What
What will we improve?

- What specific root cause do we want to address?
- What is the problem area or outcome we want to improve?

Who
Who will benefit?

- Who is the target group for this aim?
- Who will benefit from the improvement? (e.g., students, teachers, families, specific grade level)

How much and how measured
How will we know we are making improvement?

- What does improvement look like (from baseline to goal)?
- How will we measure progress? (e.g., metric, data source, frequency)

By when
When will we meet the aim?

- What is a realistic and time-bound timeline?
- When do we plan to achieve this aim?

Put it all together
Write your aim statement using all of the components.

- A complete aim statement includes: what, who, how much and how measured, and by when.
- It should be clear, focused, measurable, and achievable.

Aim Statement Template

By [when], we will improve [what/root cause] for [who/target group] from [baseline data] to [goal data] as measured by [how we will track improvement].

By _____when_____, we will improve _____what_____ for _____who_____ from _____baseline_____ to _____goal_____ as measured by _____measure_____.

Appendix 2.10

Appendix 2.10 | *Where the Science of Improvement Meets the Heart of Leadership* (Shepard, 2026)

Independent Think Time

Use Appendix 2.10 to help you draft an aim for your improvement effort.

Aim Statement Template

By [when], we will improve [what/root cause] for [who/target group]
from [baseline data] to [goal data] as measured by [how we will track improvement].

By ____when____, we will improve ____what____
for ____who____ from ____baseline____ to ____goal____
as measured by ____measure____.

Appendix 2.10 | *Where the Science of Improvement Meets the Heart of Leadership* (Shepard, 2026)

With Your Group

Share your draft Aim and help each other consider:

- Is it clear **what** is improving?
- Is it clear **for whom**?
- Could we tell whether improvement occurred (**measures**)?
- Does it describe an **outcome**, rather than a solution?



What needs to change for us to achieve our aim?

Driver Diagram

What do we already know? (Drivers)

Identify the key areas of the system that need to change to achieve your aim. For now, focus only on the aim and primary drivers.

Aim

What do you want to accomplish for whom by when?

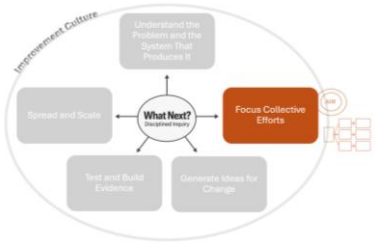
Primary Drivers

What major areas need to change to achieve the aim?

- Primary Driver 1
- Primary Driver 2
- Primary Driver 3
- Primary Driver 4

Steps to Create This Diagram

1. **Start with your aim**
   Write a clear, measurable, time-bound aim statement using your team's template (e.g., By when, we will improve what, for whom...).
2. **Identify primary drivers**
   List the key areas of the system that need to change to achieve your aim (usually 2–4).
3. **Check your logic**
   Make sure each driver is something your team can influence and is necessary to achieve the aim.



A working theory of action

Your driver diagram organizes what you know and will evolve as you test ideas and learn more.

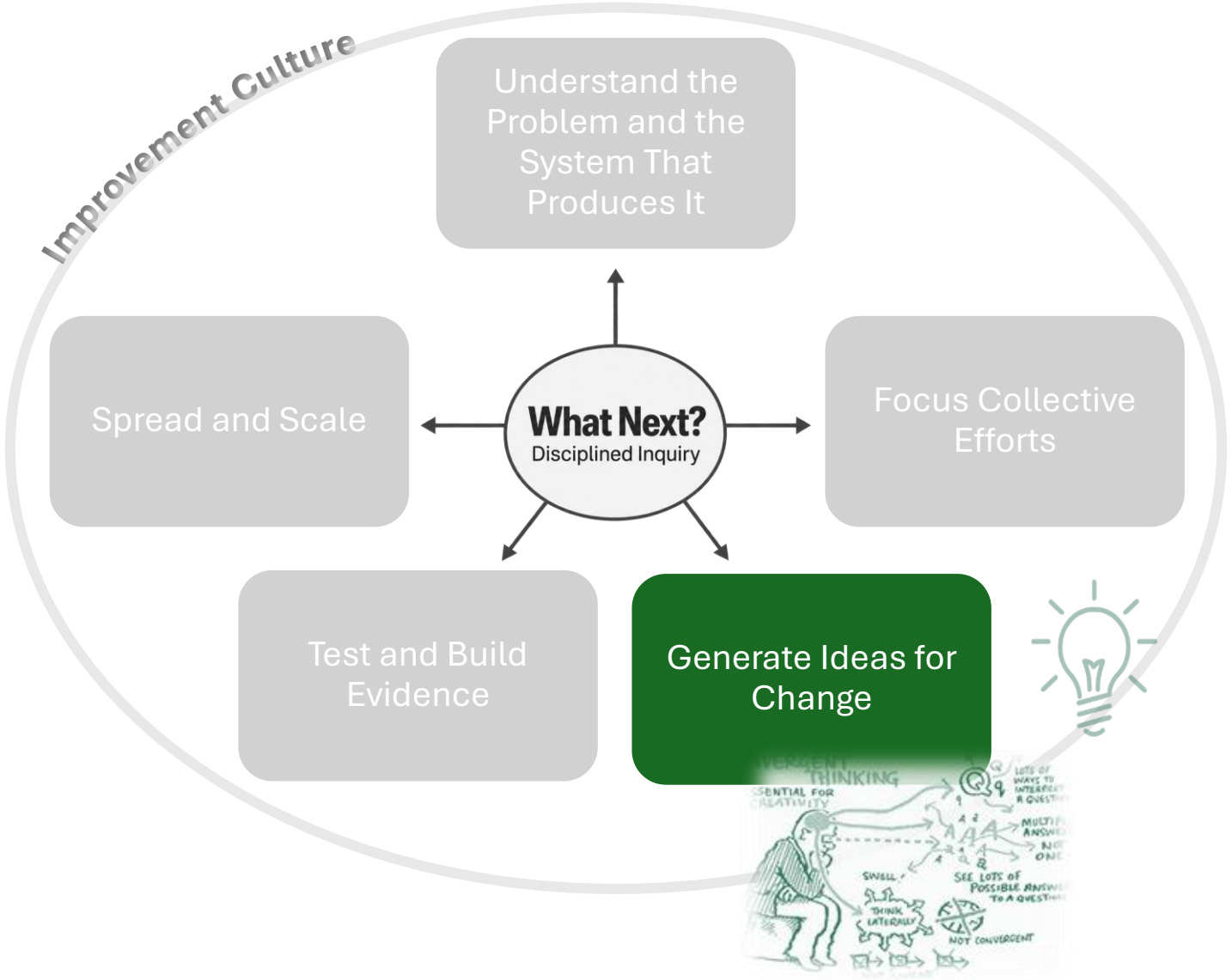
Appendix 2.11



Jot down 2-4 possible drivers for your aim.

Note: Your Phase 1 tools should inform these.

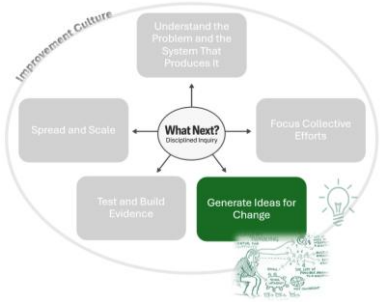
Hint: These may have emerged in your Affinity Protocol categories.



5-Phases (The Carnegie Foundation for the Advancement of Teaching, 2018). Used with permission.
Improvement Culture (Shepard, 2026)

Now, let's do something about it!





Change Ideas

Generate and organize actionable ideas that connect to your drivers and support your aim.

Fresh ideas create progress.
If we do what we've always done, we'll get what we've always got.
If we knew better, we would do better.

1 Research

What does academic literature have to say about solving this problem?

- Look for evidence-based strategies.
- Identify what works in similar contexts.
- Note relevant practices and interventions.

2 Practice

What have others tried to solve this problem?

- Learn from other schools or districts.
- Consider practitioner resources.
- Look for real-world examples and case studies.

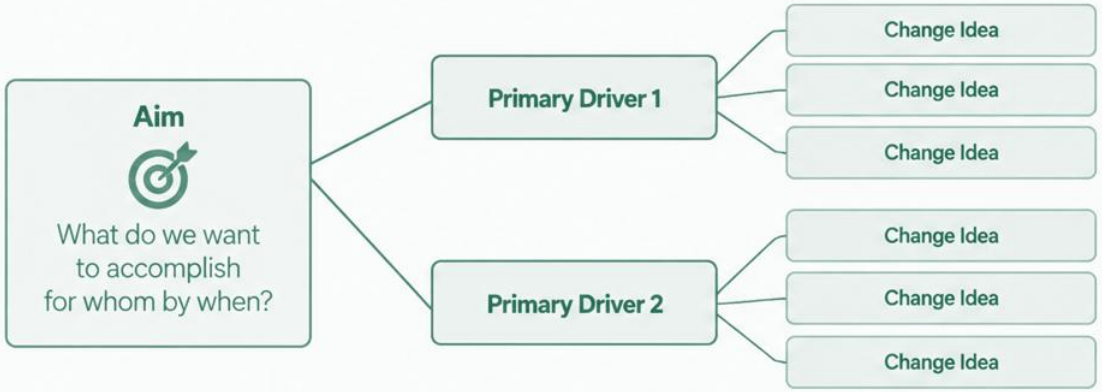
3 Design

What new solutions might address this problem?

- Generate creative or locally personalized ideas.
- Consider small, testable changes.
- Build on research and practice insights.

Add Change Ideas to Your Driver Diagram

Place each change idea under the driver it supports. For now, focus on ideas that could disrupt the status quo and influence one or more drivers.



Select a Change Idea to Test First

Not all ideas can be tested at once. Evaluate your options and choose a high-impact change idea (or bundle) to start testing.

- Is it aligned with a key driver?
- Is it specific, actionable, and measurable?
- What is the potential impact (high, medium, or low)?
- How feasible is it (resources, time, support)?
- Can we learn from it quickl

Choose the change idea (or bundle) you will test.
We'll add more ideas as we learn in Phase 3.

Appendix 2.12



Marci Shepard, PhD, EdD


Possibly wrong,
definitely incomplete…

Theory of Action

Connecting our change ideas to our vision

A Theory of Action explains how a change idea is expected to lead to improvement.

A simple way to tell the story

If we do this change idea, it will influence a key driver, which will lead to our aim.

If we do...

Change Idea

What will we do differently and why?

...that will impact...

Driver

What key area of the system needs to change?

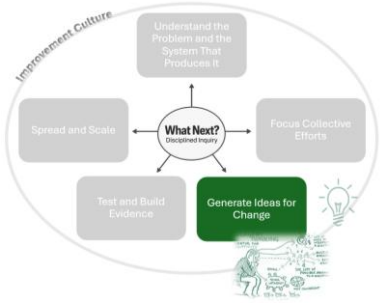
Key leverage point in the system

...which in turn will...

Aim

What do we want to accomplish for whom by when?

Appendix 2.13

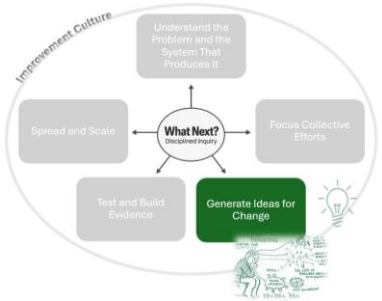


Change Ideas

Generate and organize actionable ideas that connect to your drivers and support your aim.

1. **Research -** What does academic literature have to say about solving this problem?
2. **Practice -** What have others tried to solve this problem?
3. **Design -** What new solutions might address this problem?





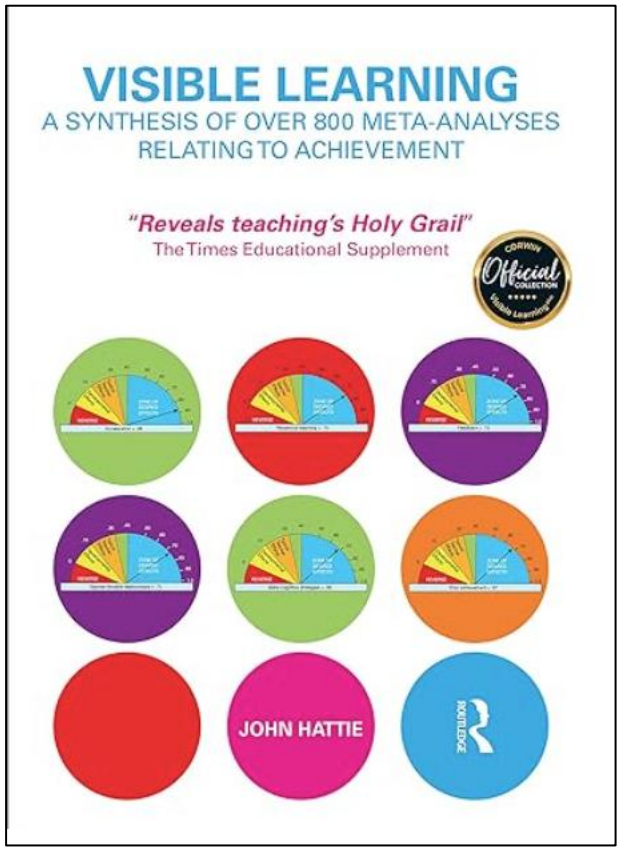
Fresh wellspring

- If we do what we've always done, we'll get what we've always got.
- If we knew better, we would do better.

Marci Shepard, PhD, EdD

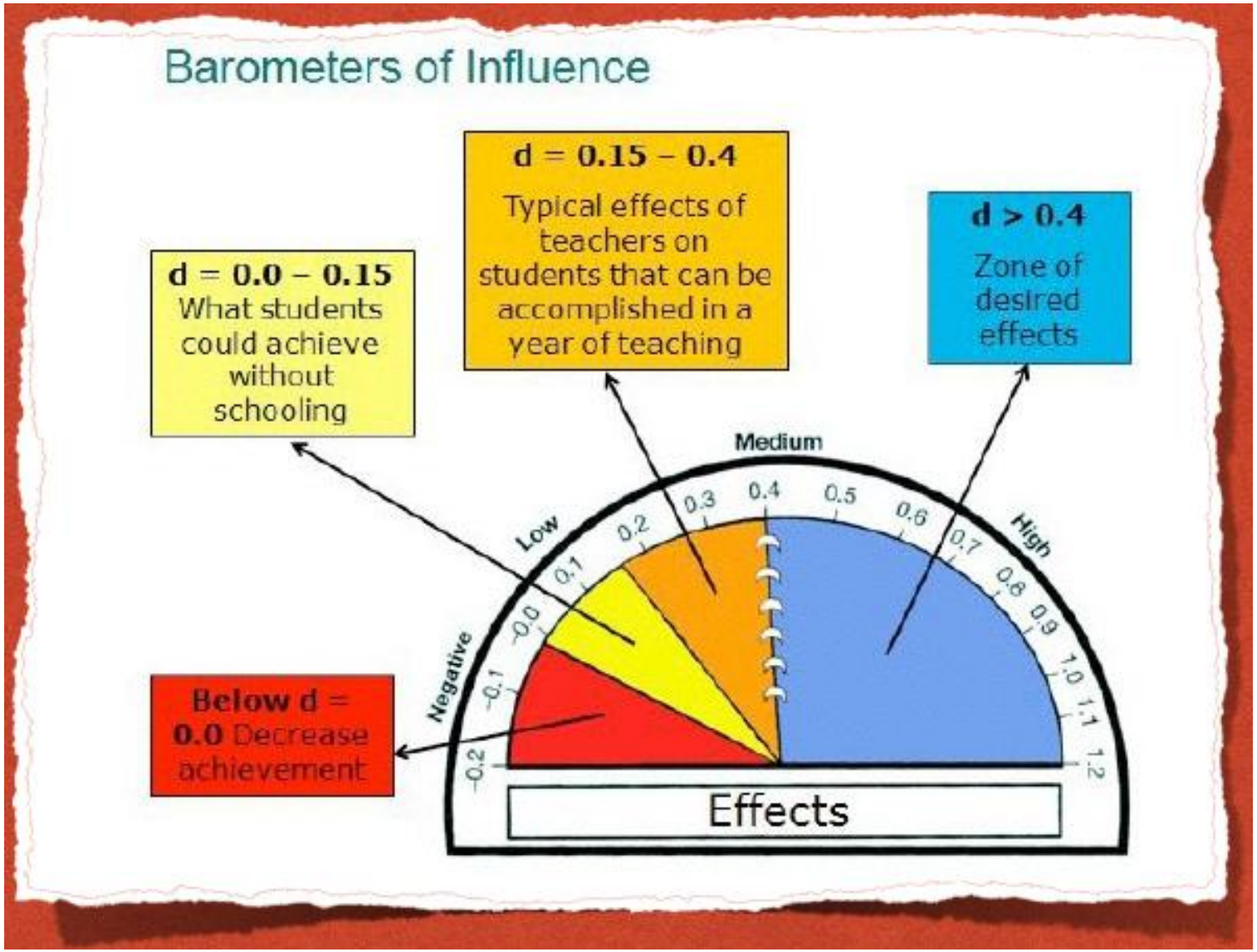
Visible Learning (Hattie)

- First published in 2009
- Meta-analysis – Study studies that identify the influences on an identified outcome
- Determine the effect size of each influence on the outcome
- “Holy Grail” of meta-analysis
  - 15 years of research
  - More than 800 meta-analyses examined
  - 52, 637 studies
  - 240,000,000 students



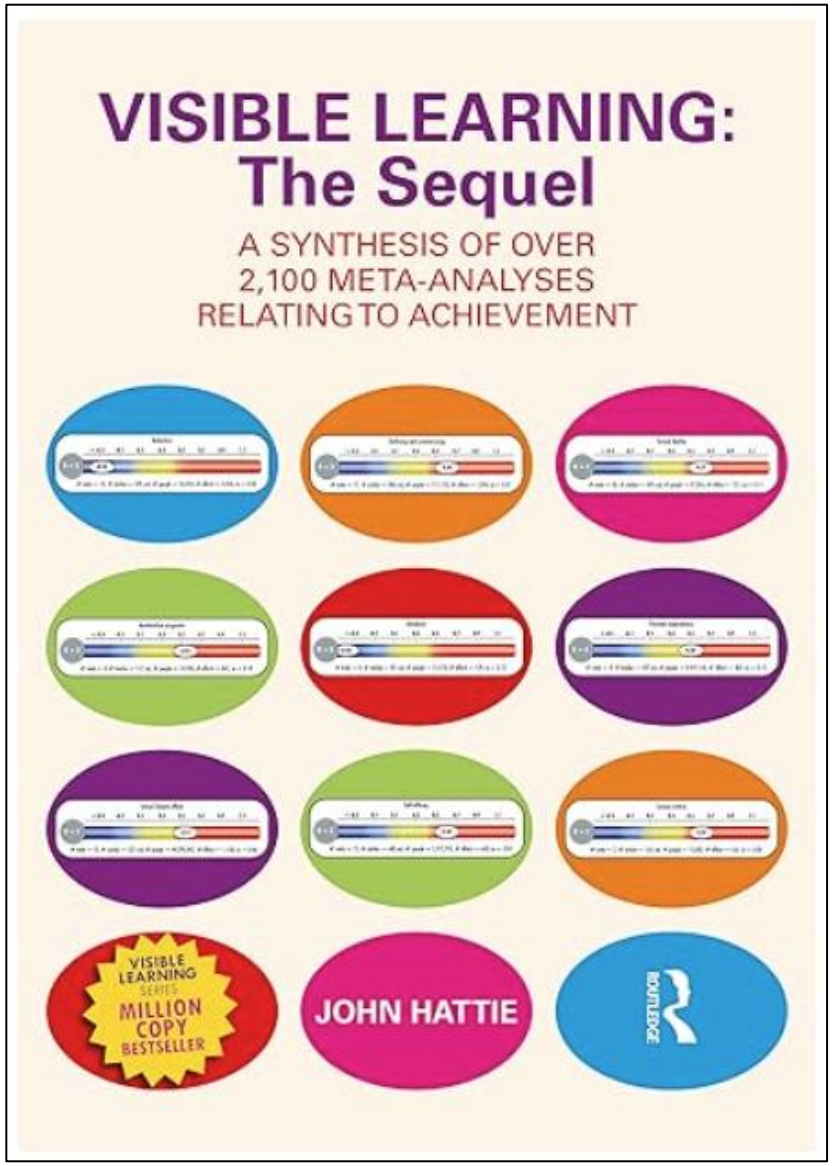
Visible Learning

- Less than 0.3 is a small effect
- 0.3-0.6 is a medium effect
- More than 0.6 is a large effect



Visible Learning: The Sequel

- 2,100 meta-analyses (more than double that of the original)
- Drawn from more than 130,000 studies
- Involved more than 400 million students from all around the world.



