LEARNING CYCLES

USING P-D-S-A CYCLES TO STRUCTURE LEARNING

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Sandra Park
Objectives

- Connect your experience with inquiry and PDSA cycles
- Understand the roles of PDSAs in an improvement initiative
- Run a P-D-S-A cycle
- Identify the cultural, structural and strategic challenges of engaging educators in inquiry
Organize as networks

Learn through disciplined inquiry

Be problem-focused and user-centered

Attend to variability

See the system

Embrace measurement

CORE PRINCIPLES OF IMPROVEMENT
“Inquiry”

Inquiry: A systematic investigation (Merriam-Webster).

- Structured, yet open-ended way of questioning and generating knowledge
- Includes reflection and action (not just knowledge for knowledge’s sake)
Forms of Disciplined Inquiry in Education

Lesson Study

Action Research

PLC Cycle

ROCI

Datawise

PDSA Cycle
Activity 1: Quiet Write and Pair Share

Ways in which inquiry differs:

- Tools and process to structure inquiry
- Time cycle
- Collaborative vs. individual
- *Who* engages in inquiry
- The object of inquiry and how it is chosen
- What happens with what is learned

QUIET WRITE: Think about your most in depth experience with inquiry with regards to these dimensions

PAIR-SHARE: Share your experience with a partner. Start to think about the implications of the differences in your experiences
Two Types of Knowledge

Subject Matter Knowledge: Knowledge basic to the things we do in life. Professional knowledge.

Profound Knowledge: The interaction of the theories of systems, variation, knowledge, and psychology.
Knowledge for Improvement

Greatest potential for actual improvement
What specifically are we trying to accomplish?

What change might we make and why?

How will we know that a change is an improvement?

The Model for Improvement
Associates for Process Improvement
What specifically are we trying to accomplish?

AIM

Driver

Driver

Driver
Increase the number of students that are proficient in 1st grade reading in 10 schools in Shasta County.

What specifically are we trying to accomplish?

Assessment

Instructional Routines

Professional Development

What changes might we introduce?

How do we know a change is an improvement?
Evidence based “CHANGE PACKAGE”
What specifically are we trying to accomplish?

What change might we make and why?

How will we know that a change is an improvement?

Articulate a Theory

Iterate theory by testing in practice
The PDSA Cycle

**Plan**
- What's your change?
- What's your prediction?
- Plan to conduct test

**Do**
- Execute test
- Collect data, document observations

**Study**
- Compare results to prediction
- What did you learn?

**Act**
- Next steps: Adapt, adopt, abandon

*Deciding when to spread and scale*

*Ask questions and formulate hypotheses*

*Design an experiment*

*Evaluate evidence*

*Observe and record*
The PDSA Cycle

**ACT**
- Next steps: Adapt, adopt, abandon

**PLAN**
- What’s your change?
- **What’s your prediction?**
- Plan to conduct test

**STUDY**
- Compare results to prediction
- What did you learn?

**DO**
- Execute test
- Collect data, document observations

Revealing gaps in our understanding

Making your theories, assumptions and hypotheses explicit
Let’s try it… on your email process

What specifically are we trying to accomplish?

Efficient and effective email routine

- # min/week email
- # days wait response
- # emails inbox

Email Triage Process

What change might we introduce and why?
Change Idea...

Chunking
1-Touch
Don’t DO work as it comes in
Testing the Email Triage Process

Question: Is it possible to use this email process to answer my emails? Where does it break down?

- 10 minutes

Work in groups of 2-3

- USER (PROCESS MAP)
- Data Collector (DATA COLLECTION FORM)
- Improvement coach (PDSA form)
### Triage Email Test #1

<table>
<thead>
<tr>
<th>What change idea is being tested?</th>
<th>Triage email process (see attached process)</th>
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<tbody>
<tr>
<td>What is the overall GOAL of the test?*</td>
<td>DESIGN a process that helps get to INBOX 0</td>
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</table>

#### I) PLAN

**Learning Questions:**

- How many total emails will you go through in 5 minutes? How many will require a response?
  - Predictions: _____ emails _____ responses

- How many emails will you LEAVE in your inbox? What are the main reasons?
  - Predictions: _____ emails
  - Reasons:

- What part of the process will breakdown?

- What will it feel like to process emails in this way?

**Setting up the test**

1. TESTER makes predictions and IMPROVEMENT COACH records them above.
2. TESTER opens their email application and puts process map in front of them.
3. DATA COLLECTOR starts the timer.
4. TESTER begins processing emails from the 1st email in their inbox saying out loud the action taken.
5. DATA COLLECTOR record the information on the tally sheet.
6. After the timer stops, the IMPROVEMENT COACH facilitates the STUDY and the ACT.

#### 3) STUDY

**What were the results?**

- 
- 
- 
- 

#### 4) ACT (What will you do next?)

- ABANDON (go onto a new change idea)
- ADAPT (Tweak the process and try again)
- EXPAND (try this for a longer period of time)
- ADOPT (make this my standard process)
<table>
<thead>
<tr>
<th>(A) Deletes/Archives immediately</th>
<th>(A) Responds</th>
<th>(B) Schedules</th>
<th>(C) Leaves in inbox</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Handwritten marks]</td>
<td></td>
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### Triage Email Test #1

**What change idea is being tested?**  
Triage email process (see attached process)

**What is the overall GOAL of the test?**  
DESIGN a process that helps get to INBOX 0

### 1) PLAN

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| How many emails will you LEAVE in your inbox? What are the main reasons? | _____ emails  
Reasons: |

What part of the process will breakdown?

