Using improvement science to support educators during the COVID-19 crisis

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Background & Rationale

At the Institute for School Partnership at Washington University in St. Louis, we promote STEM educational equity and improve student outcomes by providing professional development, coaching, curriculum, and consulting to partner schools throughout the region. In January of 2020, a core team at ISP began the introduction to Networked Improvement Basics course to build internal capacity for improvement science. Then COVID-19 hit, and our organization frantically sought to develop new ways to support our partners. At the same time, we knew that teachers and parents were already being inundated with resources they didn’t have time to make sense of.

Our Goal: Apply the process and tools of improvement science with a novice team to support our partner educators’ shift to distance learning during the COVID-19 pandemic.

Problem & Seeing the System

Initial Phase of Data Gathering, March 2020
To learn more about the problem and combat solitudinitis, the ISP team gathered data from several sources:
- 35 empathy interviews with teachers and other partners
- Social media artifacts shared by our district partners and other educators
- Brief surveys and anecdotal data collected via social media outreach
- User data from the mySci website

Sample Feedback From Empathy Interviews
"We have not received much guidance from our administration on how to approach this." - mySci teacher
"I have to now teach my daughter, and also teach my students, and trying to take care of myself too! "Wearing all of the hats I wear is overwhelming. The worst thing on my mind is how Google classroom works. I feel so stuck." - mySci Instructional Coach

"It's been difficult and frustrating to say the least. Outside of the general work that has to be done I am rather worried about a good section of my student population.... The school is offering food to the students, but I know some of them cannot get it because they have no transportation or things like that. That part has been difficult to hear, but it's a reality that our kids are dealing with." - mySci teacher

Making Sense of the Data
Using Carnegie’s Data Conversation Protocol, we reviewed our findings in small groups and as a team. We summarized our learning in three categories:
- Obstacles and Opportunities of Teachers
- Practices & Tools (We Do What)
- Access to Resources (We Have What)

The process continued after our initial phase of data gathering. In May 2020, we released a distance learning survey, which helped the team further refine our COVID response planning.

Theory of Improvement

Developing a Theory of Improvement in a Time of Crisis
A core component of the improvement science methodology is the aim or overarching goal the team is working towards. A strong aim should answer four questions: What will be improved? By how much? By when? And for what or whom?

As we drafted our aim, we strived to operationalize the definition we’ve used for years, which is: "A long-term goal that aims to make the system better and focus on its people."

Our Aim: Supporting ourselves & our stakeholders during this time of crisis (short term & long term, with an equity lens)
- The core improvement team created a partially completed driver diagram, with primary drivers filled out
- The larger instructional team worked in small groups to complete the driver diagram by coming up with secondary drivers
- The improvement team synthesized the group’s diagrams into a draft (see below)

Change Ideas

Using the Driver Diagram above, the instructional team met to brainstorm change ideas. Using the effort vs. impact matrix, the team came to consensus about which ideas were highest leverage. Using an advocate and dot-voting process, the instructional team voted for the change ideas to start with. Action planning came next.

PD&A: Adapting PD to a Virtual Environment

Over multiple rapid PD&A cycles, we identified the needs of our teachers, gathered practice-based evidence and evidence-based practice to build consensus within our organization around our approach to virtual professional development.

Plan:
- Shared lessons learned from participating in and/or leading virtual PD. Learned what teachers needed, what we needed, and looked at best practices.

Do:
- Practiced and implemented PD virtually.
- Practiced internally
- Co-facilitated, observed
- Evaluated feedback
- Learned from other programs

Study: Gave and received feedback to each other.
Gathered feedback from teachers informally during PD and through a post-PD survey.

Data from PD survey (n=311):
- 99% Agree/Strongly Agree that they will incorporate what they learned in PD into their practice
- 98% Agree/Strongly Agree that they felt engaged in learning throughout the PD
- 98% Agree/Strongly Agree that the PD was valuable to their professional growth

Act: Continuously adapted and then adopted the new approach.
- Developed tools to promote consistency through our organization
- Utilized best PD practices in a tech environment
- Published a white paper to share best practices more widely

Learning About the Problem
Both virtual learning and curricular adaptations were a much needed support for our partners as they transitioned to virtual learning.

"This was a super helpful session which gave me very practical tips about using mySci in a virtual environment. I don’t think I necessarily grew in my knowledge of teaching science but it is EXACTLY what I needed. I really wish with other curriculum companies had something like this." - mySci teacher

"Thank you for the quick addition of some virtual videos, assessments, and activities you gave us this year! I appreciate all that you have done to make teaching science a bit easier this year." - mySci teacher

Supporting our partners during a crisis looked different for different partners.
- "We appreciate your continued support and thought partnership during COVID. That has definitely been a bright spot that you continue to support our efforts with engaging students but supporting the teachers while they do their best to do so." - Administrator

Attending to variation and disaggregating data improved equitable focus of our work.

Learning About the Improvement Science Process
A novice team can learn by doing. The crisis forced us to jump in to using improvement science, learning about high leverage change ideas, and projects designed to meet the aim.

Not all change ideas were well suited to a PD&A. PD&A cycles were organized to study some of the change ideas, including:
- Office hours
- Facebook pages
- Adapting PD to a virtual environment
- Adapting mySci curriculum for distance learning

References:
https://doi.org/10.1108/QAE