Visible Learning: The Sequel

Teacher and School Leader Expertise

1.	TEACHERS WORKING TOGETHER AS EVALUATORS OF THEIR IMPACT	1.32
2.	ALL HAVING HIGH EXPECTATIONS	.90
3.	ALL MOVING TOWARDS EXPLICIT SUCCESS CRITERIA	.77
4.	USING THE GOLDILOCKS PRINCIPLES OF CHALLENGE	.74
5.	ERRORS AND TRUST ARE WELCOMED AS OPPORTUNITIES TO LEARN	.72
6.	MAXIMIZE FEEDBACK TO TEACHERS ABOUT THEIR IMPACT	.72
7.	A FOCUS ON LEARNING: THE RIGHT PROPORTIONS OF SURFACE TO DEEP	.69



Visible Learning



					Domain
					SCHOOL
2	Self-reported grades	1.33	1.33	Prior knowledge and background	STUDENT
3	Teacher estimates of achievement	1.29	1.62	Teacher attributes	TEACHER
4	Cognitive task analysis	1.29	1.29	Strategies emphasizing learning intentions	TEACHING: Focus on teaching/instructional strategies
5	Response to intervention	1.29	1.29	Strategies emphasizing feedback	TEACHING: Focus on teaching/instructional strategies
6	Piagetian programs	1.28	1.28	Prior knowledge and background	STUDENT
7	Jigsaw method	1.2	1.2	Teaching/instructional strategies	TEACHING: Focus on teaching/instructional strategies
8	Conceptual change programs	0.99	0.99	Other curricula programs	CURRICULA
9	Prior ability	0.94	0.94	Prior knowledge and background	STUDENT
10	Strategy to integrate with prior knowledge	0.93	0.93	Learning strategies	TEACHING: Focus on student learning strategies

Highlight strategies closest to your leadership influence. Which ones are highest impact?

How could you use your leadership to support strategies that are closer to the classroom?

How might you use these three documents in your leadership?



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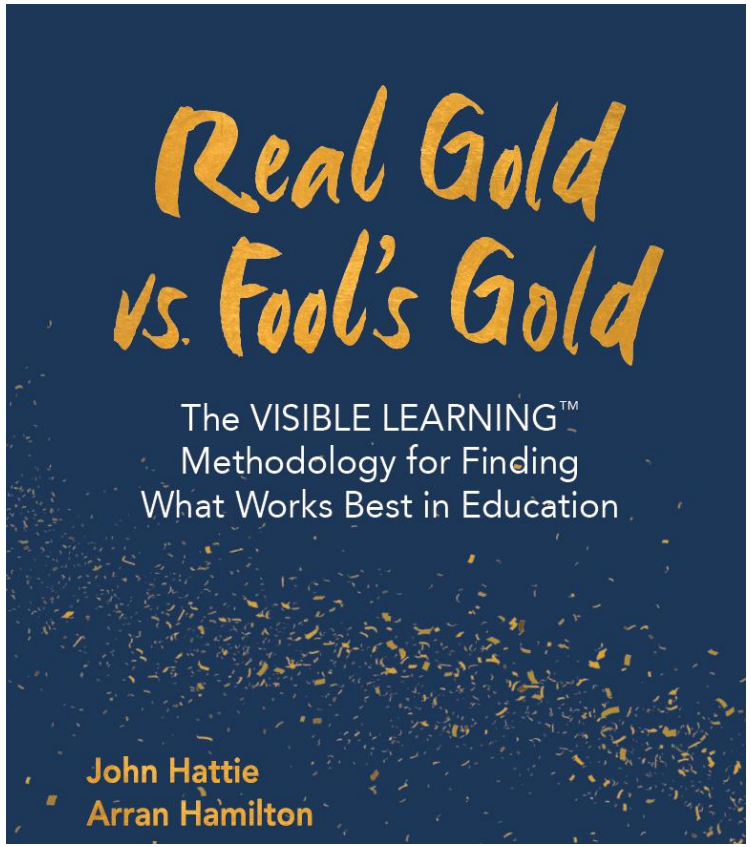
Visible Learning



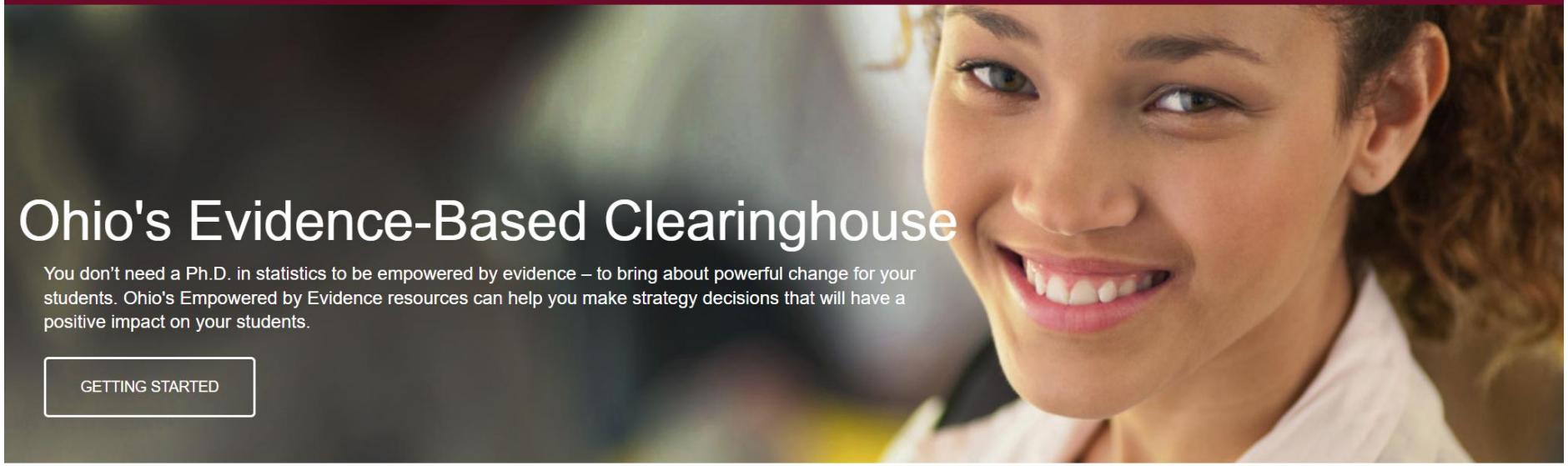
The major message of Visible Learning is "know thy impact" (Hattie, 2012). From the research, we know that the following things matter the most:

1. Achieving teacher collective efficacy
2. Knowing student prior learning
3. Emphasizing success criteria
4. Using feedback, welcoming errors, and building trust
5. Structuring for deep on top of surface learning
6. Holding high expectations and the right levels of challenge

Jigsaw. Share the main idea of your section.

Ohio | Department of Education

MENU



Using Evidence-Based Strategies in the Cycle of Continuous Improvement

Finding and using evidence-based strategies is just one step in the cycle of continuous improvement. Understanding how that step connects to the other steps in the cycle will help you use evidence-based strategies to effectively support your students.

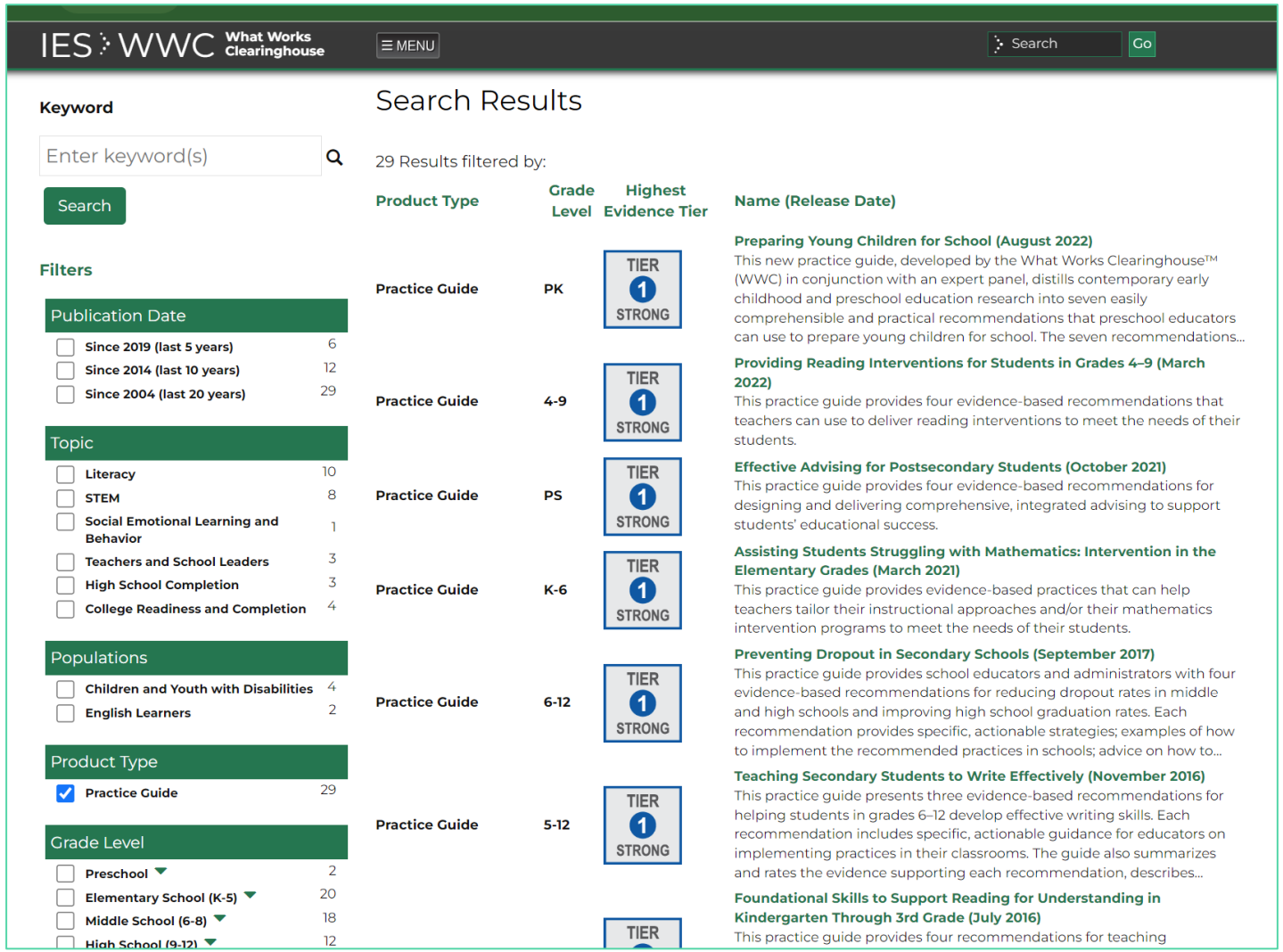


About the Clearinghouse

Ohio's Evidence-Based Clearinghouse provides information and resources on how to use data and evidence within this cycle. Hover over the different steps of the cycle to learn more about each step.

Marci Shepard, PhD, EdD

US Dept of Ed: What Works Clearinghouse

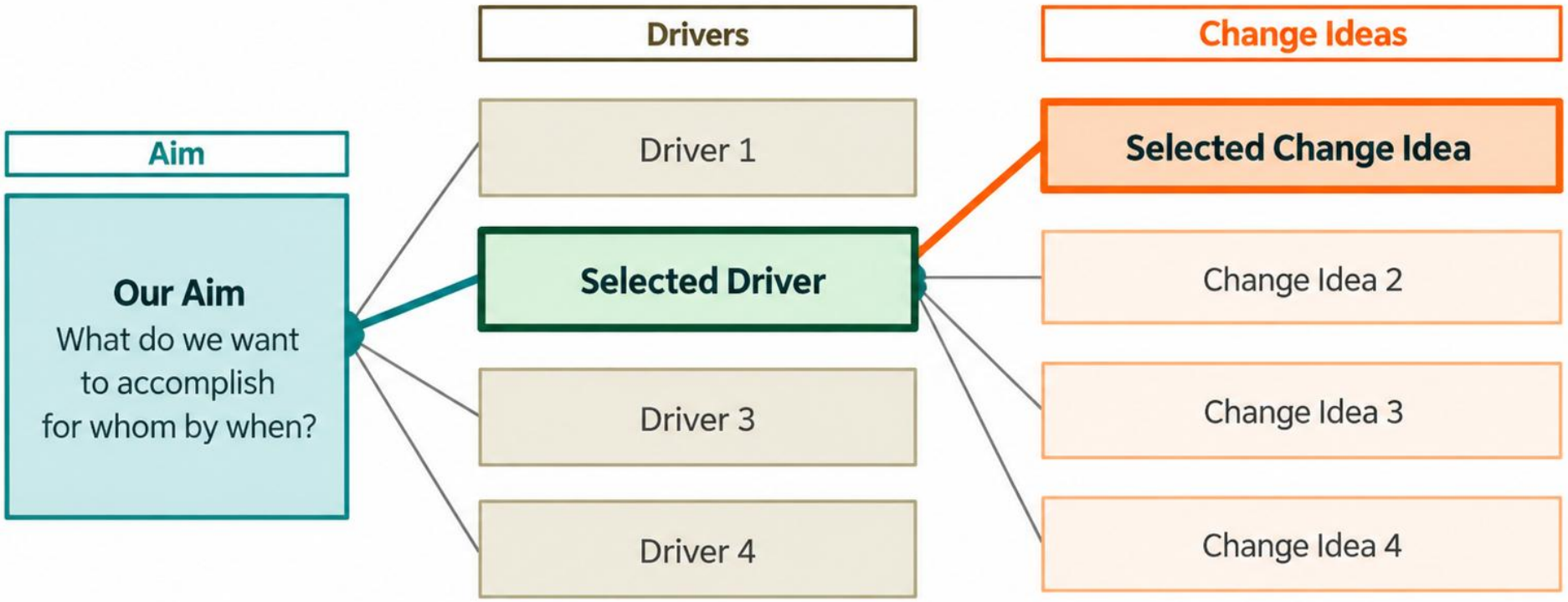


Develop Changes

- What change ideas could address the focus you identified?
- Why might these ideas work **in this context**?
- What assumptions are you making?

Theory of Action in a Driver Diagram

A change idea influences a driver, which in turn helps us achieve our aim.



If we _ **Change Idea** _, then that will influence _ **Driver** _, which in turn will help us _ **Aim** _.