What will it feel like to process emails in this way?

### Setting up the test

1. TESTER makes predictions and IMPROVEMENT COACH records them above
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### 3) STUDY

**What were the results?**

3

### 4) ACT (What will you do next?)

- ABANDON (go onto a new idea)
- ADAPT (Tweak the process to suit)
- EXPAND (try this for a longer period of time)
- ADOPT (make this my standard process)
Testing the Email Triage Process

Work in groups of 2-3

- User
- Data Collector
- Improvement Coach
When are our greatest opportunities to learn?

Predicted Outcome:

<table>
<thead>
<tr>
<th></th>
<th>Fail</th>
<th>Succeed</th>
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<td>?</td>
<td>?</td>
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Actual Outcome:
The Value of “Failed” Tests

“I did not fail one thousand times; I found one thousand ways how not to make a light bulb.”

Thomas Edison
Alicia’s current emails process
An Email Change Package

Efficient and effective email routine

- # min/week email
- # days wait response
- # emails inbox

Store/Label emails

- Archiving and to-dos
- Sort by action needed
- Review requests

Process for emails

- Friday process
- Process for events and travel
- Scheduled chunk
- Daily process

Setting Expectations

- Norms with internal team
Essential Elements of Inquiry in Improvement Science

- **Prediction** based test of change
- Paired with process and outcome data over time
- Focused on what needs to be learned to achieve the aim (often across stakeholders)
- Build on learning through iterations
- Scope and inquiry focus changes over the course of an improvement journey (often starts small and scales up)
- Results in common evidence based practices (and theory of improvement)
What specifically are we trying to accomplish?

*Increase the number of first-graders meeting the end-of-year benchmark in reading fluency from 51% to 80% in Shasta County by 2019*
To increase the number of first-graders meeting the end-of-year benchmark in reading fluency from 51% to 80% in Shasta County by 2019.

What specifically are we trying to accomplish?

What changes can we make that might lead to an improvement?

How do we know a change is an improvement?

Fluency assessment (BPST)

Small group instruction

BPST training

BPST administration process

Grouping process

Huddles

Coaching cycles

What changes can we make that might lead to an improvement?
Learning Cycles: Formative Assessment

**ACT**
- Next steps: Adapt, adopt, abandon

**PLAN**
- What's your change?
- What's your prediction?
- Plan to collect data

**DO**
- Execute test
- Collect data, document observations

**REFLECT**
- Compare results to prediction
- What did you learn?

- Took 6,5 and 8 minutes to administer (about the same as before)
- 3/3 teachers recorded all the info w/o having to go back
- 3/3 found easier to score

**CHANGE:** New recording sheet

- 3 teachers, each with 1 student

**PREDICTIONS:**
- Take 4 min to administer
- No missing information
- Teachers report easier to score

Teachers reported that "reduced the cognitive load" so they could really focus on the child’s reading

Make some small tweaks and ADOPT in all 3 classrooms

1 week
Pre-administration steps

Teacher plans on when and where to administer the test and support if necessary.

Teacher gathers BPST materials: Copy student recording sheets, student booklet, clipboard.

Teacher reviews directions on how to administer and record the BPST.

Teacher pulls students, one-on-one, to administer test.

Teacher reads scripted directions.

Teacher places booklet and place marker in front of student.

Student makes letter sounds; teacher records responses, asks for letter names for each incorrect sound response according to protocol.

Student makes short and long vowel sounds; teacher records responses according to protocol.

Student reads CVC words; teacher records responses according to protocol.

Is this beg of year testing?

Y

4 or more CVC words correct?

Y

Student continues through row i (2 syl (vccv))

N

Students continue through line i, retesting each row where there was at least one error.

Proficient through lines (a-i)?

Y

Student continues through at least line k

N

Teacher ends administration.
From Small to Scale

Our Hunches

Change Idea: Formative Assessment process

How do you get it to work?

How to get it to work across multiple contexts?

What support processes are needed?

How to integrate into the system?

System Changes

County Wide

30 teachers

11 teachers

3 teachers

APSD

Learning from Data Along the Way
Not all changes make it through

Degree of belief that the changes will result in improvement:
- High
- Moderate
- Low

Develop a change
- Test under increasing diverse conditions
- Implement full scale

Successful practices

Changes still need further testing. There is a risk in moving to implementation.

Unsuccessful adaptation
What is the end goal?

1. Measurable improvement

AIM

3. Capacity to improve

Driver

3. Evidence-based changes

- Change
- Change
- Change
- Change
- Change
- Change
## Turn and Talk

- What is new about inquiry in IS? What builds on existing forms of inquiry?

<table>
<thead>
<tr>
<th>PDSA only</th>
<th>Both</th>
<th>_____ only</th>
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Common Mistakes in PDSA

1. Using the tool for a purpose other than testing a change
2. Unclear predictions
3. Superficial use of PDSAs (go through the routine, little or no learning)
4. Don’t get into a routine for learning
5. Don’t build on each other
6. Lack of documentation
7. Managing ramps
8. Inferences that don’t match the learning
9. Not paired with data over time
10. Don’t break down the testing into iterations
Key Takeaways

- Engaging practitioners in disciplined inquiry is a necessary part of an improvement science approach.
- PDSAs have been used to structure inquiry in improvement science because they allow for the flexibility that is needed.
- Inquiry can be structured in different ways in an improvement approach as long as it does the work you need it to do.