

Refining PDSAs for Coaching Teacher Candidates in Virtual Mixed Reality Simulation Learning Environments



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Session Overview

- ▶ Welcome and Introductions
- ▶ Session Objectives
- ▶ Improvement Science Framework Overview
- ▶ Mixed Reality Simulations (MRS) for Teacher Candidate Coaching
- ▶ Use of a Plan-Do-Study-Act (PDSA) for Refining the Coaching Protocol

Session Objectives

- To provide an overview of improvement science as a framework for improving practice in one teacher preparation program.
- To describe the context of mixed reality simulations (MRS) for preparing teacher candidates.
- To communicate the value of using PDSA as a tool for standardizing work in coaching of teacher candidates.

Improvement Science as a Framework



Model for Improvement:

- centers on the core principle that a system's performance is a result of its design and operation and not just individuals' efforts within the system "act of integrating quality improvement into the daily work of individuals in the system;" (Park, et al., 2013).
- emphasizes innovation, rapid-cycle testing in the field to generate learning about what changes, in which contexts, produce improvements.
- focuses on "user-centered" perspective and bridging research-practical knowledge; combination of expert knowledge from researchers, and stakeholders.
- uses improvement tools to *learn-by-doing*.

Appropriateness of Using this Model/Approach/Framework:

- EPPs engage in continuous improvement processes as part of national and state accreditation efforts and for expanding a knowledge base. (both Accreditation and Accountability)
- Builds capacity for organizational learning (our EPP) creating a culture of continuous learning and improvement.

Core Principles of Improvement Science

(The Carnegie Foundation
for Advancement in Teaching)



Key Words

Word	Definition
Improvement science	Various approaches that can guide and structure organizational learning by connecting disciplined inquiry to a focused solution for a problem of practice (Bryk et al., 2015)
Networked-improvement community (NIC)	Learning community comprised of many different individuals focusing on addressing a problem by defining a well-specified common aim, guided by deep understanding of the problem with a shared working theory to improve it; accelerate learning and employ improvement science tools (Engelbart, D)
Driver diagram	A tool that visually captures the working theory of improvement; hypothesis about the solution; allows to share a language
Primary Driver	Hypothesis of what needs to be a focus for solving the problem based on vast experience from multiple stakeholders, and researchers.
Change ideas	An alteration to the system to drive improvement.
PDSAs	A disciplined testing process through inquiry cycles; builds knowledge through iteration and

Use of Mixed Reality Simulations (MRS) for Coaching

Educator Preparation Program

- ▶ License with Mursion; have used since 2015;
- ▶ Use of MRS for practice of skills:
 1. introducing content; delivering lessons
 2. classroom management skills
 3. parent-teacher conference communication skills
 4. teach high-leverage practices
- Need to design experiences programmatically (in process).



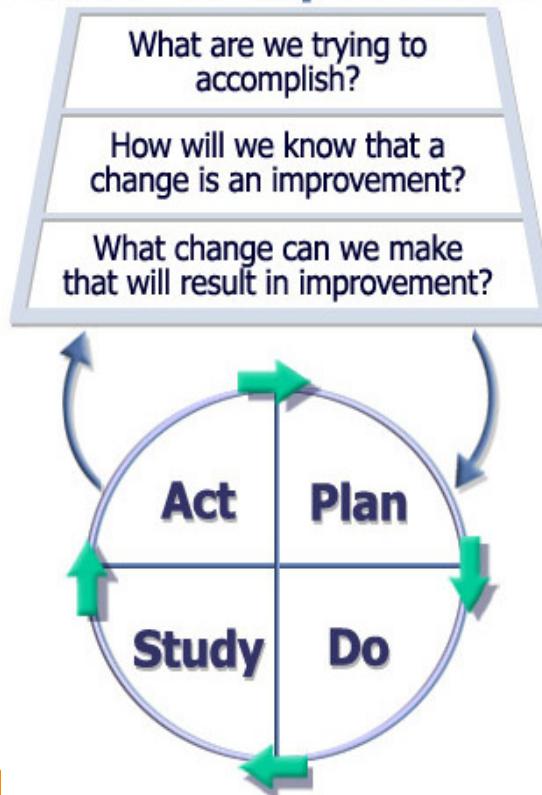
Using MRS During the Pandemic

- ▶ Developed BBL Course for 30 field experience hours; use MRS as space to practice teaching skills (as PD sessions).

- ▶ RYH Clinical Field Experiences NIC formed research group to study use of coaching protocol in multiple contexts for developing high quality coaching supports; leverage use of technologies

Why PDSA?

Model for Improvement



PDSA Form: Inquiry Cycles for Refining Coaching Protocol

PDSA FORM

Test Title:		Date	
Tester:		Cycle#:	Driver:
What change idea is being tested?			
What is the overall GOAL of the test?			

*Identify your overall goal: To make something work better? Learn how an innovation works? Learn how to text in a new context? Learn how to spread or implement?

1) PLAN		3. STUDY	
Questions: Questions you have about what will happen. What do you want to learn?	Predictions: Make a prediction for each question. Not optional.	Data: Data you'll collect to test predictions.	What were the results? Comment on your predictions in the rows below. Were they correct? Record any data summaries as well.
<u>QUESTIONS:</u> •	<u>PREDICTIONS:</u> *	10-question Qualtrics survey Observation Notes	
Details: Describe the who/what/when/where of the test. Include your data collection plan.	What did you learn?		