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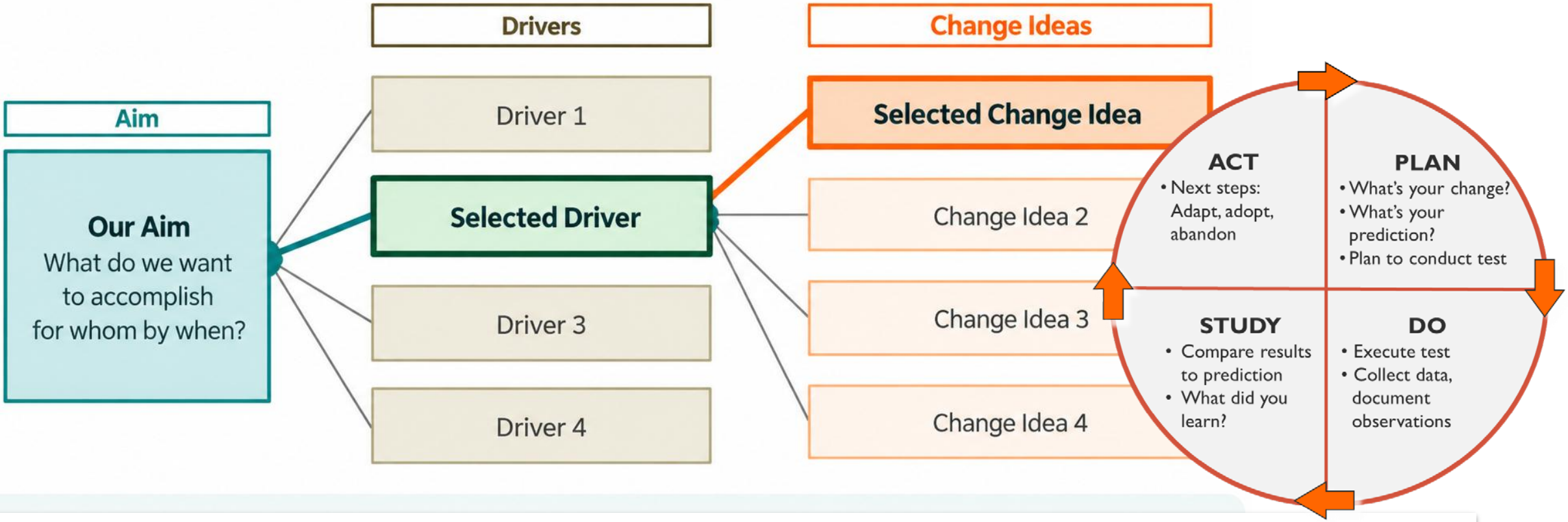

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Theory of Action

Connecting our change ideas to our vision

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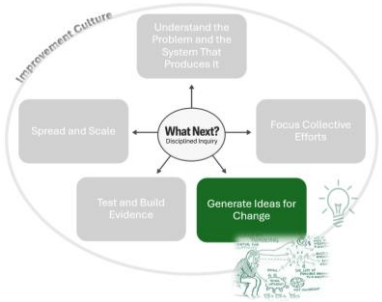

Appendix 2.13

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Put the Pieces Together

- **My AIM:** What am I trying to accomplish?
- **A DRIVER:** What condition needs to change?
- **A CHANGE IDEA:** What might I try?

2.10 Setting an Aim

2.11 Driver Diagram

2.12 Change Ideas

2.13 Theory of Action

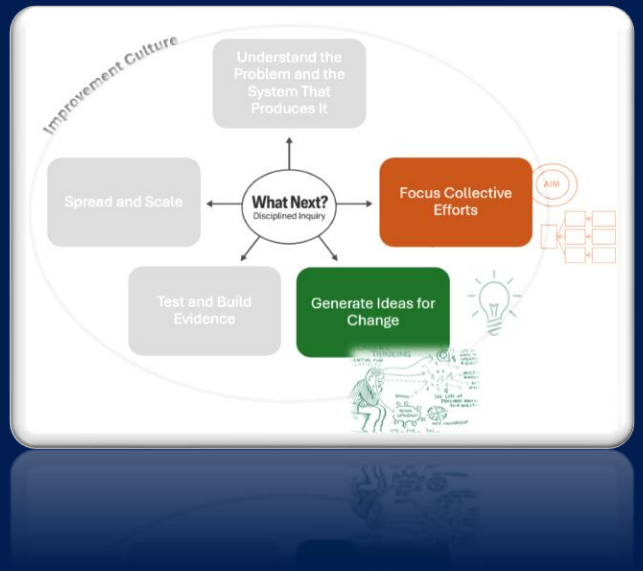


With your group, share your working Theory of Action:
If we ___Change Idea___, then that will influence ___Driver___, which in turn will help us ___Aim___.

You don't need a finished driver diagram today. Think about one plausible path through it.



I can begin narrowing the focus of my improvement effort and generating ideas for change.



Success Criteria

- Share what we're learning about our problems and systems
- Develop an aim for the improvement effort
- Identify key drivers that could influence the aim
- Generate and connect change ideas to what we want to improve



Building the Improvement Project As We Go

Engage in Phase 2 & 3: Focus Efforts & Generate Ideas for Change

Between now and Session 3: Continue refining your *aim*, *drivers*, and *change ideas* using the Phase 2 & 3 tools that are useful for your work.

Session 3

Phases 4 & 5:

Test, Learn, and Scale



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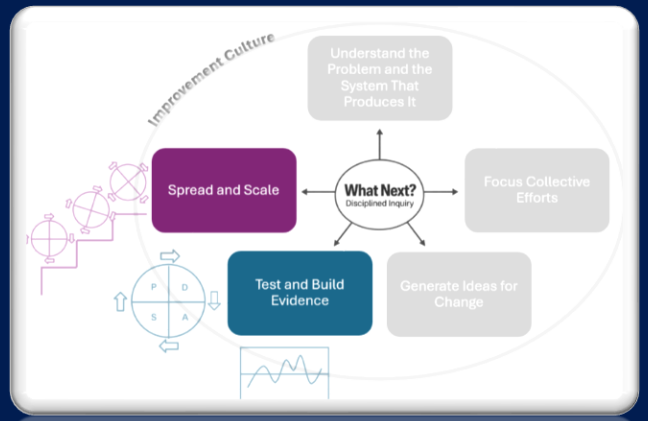
Marci Shepard, PhD, EdD



I can plan how to test a change, learn from evidence, and determine what comes next.

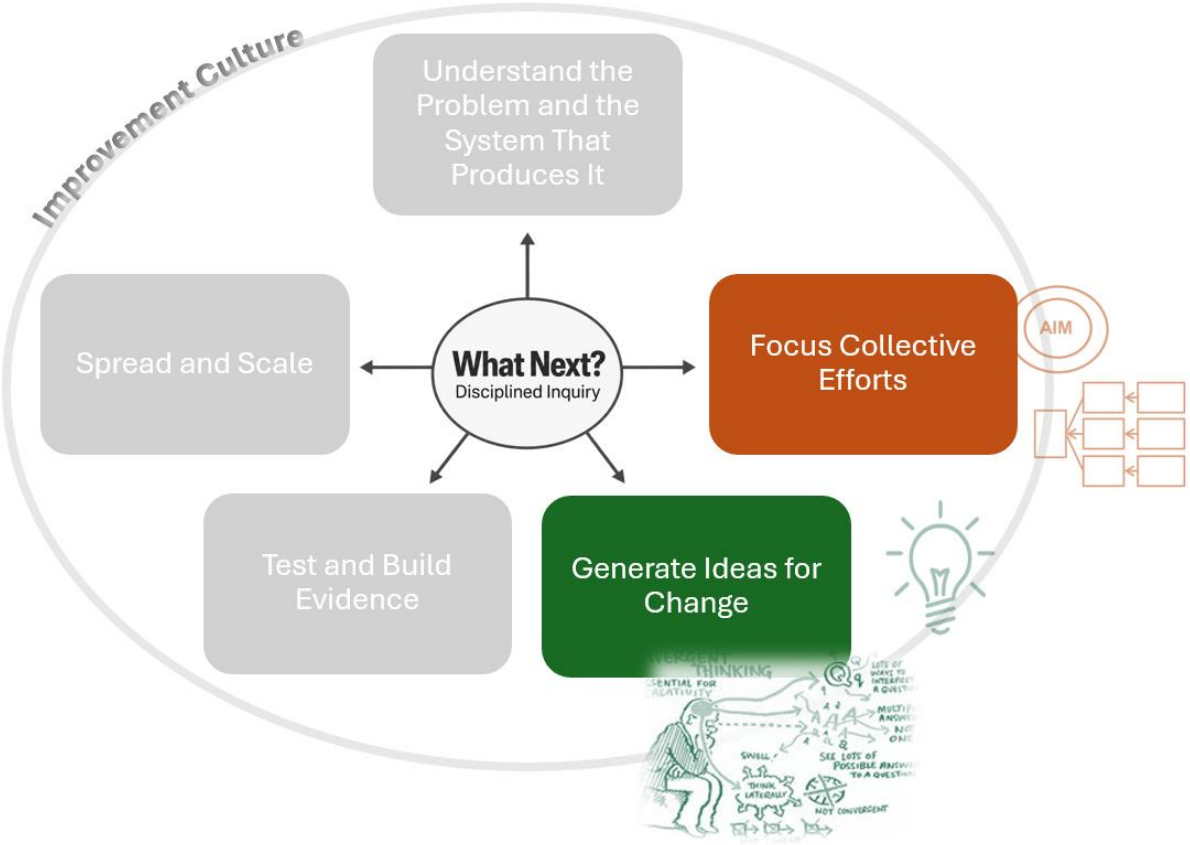
Success Criteria

- Share and refine our emerging Theory of Action
- Plan a small test of a change idea
- Consider when and how a change might spread or scale



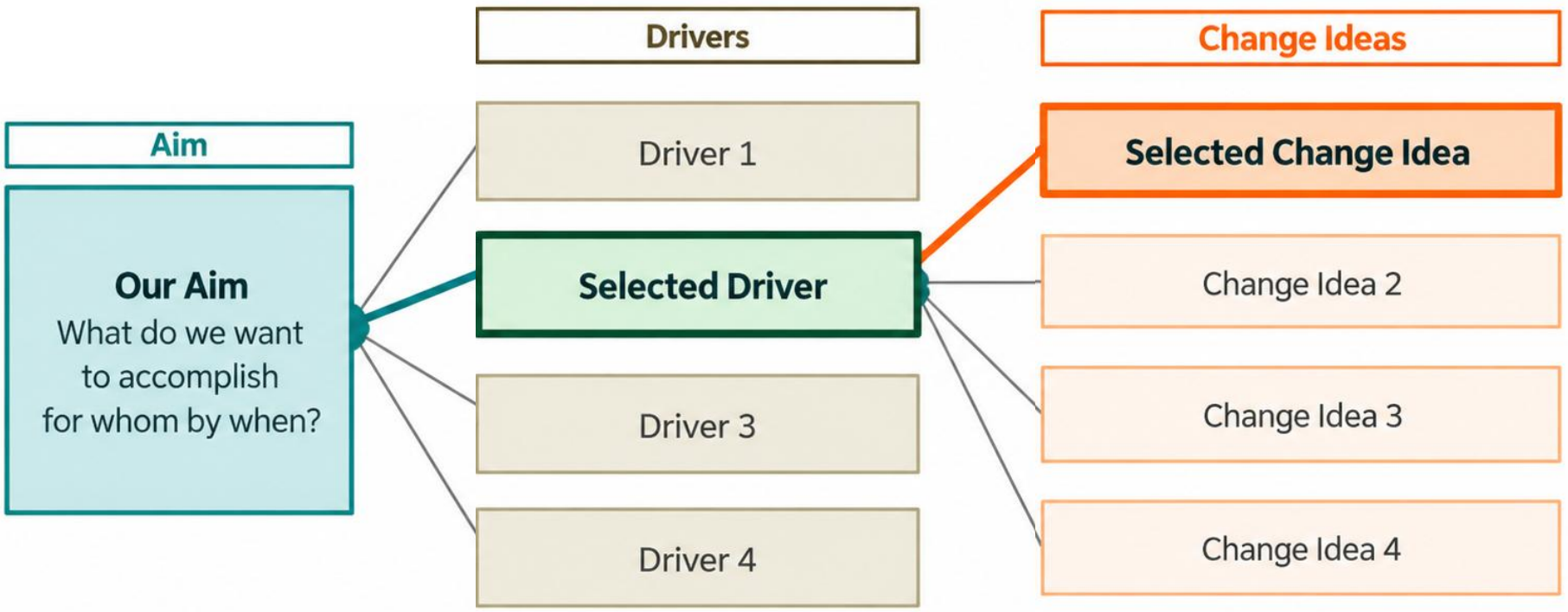
Marci Shepard, PhD, EdD

From our last session...



5-Phases (The Carnegie Foundation for the Advancement of Teaching, 2018). Used with permission.
Improvement Culture (Shepard, 2026)

Theory of Action



Consider:

- Does the logic connect?
- What has changed or become clearer?

If we _ **Change Idea** _, then that will influence _ **Driver** _, which in turn will help us _ **Aim** _.

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Put the Pieces Together

- **My AIM:** What am I trying to accomplish?
- **A DRIVER:** What condition needs to change?
- **A CHANGE IDEA:** What might I try?

With your group, share your working Theory of Action:
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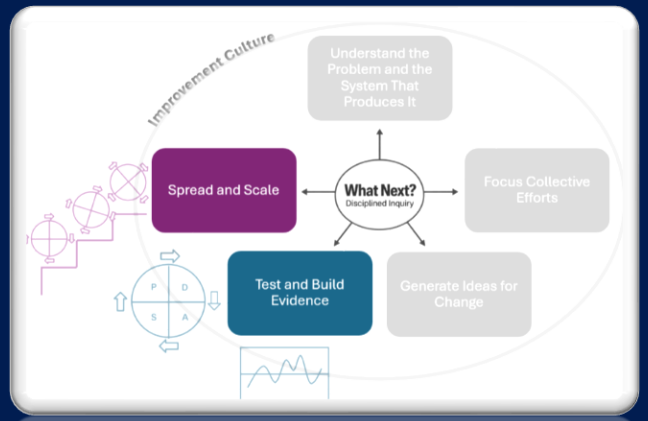

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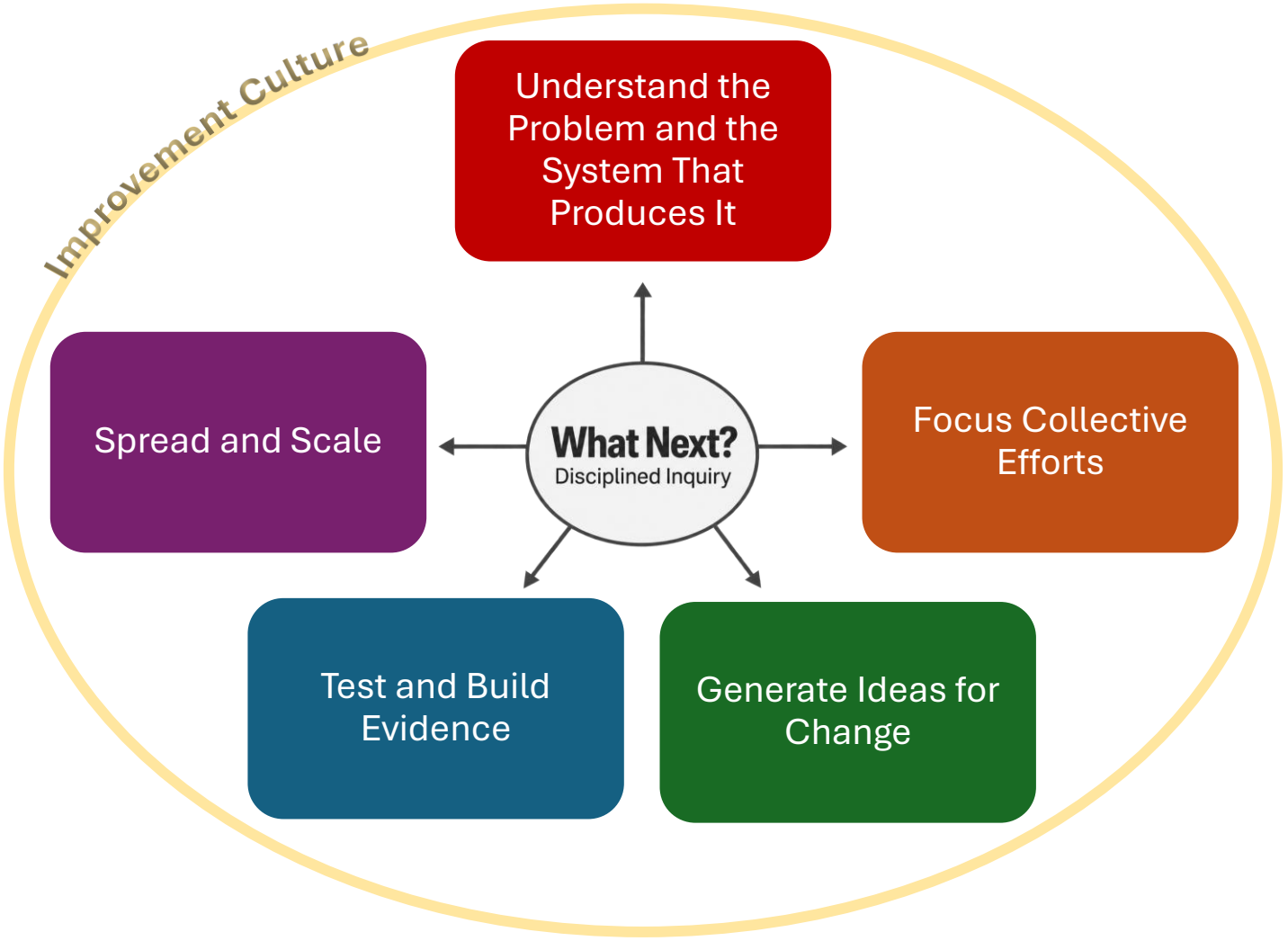
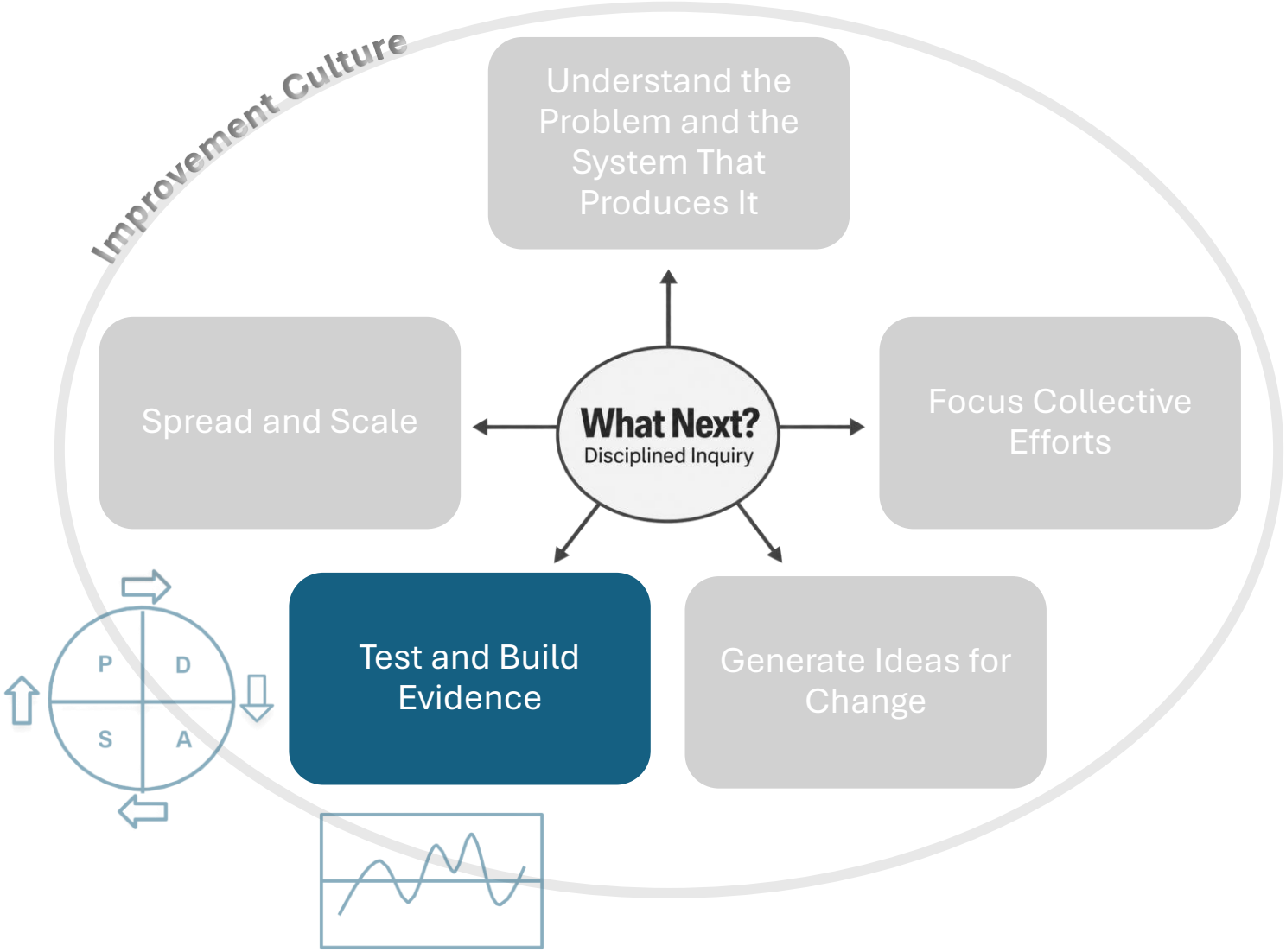

Improvement Culture
Understand the Problem and the System That Produces It
Spread and Scale
What Next?
Disciplined Inquiry
Focus Collective Efforts
Test and Build Evidence
Generate Ideas for Change



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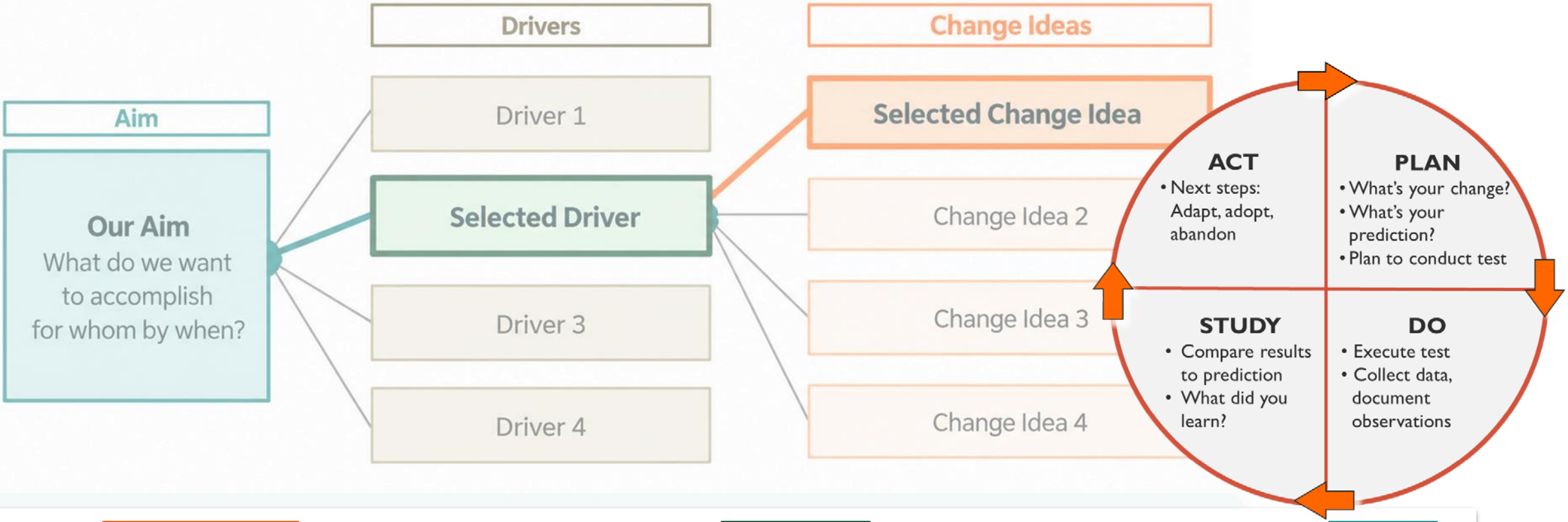
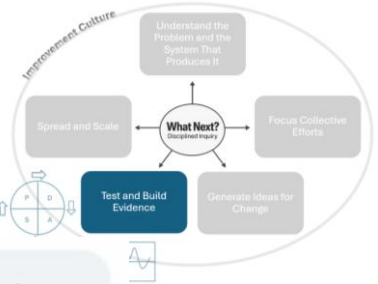


If we _ **Change Idea** _, then that will influence _ **Driver** _, which in turn will help us _ **Aim** _.



Test small. Learn quickly. Decide what's next.

Marci Shepard, PhD, EdD



PLAN: Turn Ideas Into Action

A plan helps us be clear, make a prediction, and test our change idea.

Appendix 2.14

1 What will we do?

Choose a change idea and be specific about what you will do.



Our change idea:

_____

2 What do we predict will happen?

Think about what you expect to see if this change works.



Our prediction:

_____

3 Plan to conduct the test.

List the **tasks**, who is responsible, when it will happen, and where it will take place.



Tasks	Who (responsible)	When	Where
1.			
2.			
3.			
4.			



A good plan turns a change idea into a small test so we can learn what works!

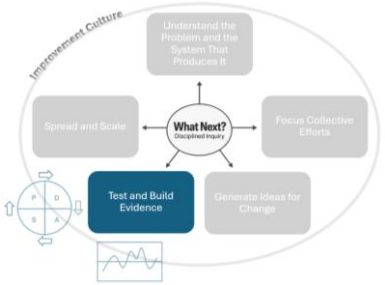
Appendix 2.14 | *Where the Science of Improvement Meets the Heart of Leadership* (Shepard, 2026)

Using the change idea from your Theory of Action, jot down:

- **PREDICTION**: What do I think will happen?
- **PLAN**: Task, who, when, and where

DO

- Execute test
- Collect data and document observations



DO

DO: Test the Change Idea

Let's see what happens!

1. Implement the Change

What did you do to carry out the test?



- Carry out the planned tasks
- Be specific about what you did
- Document what happened

Process data:
Evidence about what you did (e.g., logs, checklists, meeting notes, artifacts).

2. Observe and Collect Data

What results did you collect or observe?



- Look for changes (anticipated or not)
- Gather both quantitative and qualitative data
- Capture what you observe from your role

Outcome data:
Evidence about the results or impact (e.g., counts, surveys, quotes, observations).

Appendix 2.15

The DO phase helps us learn what works, what doesn't, and what to try next.

Appendix 2.15 | *Where the Science of Improvement Meets the Heart of Leadership* (Shepard, 2026)

STUDY: Learn From What Happened

Let's see what we learned!



1 Compare Results to Your Prediction

- Did the change happen as planned?
- Did the results match what you predicted?
- What was different than expected?



2 Look at the Data

- Review the data you collected (process and outcome).
- Use charts, notes, quotes, or other evidence.
- What do the data tell you about how the change went?



3 Decide What You Learned

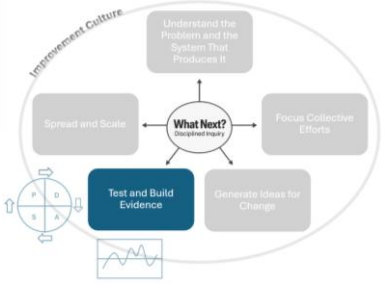
- What worked well?
- What didn't work as expected?
- Why do you think that happened?
- What will you do next?



Studying the results helps us decide what to try next and how to improve.

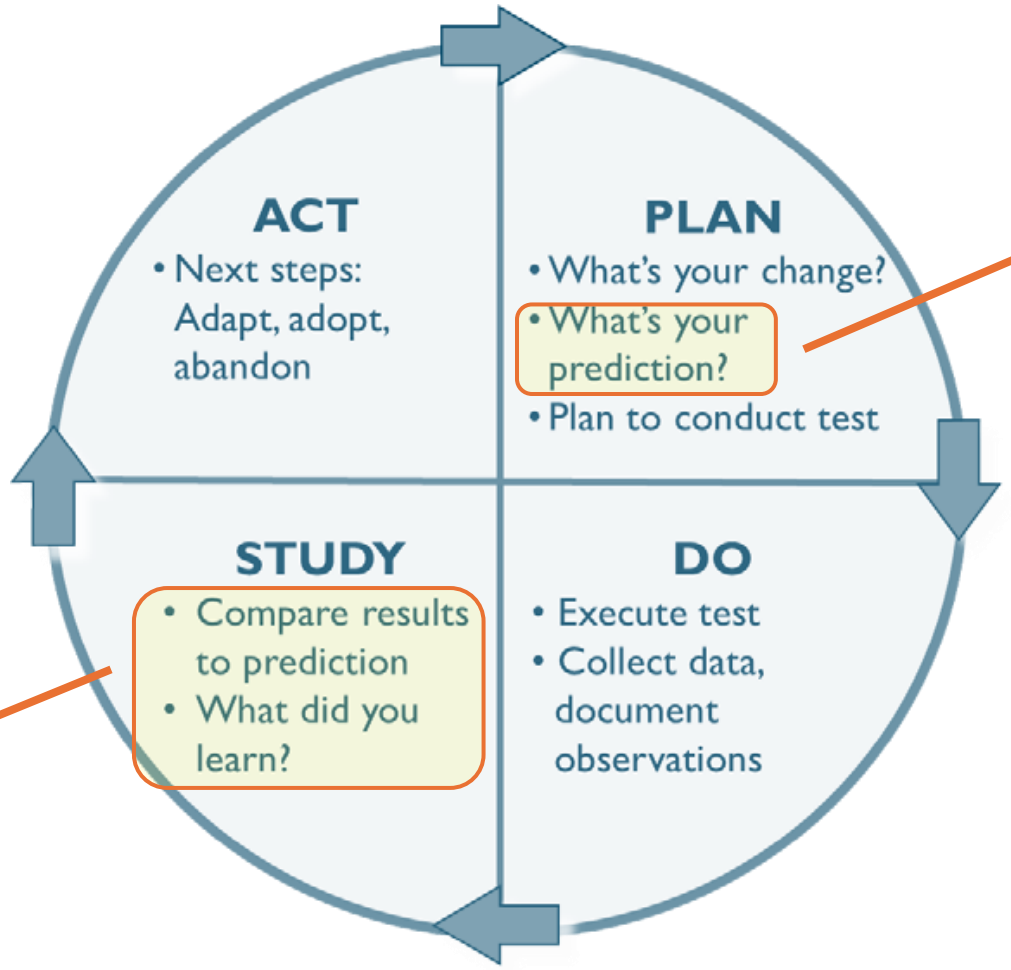
Appendix 2.16 | *Where the Science of Improvement Meets the Heart of Leadership* (Shepard, 2026)

Appendix 2.16



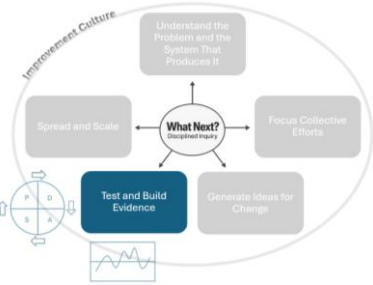
Marci Shepard, PhD, EdD

The Plan-Do-Study-Act (PDSA) Cycle



Making your theories, assumptions and hypotheses explicit

Revealing gaps in our understanding



ACT: Decide What's Next

Use what you learned to make a decision about the change idea.

ADOPT

Make it part of our practice



- It worked well.
- It met our prediction or had positive results.
- We will make it a permanent part of what we do.

ADAPT

Revise and test it again



- It showed promise, but not exactly as expected.
- We will make changes and test it again.
- We will use what we learned to improve it.

ABANDON

Discontinue this idea



- It did not work.
- It did not meet our prediction.
- We will stop this idea and focus on other options.

Appendix 2.17

Every test gives us valuable information — it helps us decide what to do next and move closer to our goal.

Appendix 2.17 | *Where the Science of Improvement Meets the Heart of Leadership* (Shepard, 2026)

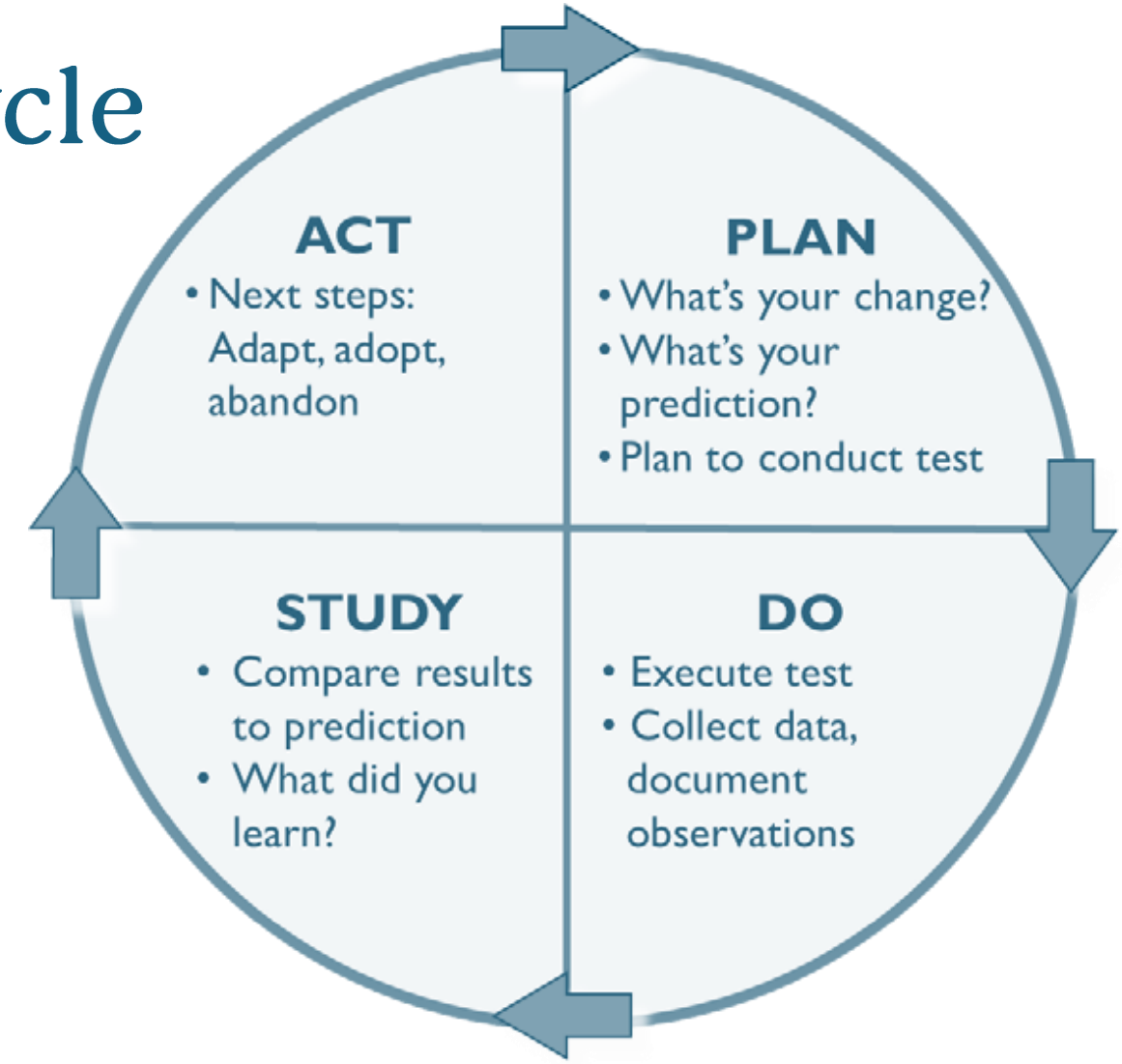


Marci Shepard, PhD, EdD

Think Through the Cycle

For the small test you **PLAN**NED**:**

- **DO:** What might you observe or document?
- **STUDY:** What might you compare or examine?
- **ACT:** What might lead you to adopt, adapt, or abandon the idea?

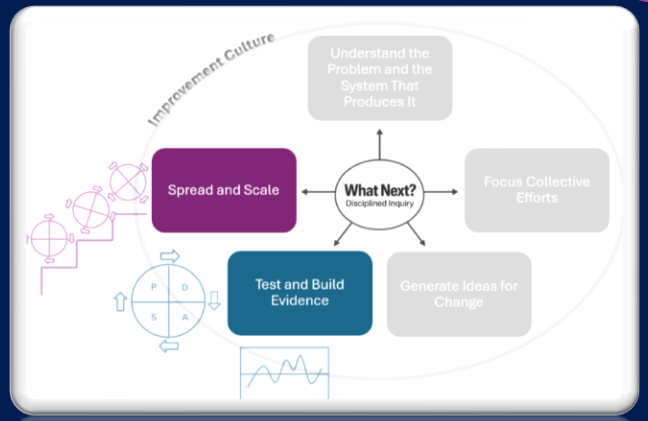




I can plan how to test a change, learn from evidence, and determine what comes next.