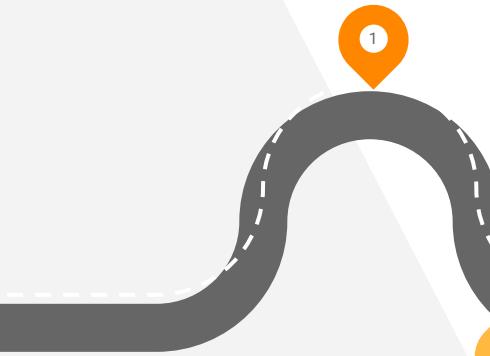
2) DO: Briefly describe what happened during the test, surprises, difficulty getting data, obstacles, successes, etc.	4) ACT: Describe modifications and/or decisions for the next cycle; what will you do next?

Refining PDSAs for Teacher Candidate Coaching in MRS Environment

PDSA Cycle 1

Change Ideas: Use coaching protocol, use POP cycle with MRS for any lesson objective (TC choice)

1



PDSA Cycle 2

Change Ideas: Use coaching protocol, flexible POP cycle to include teach-in-moment coaching and peer learning (post conference); provide lesson objective to focus on classroom management skills

2

PDSA Cycle 2.1

Change Ideas: Use coaching protocol, use POP cycle with MRS and peer learning, use of split page note taking and provide lesson objective

3

4

PDSA Cycle 2.2

Change Ideas: Use coaching protocol, use POP cycle with MRS and peer learning (post conference), abandon split page note taking, need MRS orientation, use chat for feedback/emojis (during)

5

PDSA Cycle 3

Change Ideas: Use coaching protocol, use POP cycle with MRS and peer learning, collaborative coaching (FS) in clinical teaching for formal observation practice, common measure (reflection) about process; focus on planned observation lesson

6

SPLIT PAGE NOTE-TAKING

Classroom Management

SYNOPSIS

This scenario covers four simulations with increasing levels of planned challenge. In the first simulation (Scenario 1), the learner will gain the avatars' attention by using a consistent learning signal from a designated location in the classroom. The lesson that will be introduced will be a review of comparing fiction to nonfiction. Next, the teacher will arrange students in pairs to continue reviewing the difference in characteristics and identify examples.

SCENARIO: Planned Challenge 1

The bell has just rung to signal that class has started, and your middle school students are still engaged in conversation or personal activities.

Your objective is to teach a basic lesson on difference between fiction and nonfiction texts. Below is the content that may be used to introduce this to your group of students. Keep in mind that this lesson is secondary to focus on the task of Classroom Management. To support overall learning in the classroom, you will utilize specific classroom management strategies, such as establishing a consistent attention signal for transitions to learning activities, establishing norms for working together in small groups, and providing clear instruction for participation and opportunities for student response.

Here's an outline of what you can do:

1. Introduce the lesson by making it interesting, and relatable to gain student interest.
2. Introduce or remind students of signaling to be used to gain students attention. (i.e., all eyes on me, counting, snapping fingers on three, etc.) **please keep in mind that the avatars reactions and functions are limited and may not be able to respond; the assumption is that they can complete these tasks.*
3. Provide instructions on how students will be working next (i.e., pairs, groups, etc.) and what they will be doing.
4. Check for understanding.

COMPARING FICTION & nonFICTION



Fiction	Nonfiction
read in order	read in any order
Literature	Informational
characters can talk	photographs
problems and solutions	text features
tells a story	table of contents
animals can talk	photographs
beginning, middle, ending	heading

Fiction vs. **Nonfiction**

Fiction	Nonfiction
made up	true facts
read in order	read in any order
entertains readers	teaches readers
illustrations	photographs
characters setting	text features
problems solutions	table of contents
tells a story	photographs
animals can talk	heading
beginning, middle, ending	charts, diagrams

SPLIT PAGE NOTE-TAKING

Instructions. Provide some feedback to your peers. Use the split page note-taking template below to guide your observations. These are only suggestions. Be ready to share some feedback with your peer during the post conference.

Teacher Candidate _____ Classroom Management #1

Teacher Candidate Behaviors Some ideas on what to focus on: <ul style="list-style-type: none">• introduction of lesson• introduction of signal• engaging/motivating strategies• reactions to off-task behavior• reinforcing signals,	Student Behaviors (Avatars) Some ideas on what to focus on: <ul style="list-style-type: none">• attention• engaged in activity• understands instructions• use of signal for demonstrating attention
<p>Teacher...</p> <ol style="list-style-type: none"> 1. Introduce the lesson by making it interesting, and relatable to gain student interest. <ul style="list-style-type: none"> • Really good on picking up an opportunity with relating current events to the lesson. • Not addressing the behaviors 2. Introduce or remind students of signaling to be used to gain students attention. (i.e., all eyes on me, counting, snapping fingers on three, etc.) <i>*please keep in mind that the avatars reactions and functions are limited and may not be able to respond; the assumption is that they can complete these tasks.</i> <ul style="list-style-type: none"> • Students taking up the class time without a signal 	<p>Students...</p>

THANKS!

Any questions?

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References

Bryk, A., Gomez, L., Grunow, A., & LeMahieu, P. (2015). *Learning to improve: How America's schools can get better at getting better*. Cambridge, MA: Harvard Education Press.