Success Criteria

- Share and refine our emerging Theory of Action
- Plan a small test of a change idea
- Consider when and how a change might spread or scale



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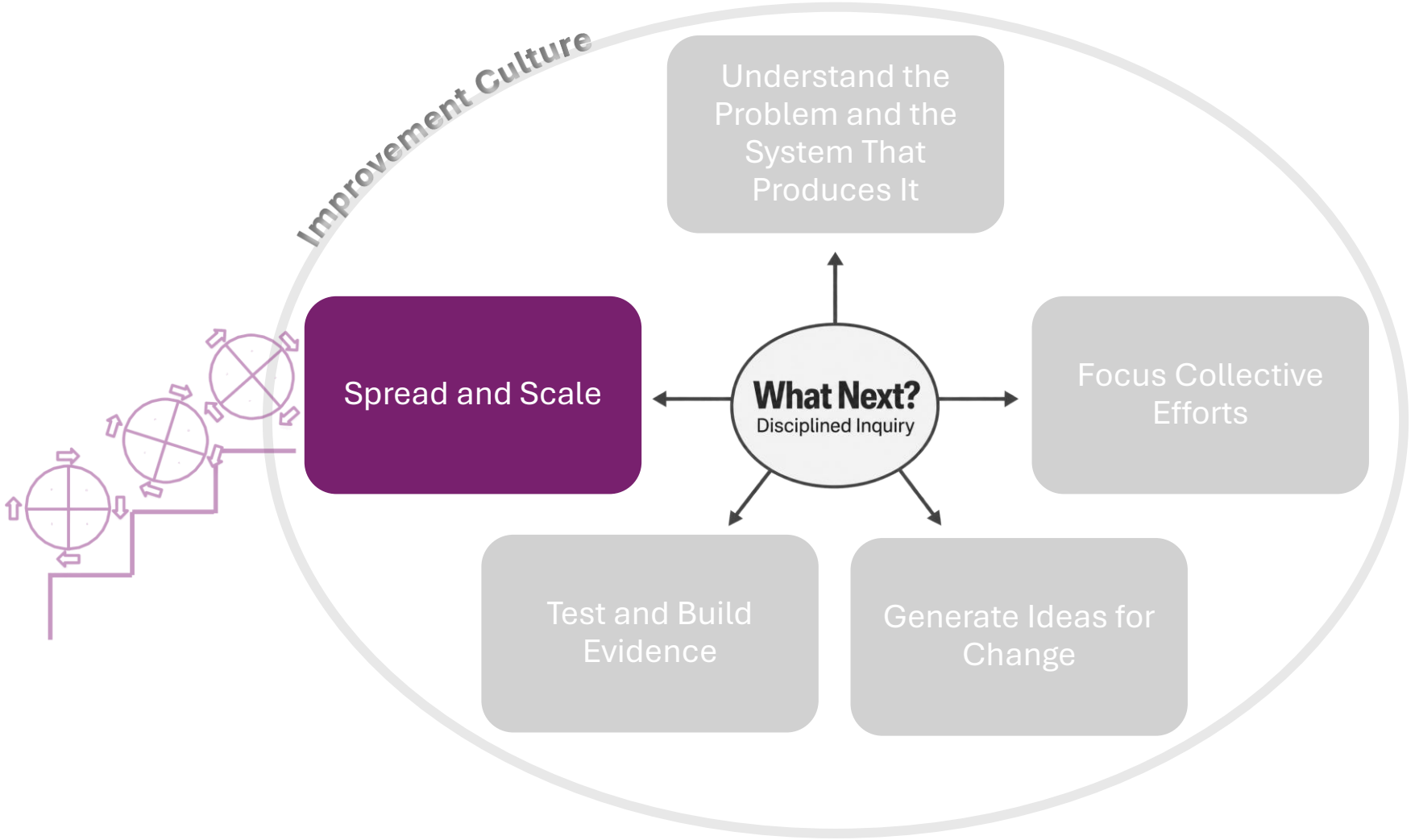
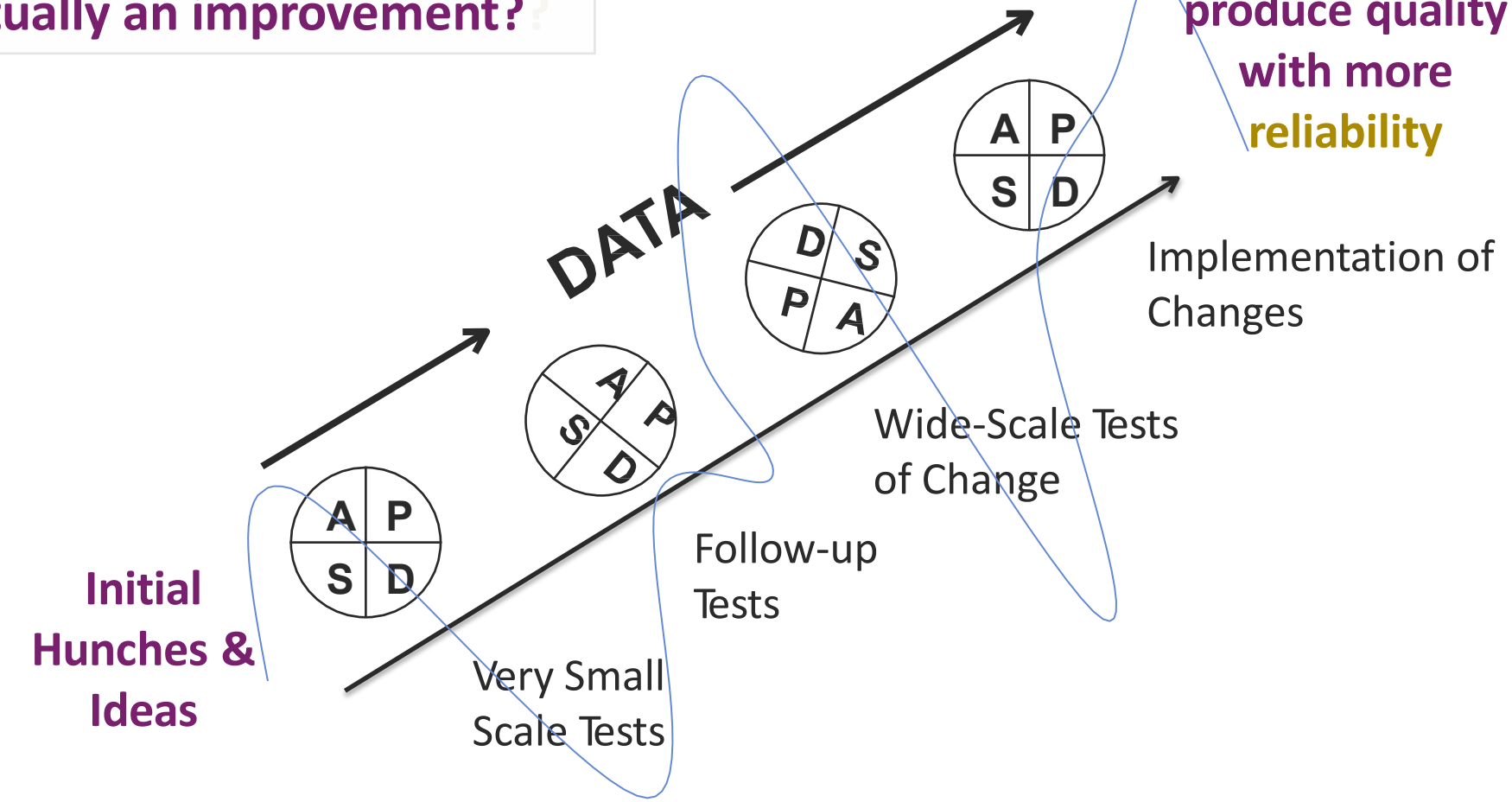
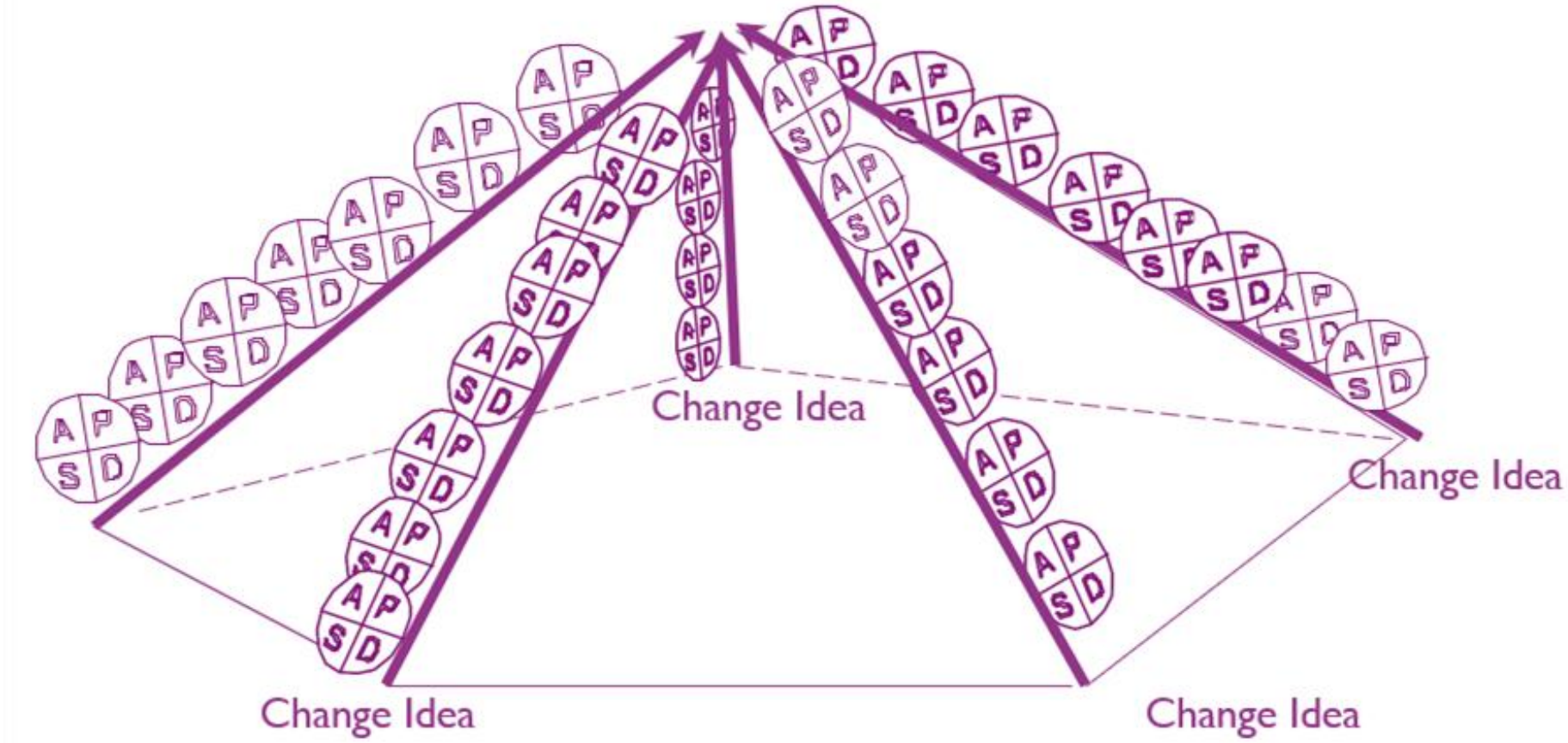


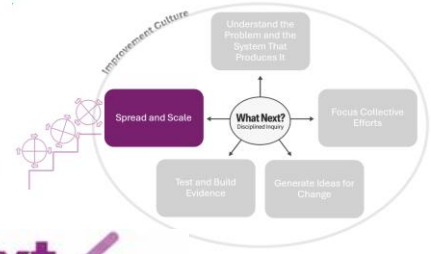
5-Phases (The Carnegie Foundation for the Advancement of Teaching, 2018). Used with permission.
Improvement Culture (Shepard, 2026)

How will we know this change is actually an improvement?



But does it work everywhere?





Are we ready to implement the change?

1. Confidence
2. Risk
3. Readiness
4. Scale/context

Spread and Scale: Decide What's Next

Use what you learned to decide if and how to expand the change.

1 Assess Your Confidence

Do you believe this change will lead to improvement?

- ☐ High degree of belief
- ☐ Moderate degree of belief
- ☐ Low degree of belief

2 Consider the Cost of Failure

If this change does not work, what is the potential impact?

- ☐ Large cost of failure (e.g., major disruption)
- ☐ Small cost of failure (e.g., minimal disruption, easy to reverse)

3 Identify Your Organization's Commitment

How committed are you to this change?

- ☐ No commitment (exploring the idea)
- ☐ Some commitment (spread by buy-in or ownership)
- ☐ Strong commitment (leadership and staff invested)

4 Determine the Appropriate Spread or Scale

Use your responses to decide the next step.

- ☐ **Very small-scale test** (try with a small group)
- ☐ **Small-scale test** (pilot in one grade, department, or school)
- ☐ **Large-scale test** (expand to multiple schools or grade levels)
- ☐ **Full implementation** (system-wide adoption)

Use your data and context to choose the next step.

Spread what works. Scale for greater impact.

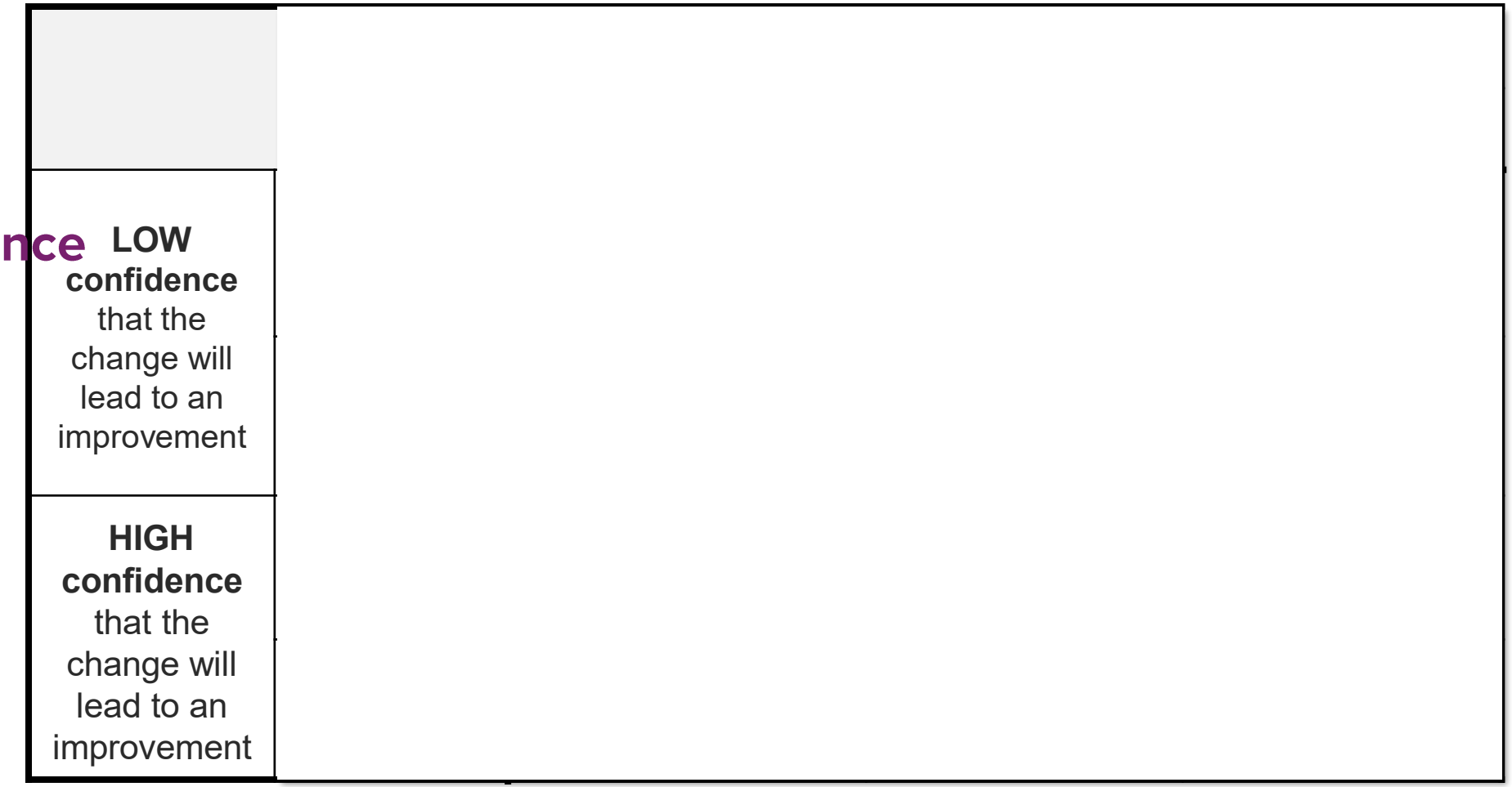
Appendix 2.18 | *Where the Science of Improvement Meets the Heart of Leadership* (Shepard, 2026)

Appendix 2.18

Marci Shepard, PhD, EdD

Spread and Scale Decision-Making Tool

- **Confidence**



Adapted from API, 2009

Spread and Scale Decision-Making Tool

- Confidence
- **Readiness**

	Participants' Will		
	Resistant	**Indifference**	**Ready**
LOW confidence that the change will lead to an improvement			
HIGH confidence that the change will lead to an improvement			

Adapted from API, 2009

Spread and Scale Decision-Making Tool

- Confidence
- Readiness
- **Risk**

		Participants' Will		
		Resistant	**Indifference**	**Ready**
LOW confidence that the change will lead to an improvement	**Cost of failure large**			
	Cost of failure small			
HIGH confidence that the change will lead to an improvement	**Cost of failure large**			
	Cost of failure small			

Adapted from API, 2009

Spread and Scale Decision-Making Tool

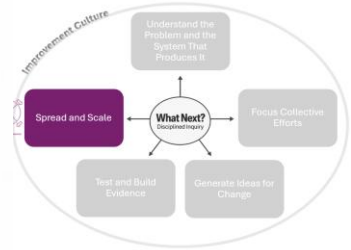
- Confidence
- Risk
- Readiness
- **Scale/context**

		Participants' Will		
		Resistant	**Indifference**	**Ready**
LOW confidence that the change will lead to an improvement	**Cost of failure large**	Very Small Scale	Very Small Scale	Very Small Scale
	Cost of failure small	Small Scale Test	Small Scale Test	Moderate Scale Test
HIGH confidence that the change will lead to an improvement	**Cost of failure large**	Small Scale Test	Moderate Scale Test	Large Scale Test
	Cost of failure small	Moderate Scale Test	Large Scale Test	System-wide Implementation!

Adapted from API, 2009

Networked Improvement Community (NIC) Tool

Share learning to support spreading and scaling what works.



Ask yourself:
How can we learn together to improve and spread what works across teams, schools, or other settings?

1 Document What Was Tested

Summarize your tested change idea.

- Team/site (e.g., grade level, course, department)
- Change idea description
- Driver addressed
- Targeted aim

2 Share What Worked, Where, and for Whom

Describe the results and who benefited.

- What worked?
- Where did it work? (e.g., setting, context)
- For whom did it work? (e.g., specific groups)
- How do you know? (e.g., data, feedback)

3 Learn from Context

Identify local conditions, patterns, and pitfalls.

- How did local conditions influence implementation and outcomes?
- Emerging patterns?
- Promising practices?
- Pitfalls to avoid?

4 Plan for Adaptation and Spread

Determine what may be needed in other contexts.

- What adaptations might be needed for other settings?
- What supports or resources are needed?
- What opportunities exist for sharing or scaling the learning?

Shared learning helps us improve faster and go further.
By documenting and sharing what works, we build collective knowledge and create opportunities to spread and scale effective changes.

Appendix 2.19 | *Where the Science of Improvement Meets the Heart of Leadership* (Shepard, 2026)

Appendix 2.19

Marci Shepard, PhD, EdD

Put the Pieces Together

In your Improvement Group, share your proposed test.

CHANGE IDEA: What might you test?

SMALL TEST: How could you test it on a small scale?

EVIDENCE: What would help you learn what happened?

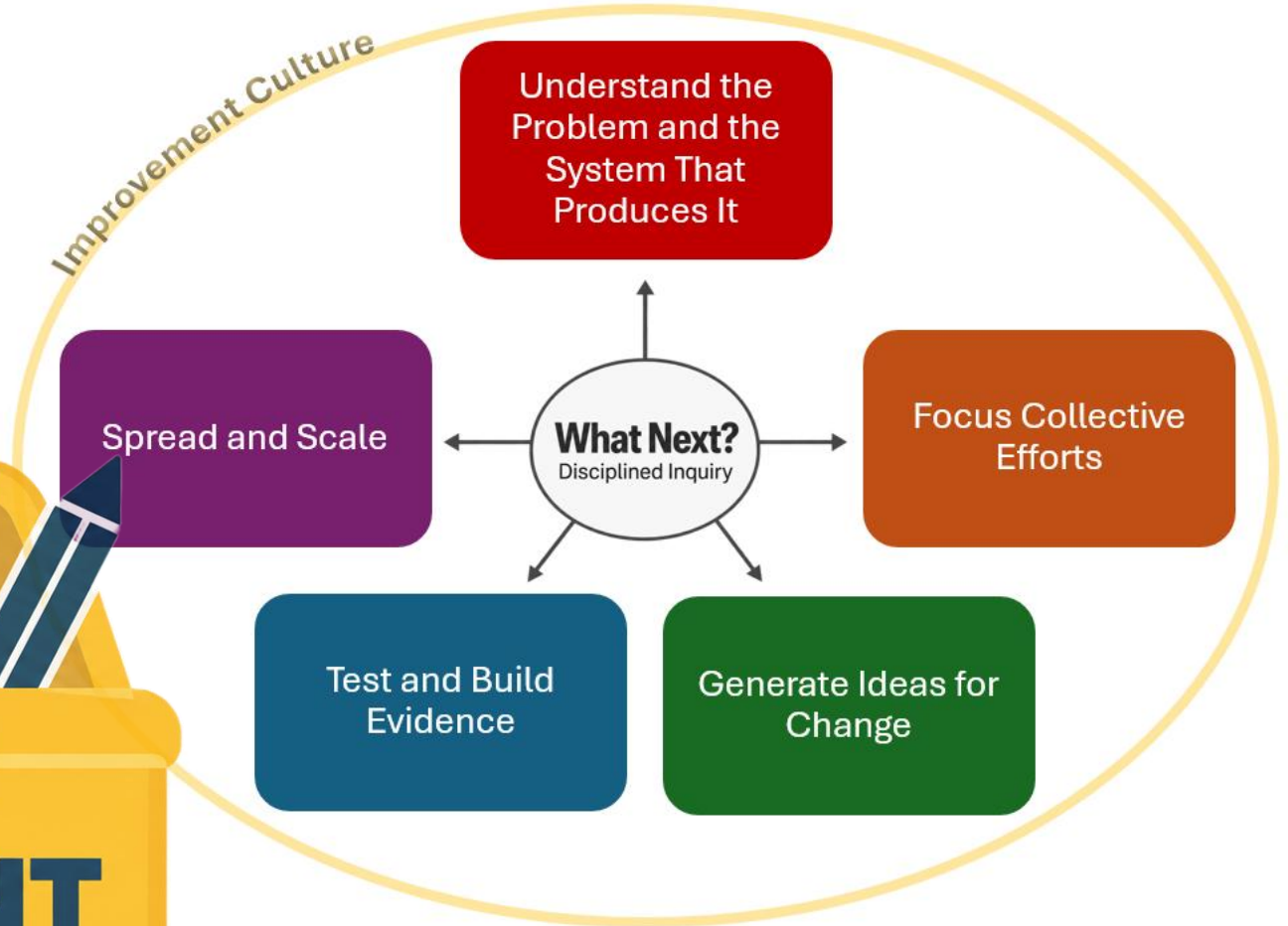
WHAT NEXT?: What would lead you to *adopt*, *adapt*, or *abandon*? If it works, how would you decide whether and how to spread or scale?

Is the test small enough for iterative learning?

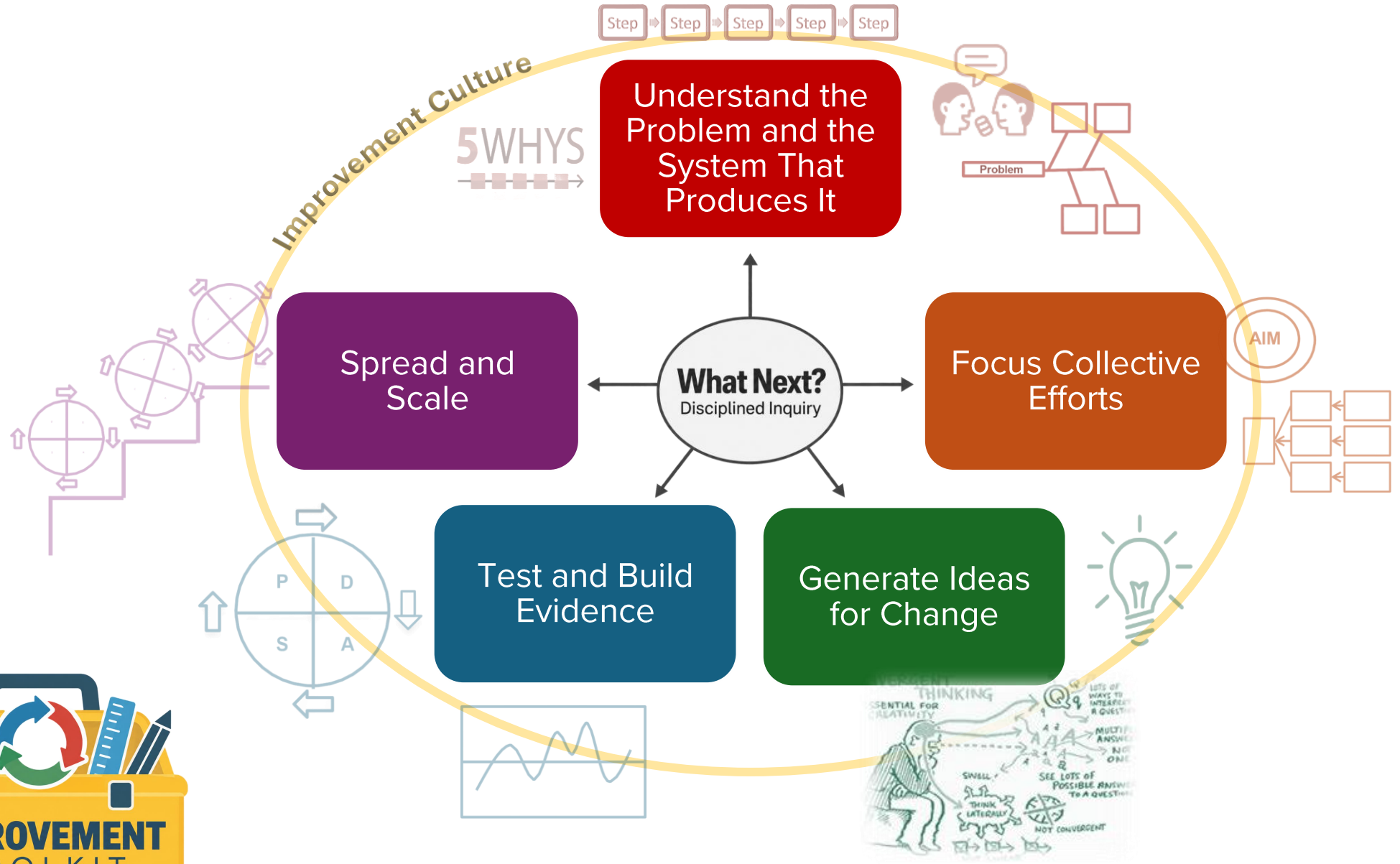


2.14 PDSA – Plan
2.15 PDSA – Do
2.16 PDSA – Study
2.17 PDSA – Act
2.18 Spread and Scale Decision-Making Tool
2.19 Networked Improvement Community (NIC) Shared Learning Tool to Support





Marci Shepard, PhD, EdD



IMPROVEMENT TOOLKIT

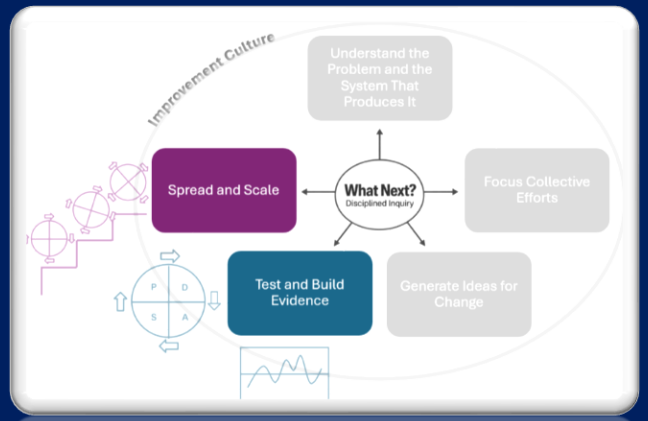
Marci Shepard, PhD, EdD



I can plan how to test a change, learn from evidence, and determine what comes next.

Success Criteria

- Share and refine our working Theory of Action
- Plan a small test of a change idea
- Consider when and how a change might spread or scale



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Building the Improvement Project As We Go

Engage in Phase 4 & 5: Test & Build Evidence and Spread & Scale

Between now and Session 4: Continue developing how you might test your change idea, learn from evidence, and determine what could come next.

Session 4

Culture: Conditions for Improvement



TransformEDLeadership.com

MarciShepard

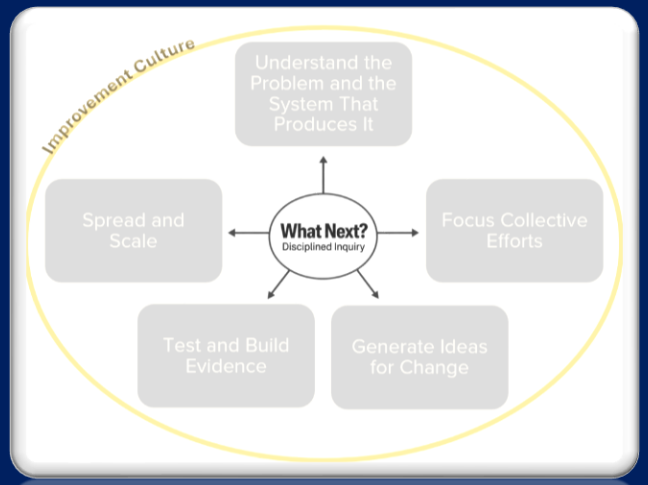
Marci Shepard, PhD, EdD



I can examine the culture surrounding my improvement effort and identify conditions that could help it succeed.

Success Criteria

- Reflect on where our improvement work is now
- Examine our work through culture-related challenges
- Identify leadership strategies and conditions that could support improvement
- Determine what's next

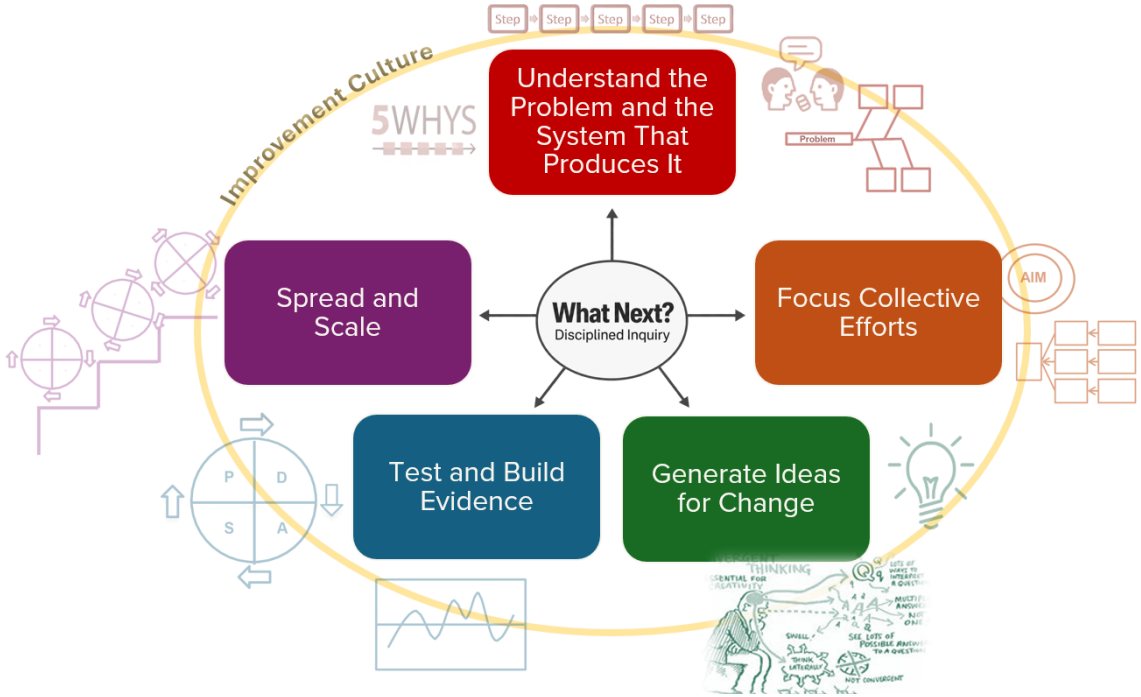


In Your Improvement Group

From our last session…

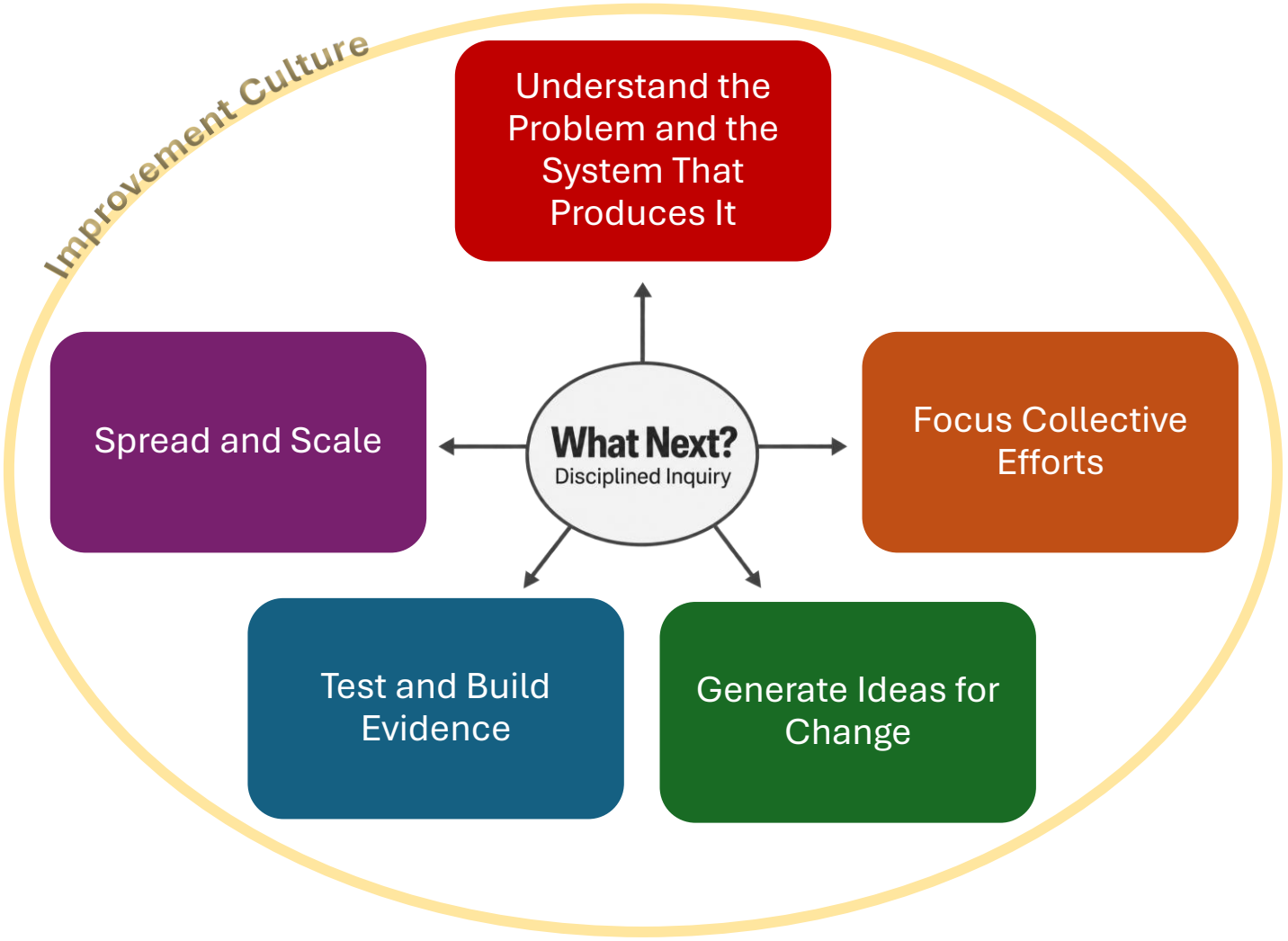
Where is your improvement work now?

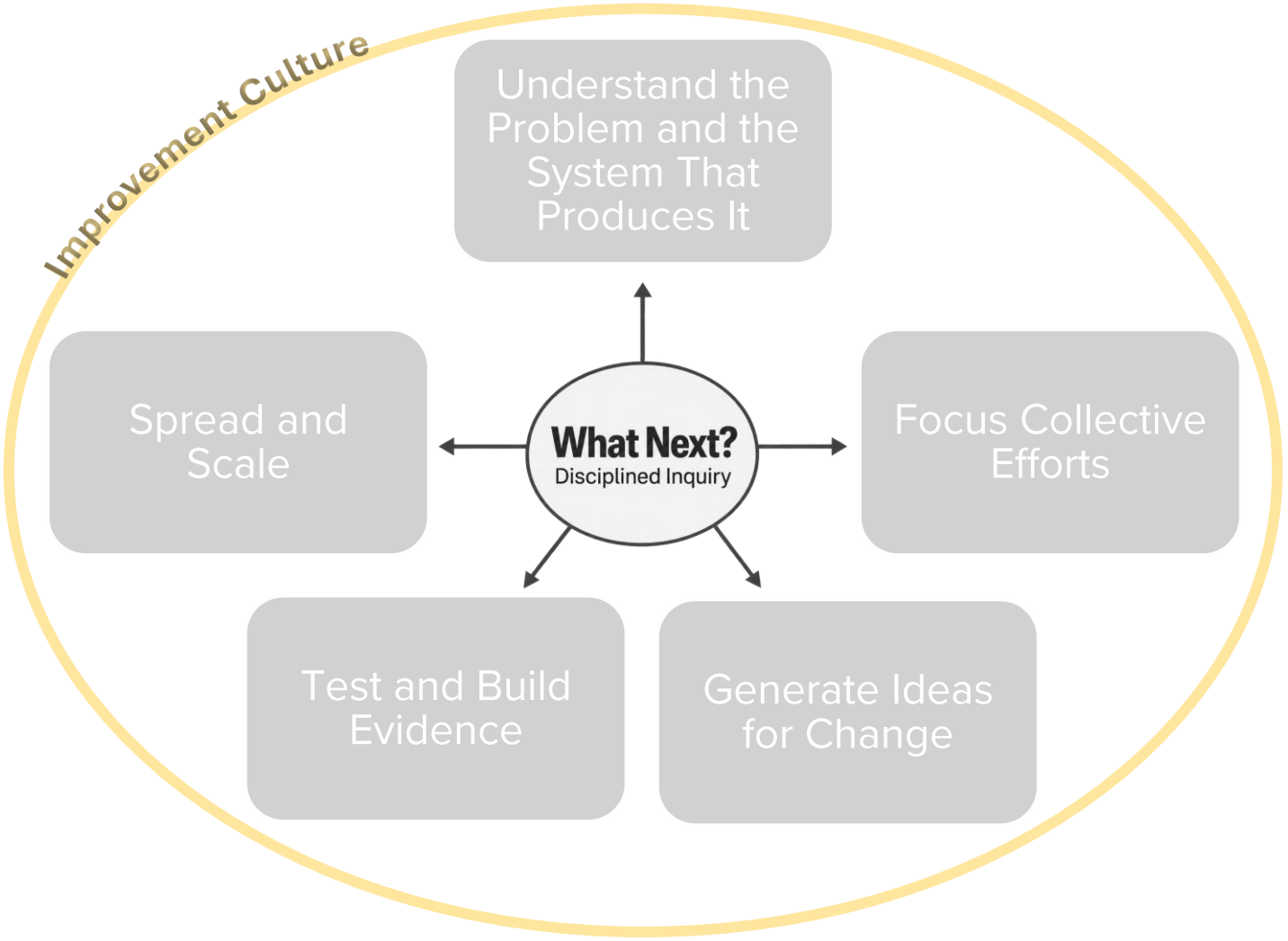
- MY WORK: What am I trying to improve?
- WHERE I AM: What has become clearer across the five phases?
- WHAT'S NEXT: Where am I headed or what am I still figuring out?



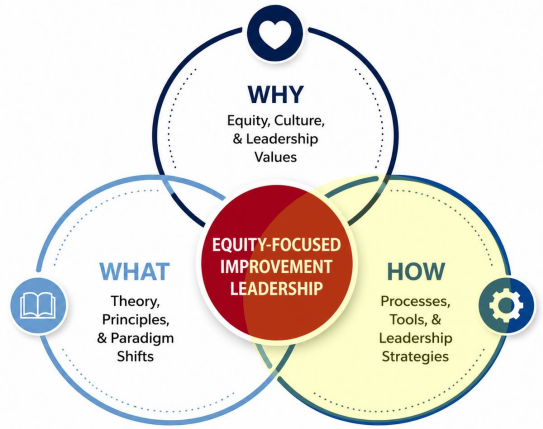
As you listen:

- What progress do you hear in your colleague's thinking?


Improvement Culture
Understand the Problem and the System That Produces It
Spread and Scale
What Next?
Disciplined Inquiry
Focus Collective Efforts
Test and Build Evidence
Generate Ideas for Change



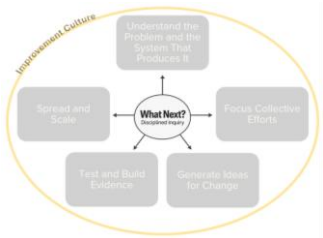
5-Phases (The Carnegie Foundation for the Advancement of Teaching, 2018). Used with permission.
Improvement Culture (Shepard, 2026)



The Other Side of HOW

- Process *and* people matter
  - Workplace culture makes or breaks improvement

Look at Your Improvement Effort Through **Three Workplace Culture Lenses**



VISION & CULTURE

Is there a gap between what we intend and what people experience?

OWNERSHIP

Who owns the improvement work?

VULNERABILITY

What will people need to risk, reveal, or learn openly?

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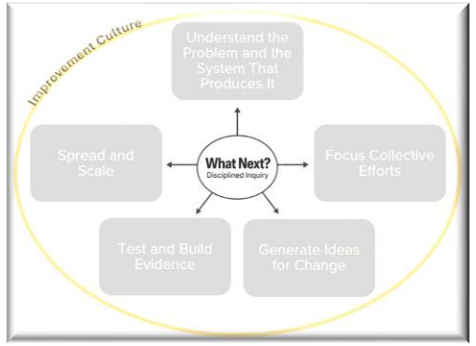
Improvement Culture



1. Read the Room.
   Three culture lens stations are posted around the room (Chapters 7, 8, and 9).
2. Visit each station and review the three slides.
3. Stand near the culture lens most relevant to your improvement problem.
4. Discuss with others at your station:
   - ➢ Challenge: What could get in the way?
   - ➢ Strategy: What could you intentionally do about it?

VISION & CULTURE

Is there a gap between what we intend and what people experience?

OWNERSHIP

Who owns the improvement work?

VULNERABILITY

What will people need to risk, reveal, or learn openly?

Building a Positive Workplace Culture

Closing the Vision-Implementation Gap

CHAPTER 7



Vision: Leaders envisioned a purpose- driven, high-trust, collaborative workplace where staff feel valued, connected, and energized by the work.

Implementation Gap: Staff often feel disjointed from a lack of focus, hierarchy, siloes, and compliance-oriented work.

> *"People work hard when they feel seen, valued, and connected to the mission. That starts with leadership."*

Challenges: Top-down Leadership Structures Limiting Engagement & Working in Siloes

From Why to How: Leadership Actions



Cast a Clear Vision

- Help staff see themselves in the vision
- Embed the vision into the daily work
- Make the vision visible



Model the Culture

- Be visible, present, and connected
- Participate in inquiry alongside staff
- Show reflection, adaption, and curiosity



Share Stories of Impact

- Highlight and celebrate successes
- Normalize learning from failure
- Show how staff contributions advance the mission

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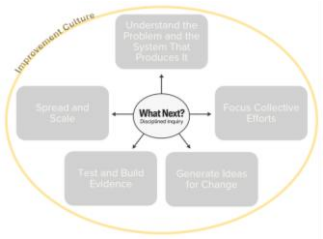
CHAPTER 7

Apply the Lens — Vision and Culture

Apply a Culture Lens to Your Improvement Problem

Think about your improvement effort.

Challenge	Strategy
Where might there be a gap between what is intended and what people actually experience?	What could help close that gap?



Empowering Staff Ownership

Closing the Vision–Implementation Gap

CHAPTER 8



Vision: Leaders want staff to initiate and lead improvement through inquiry and meaningful measures that support continuous learning.

Implementation Gap: Staff often experience improvement as something done *to* them rather than *with* them, limiting ownership, confidence, and capacity to facilitate change.

> *"When staff get to pick what they're going to do, they engage at a whole new level. It's their work, not mine."*

Challenges: Leader-Led Rather than Staff-Driven Inquiry & Lack of Meaningful Measures

From Why to How: Leadership Actions

Build Capacity



- Teach improvement processes & tools
- Use meaningful measures
- Develop staff at all levels

Distribute Leadership



- Identify key leaders at all levels
- Gradual release of leadership responsibility
- Build a leadership bench

Provide Structures & Supports



- Systematize collaboration time
- Provide tools, protocols, & meaningful measures
- Establish learning networks

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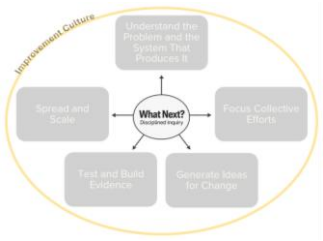
CHAPTER 8

Apply the Lens - Ownership

Think about your improvement effort.

Challenge	Strategy
Who needs to own or participate in this work (but might not yet)?	What could increase meaningful ownership?



Fostering Staff Vulnerability

Closing the Vision–Implementation Gap

CHAPTER 9



Vision: Leaders want a culture where staff feel safe to take risks, tackle tough equity-focused problems, and openly share what they learn.

Implementation Gap: Staff often play it safe, avoid the deep equity-focused work, and teams tend to operate in silos.

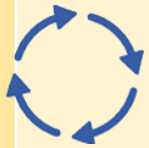
"There has to be a culture of safety to have a level of vulnerability and collaboration if you're going to make real change. People aren't going to be vulnerable if they don't feel safe."

Challenges: Hesitant to Take Risks, Focusing on Operational or Surface-Level Problems Instead of Student-Centered Problems & Limited Sharing Beyond Immediate Teams

From Why to How: Leadership Actions



Choosing a Real Problem – Examining Student Equity Gaps
- Define the problem
- Center equity
- Make it relevant



Engage in Disciplined Inquiry Around Student Equity Gaps
- Equity-focused disciplined inquiry
- Avoid the training trap
- Elevate equity in inquiry



Spread & Scale Solutions Related to Equity Gaps
- Cultivate shared learning
- Scale through adaptation
- Maintain context-specific ownership while scaling

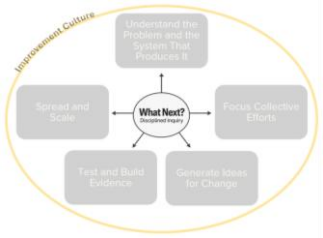
Marci Shepard, PhD, EdD

CHAPTER 9

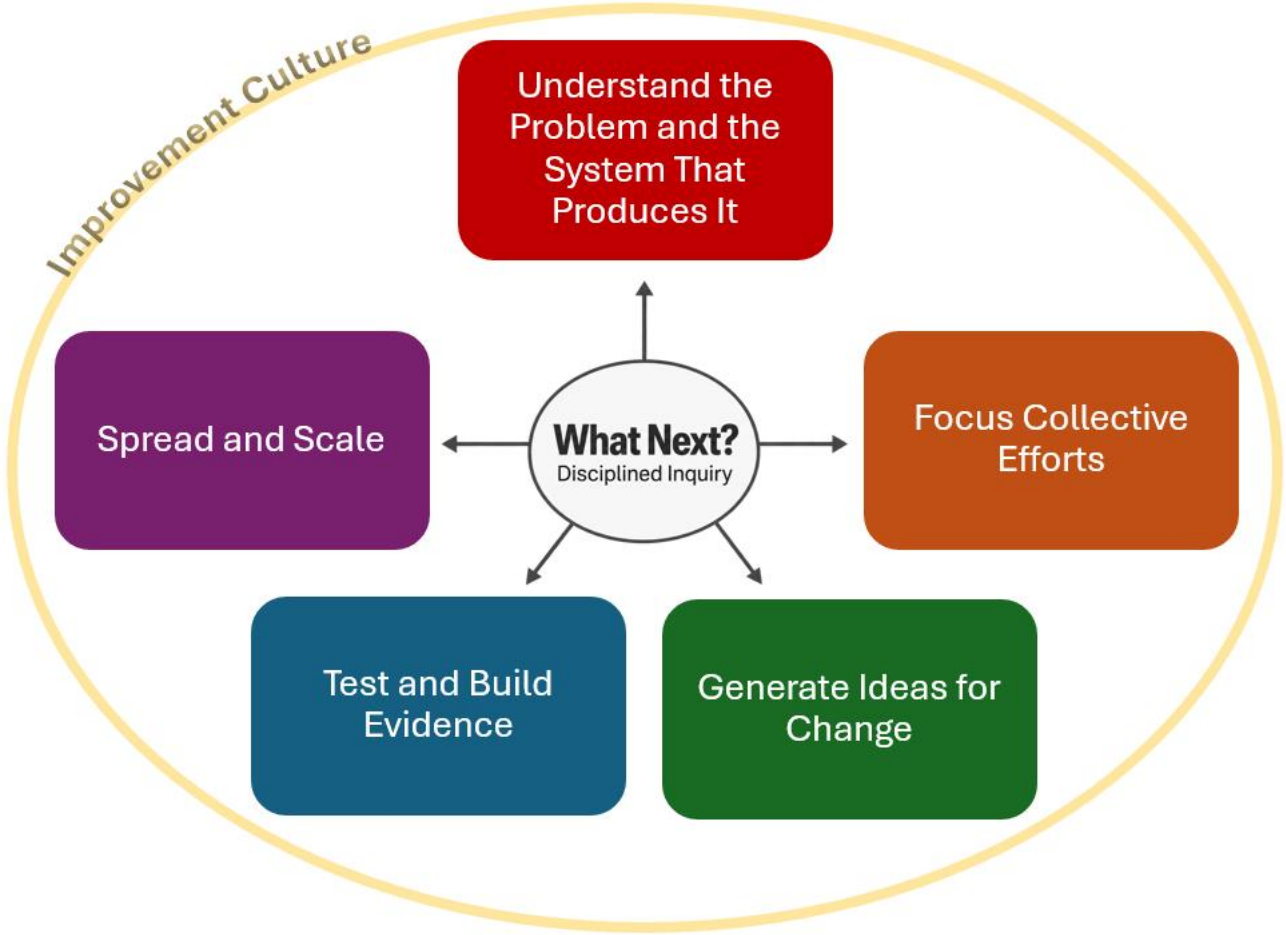
Apply the Lens - Vulnerability

Think about your improvement effort.

Challenge	Strategy
Where will people need to take a risk, acknowledge a problem, share evidence, or learn openly?	What could help create the conditions for that vulnerability?



Zooming Out: Leading with a Systems Lens



Leading the System

Closing the Vision–Implementation Gap

CHAPTER 10



Vision: Leaders want the daily work of schools and districts to reflect shared equity-centered improvement that is coherent across the system yet customized to the unique context of each school and department.

Implementation Gap: Many schools and districts default to fragmented, episodic, and surface-level improvement that lacks alignment, sustainability, and depth needed for systemic growth.

> *"We stopped treating improvement science as something staff 'do' and instead made it how we lead every day."*

From Why to How: Leadership Actions



Embed Improvement into Leadership Culture & Routines

- Do, teach, & lead the work (not assign)
- Use a Theory of Action to connect equity-focused work to the vision
- Make improvement a standing leadership agenda item
- Ensure leadership teams run their own PDSA cycles



Position Equity as the Purpose of Improvement

- Use equity & empathy data to address systemic disparities
- Ensure inquiry cycles system-wide use equity measures
- Establish consistent time & routines to examine impact on *all* students



Build System-Wide Structures for Collaboration & Coherence

- Establish cross school & department networks - learning, feedback loops & alignment
- Use cross-system leadership routines: data sharing, learning walks & artifacts
- Develop leadership at all levels via coaching, co-facilitation & mentorship

CHAPTER 10

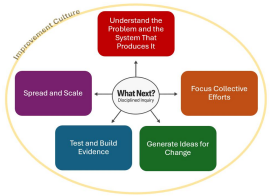
Supportive Systems

Apply a Systems Lens to Your Improvement Effort

Think about your improvement effort.

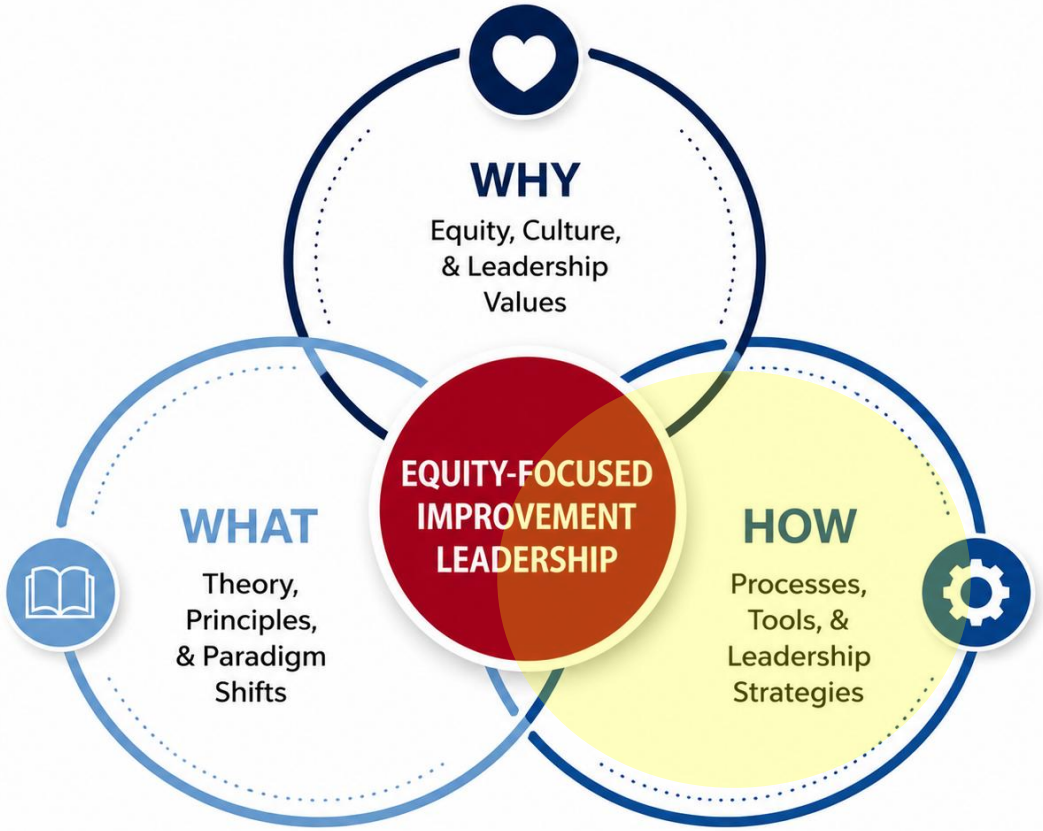
Strategy

- **Alignment:** How does this work connect with existing priorities and other work already underway?
- **Structures & Supports:** What structures, systems, resources, or capacity need to be in place?
- **Routines:** How could improvement become part of how the work gets done?
- **Coherence:** What needs to connect or work together for the improvement to succeed?

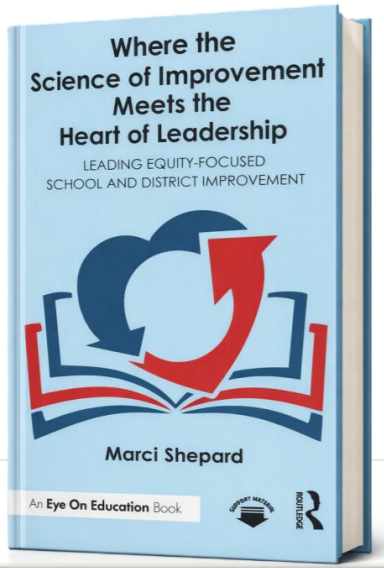


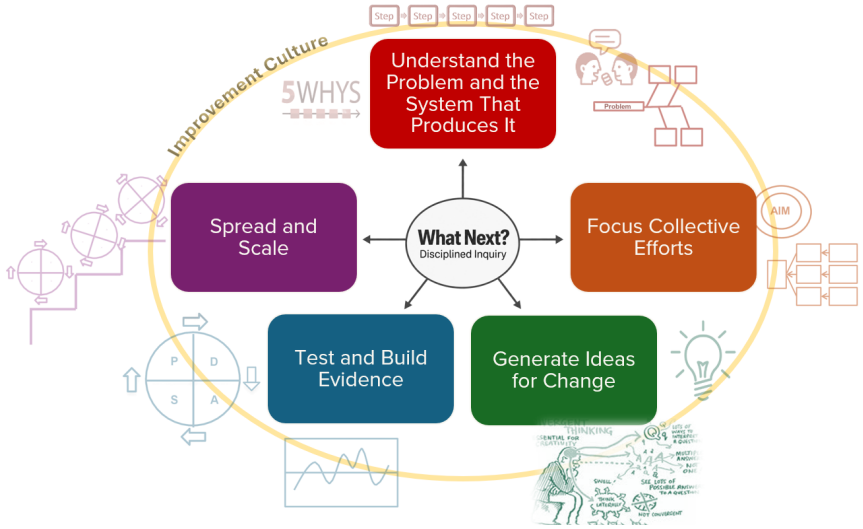
HOW Teaching Resources Available

How: Chapters 6, 7, 8, 9, 10



- ✓ HOW PowerPoint
- ✓ Chapter 6 Try This (Appendix 2): 19 tools to support each phase of inquiry
- ✓ Chapter 7 Try This: Deepen a Positive Improvement Culture
- ✓ Chapter 8 Try This: Empower Staff as Improvers *(Ownership)*
- ✓ Chapter 9 Try This: Create Space for Staff Vulnerability
- ✓ Chapter 7-9 Read the Room
- ✓ Chapter 10 Try This: Be the Leader Who Changes the System







TRY THIS: TOOLS THAT SUPPORT DISCIPLINED INQUIRY

SUPPORT MATERIAL

The tools mentioned throughout this chapter to support every phase of the inquiry process are gathered in Appendix 2 for your convenience.

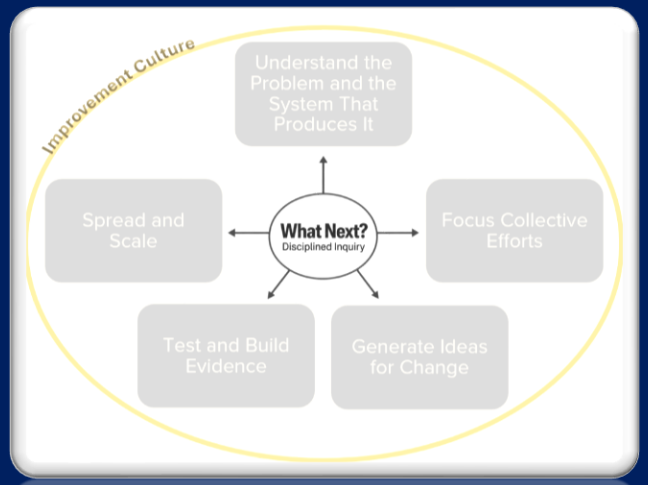
2.1 Assemble a Team Check-In
2.2 Identify an Issue
2.3 Data Analysis Protocol
2.4 5 Whys Protocol
2.5 Fishbone Diagram
2.6 Process Mapping
2.7 Empathy Interviews
2.8 Research and Evidence to Understand the Problem
2.9 Affinity Protocol
2.10 Setting an Aim
2.11 Driver Diagram
2.12 Change Ideas
2.13 Theory of Action
2.14 PDSA – Plan
2.15 PDSA – Do
2.16 PDSA – Study
2.17 PDSA – Act
2.18 Spread and Scale Decision-Making Tool
2.19 Networked Improvement Community (NIC) Shared Learning Tool to Support



I can examine the culture surrounding my improvement effort and identify conditions that could help it succeed.

Success Criteria

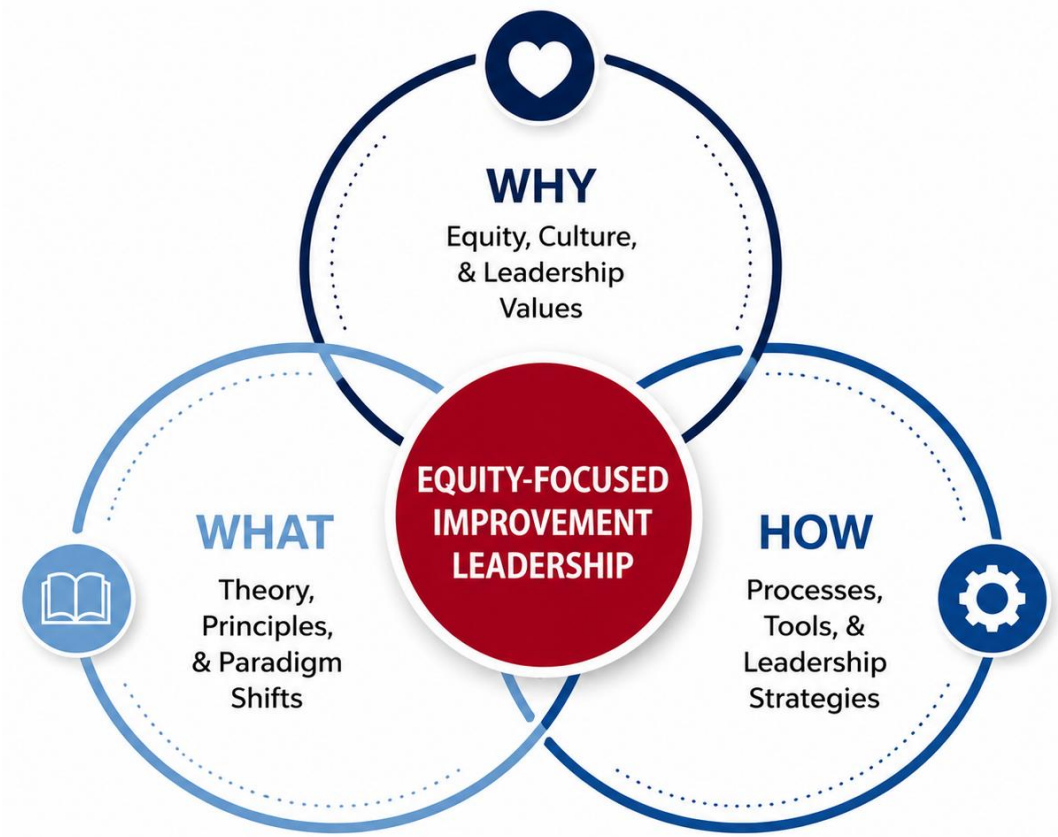
- Reflect on where our improvement work is now
- Examine our work through culture-related challenges
- Identify leadership strategies and conditions that could support improvement
- Determine what's next

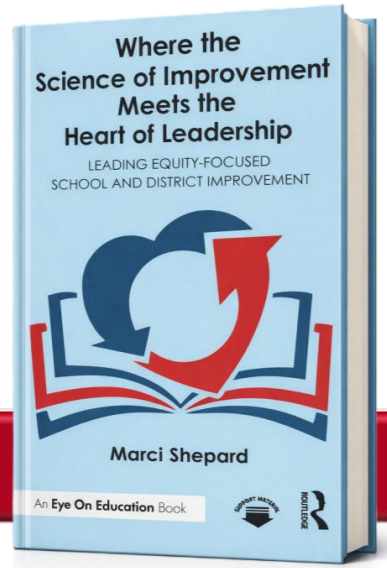




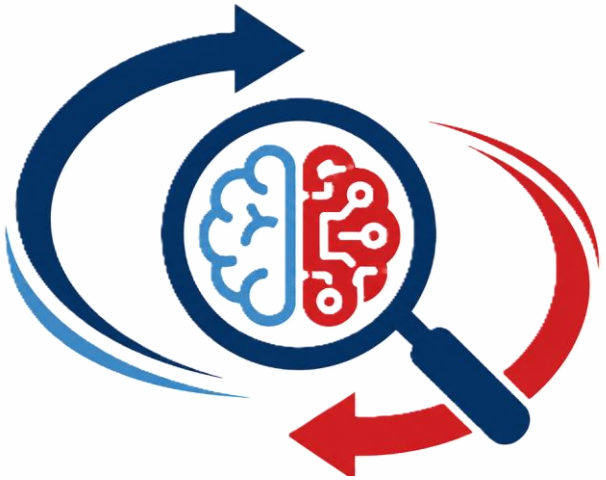
Building the Improvement Project As We Go

Marci Shepard, PhD, EdD


WHY
Equity, Culture, & Leadership Values
EQUITY-FOCUSED IMPROVEMENT LEADERSHIP
WHAT
Theory, Principles, & Paradigm Shifts
HOW
Processes, Tools, & Leadership Strategies


Where the Science of Improvement Meets the Heart of Leadership
LEADING EQUITY-FOCUSED SCHOOL AND DISTRICT IMPROVEMENT
Marci Shepard
An Eye On Education Book

Human-AI Teaming for Improvement



What's Now

- Collaborative teams engaging in inquiry
- Ownership
- Vulnerability

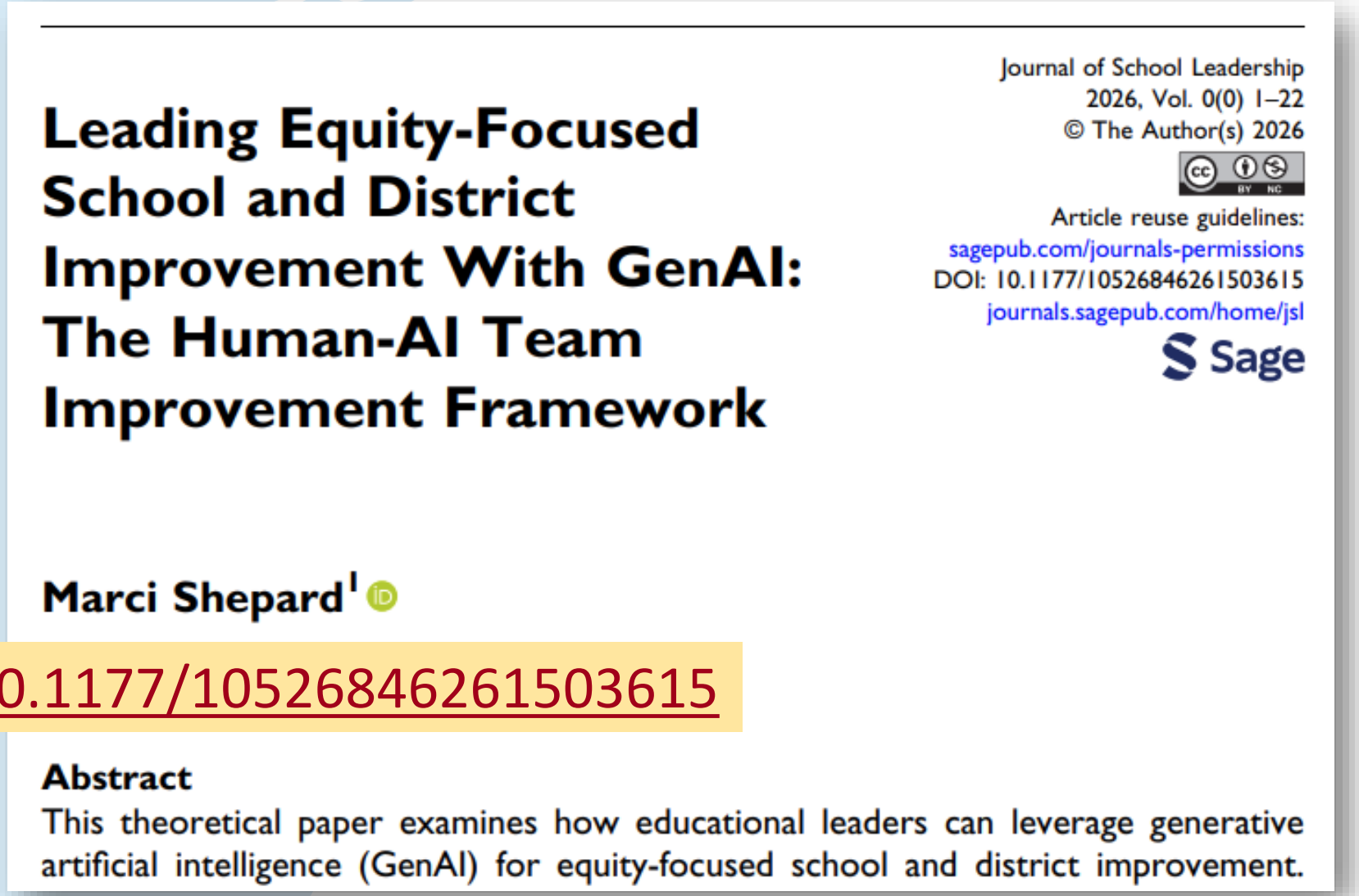
What's Next

- Human-AI team co-inquiry
- Empowered ownership
- Courageous safety

Still **science of improvement** and **heart of leadership**, but field developing and testing the impact of emerging technologies (including AI) on capacity, access, efficacy, expansive ideas, and timeliness of iterative inquiry (efficiency)

Marci Shepard, PhD, EdD

ARTICLE



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Leading Equity-Focused School and District Improvement With GenAI: The Human-AI Team Improvement Framework

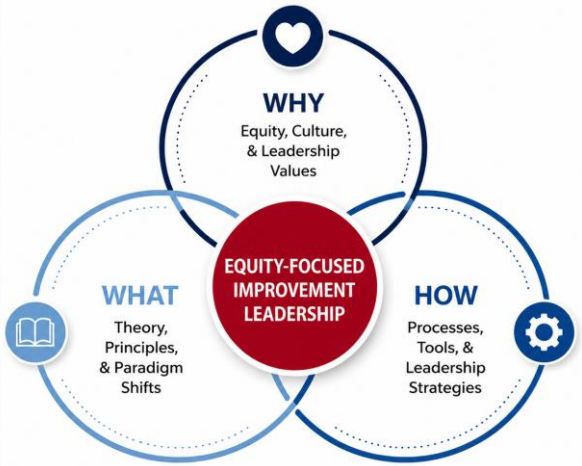
Marci Shepard[1]

doi: https://doi.org/10.1177/10526846261503615

Abstract

This theoretical paper examines how educational leaders can leverage generative artificial intelligence (GenAI) for equity-focused school and district improvement.

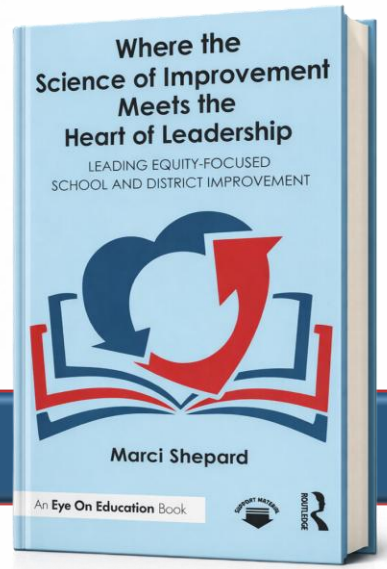
Teaching Resource



FEEDBACK?

QUESTIONS?

COMMENTS?



"Leaders shape culture. Culture fuels improvement. Equity ensures it matters."

Marci Shepard, PhD, EdD

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