Washington University in St. Louis

INSTITUTE FOR School Partnership

### 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**

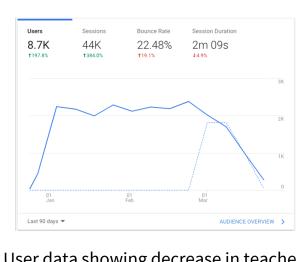
### Initial Phase of Data Gathering, March 2020

To learn more about the problem and combat solutionitis, 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

How are y'all feeling about all the virtual learning resources floating around? Comment to elaborate or describe gaps you're noticing.						
Overwhelmed		25%				
Grateful		5.6%				
Overwhelmed bu	63.9%					
Other (describe)		5.6%				
36 votes · 6 hours	left					

Twitter poll by an ISP Instructional Specialist



User data showing decrease in teache use of mySci curriculum 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 the hats I wear is overwhelming. The last 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 to 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 

District Expectations of Teachers	Parents/ & Teachers' Daily Reality	Access to Reso
<ul> <li>Each district is different, but districts are creating general expectations (# of minutes/week, # of lessons/week)</li> <li>Big range of expectations, from 'maintain relationships' to highly structured &amp; specific</li> </ul>	<ul> <li>Overwhelmed / Need to be heard</li> <li>Teachers are often parents too (being pulled in lots of directions)</li> </ul>	<ul> <li>Many distrespecially</li> <li>There are learning be devices/compared</li> </ul>

District Expectations	of Teachers	Parents/ & Teachers' Da	aily Reality	Access to Resources		
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•		•	6 6	- in May 2020, we our COVID respon March 27, 2020		
oundary April 2020	Maron 20, 2020	Maron 20, 2020	Maron 20, 2020	Maron 27, 2020	April 10, 2020	
Introduction to Networked Improvement Basics course	COVID-19: Shift to Distance Learning	Instructional Team Meeting #1 (2 hrs)	Instructional Team Meeting #2 (2 hrs)	Instructional Team Meeting #3 (1.5 hrs)	Instructional Team Meeting #4 (2 hrs)	
Core improvement science team at ISP enrolled in course to build internal capacity for leading improvement efforts	How do we work virtually to support our education partners as they navigate the shift to distance learning?	Improvement science team applies tools with novice team to understand the problem and see the	Facilitation of driver diagram to structure action planning and generate change ideas to achieve aim	Continue action planning by forming teams around change ideas using an effort vs. impact matrix	Revisit projects an alignment with ain plan PDSAs when appropriate	

Timeline demonstrating how we led our instructional team through the improvement science process to respond to our education partners' distance learning needs.

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

Rachel Ruggirello, PhD; Abbey Loehr, PhD; Alison Brockhouse; Maia Elkana; Heather Milo Washington University in St. Louis, Institute for School Partnership



# **Theory of Improvement**

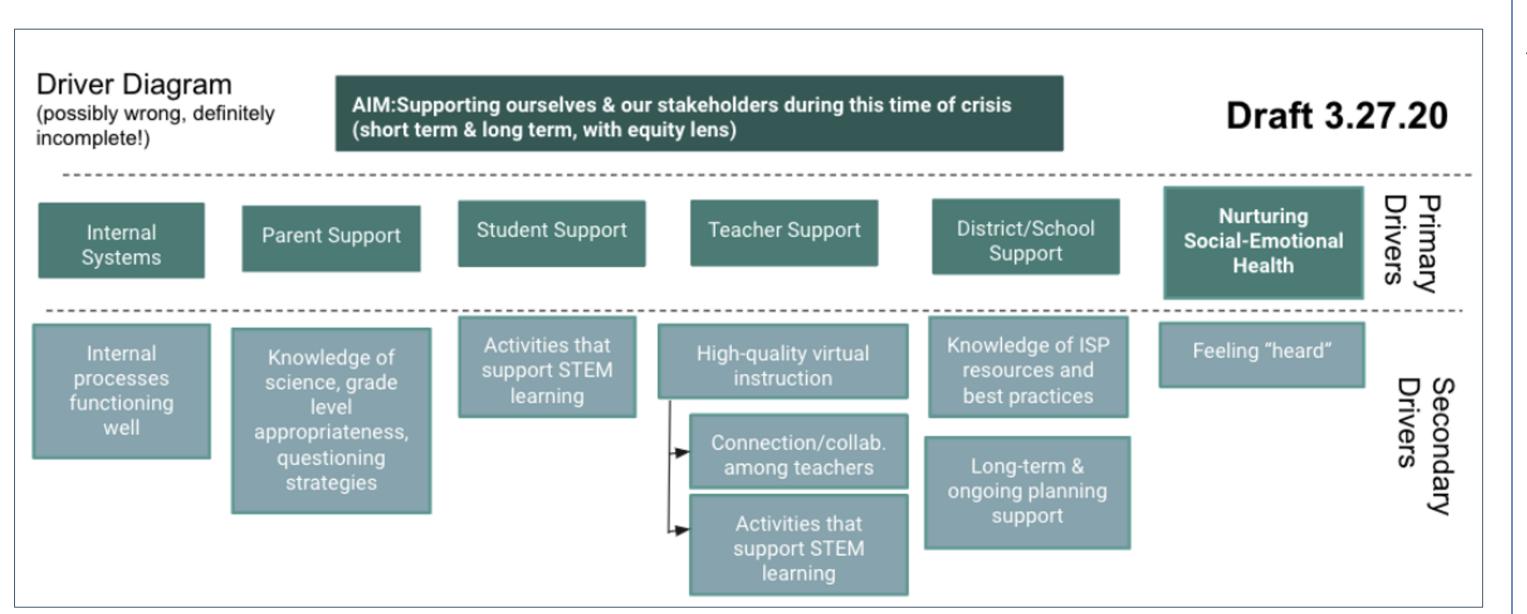
### Developing a Theory of Improvement in a Time of Crisis

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 struggled to operationally define the way we & our partners felt, let alone specify a numerical goal or time frame. The trauma and uncertainty of the pandemic made it difficult to move forward with business as usual. To develop our aim, we drew on research on trauma and focused on the aspects of the pandemic that were within our locus of control (SAMHSA, 2014). Our aim was not a traditional aim statement, but it was crucial to helping guide our work.

Our Aim: Supporting ourselves & our stakeholders during this time of crisis (short term & long term, with an equity lens)

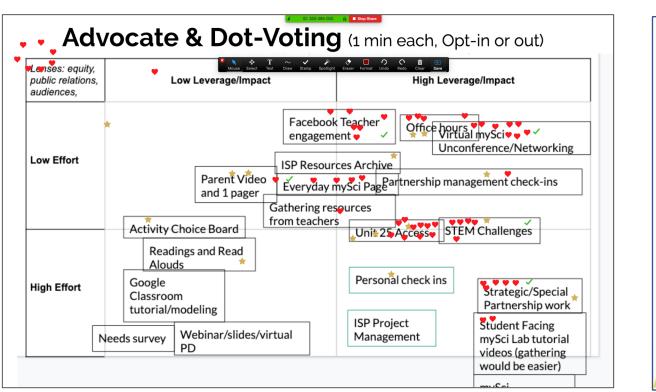
- The core improvement team created a partially completed driver diagram, with primary drivers filled out
- The larger instructional team worked in small groups to complete the driver diagram by coming up with secondary drivers
- The improvement team synthesized the group's diagrams into a draft (see below)

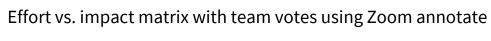


## **Change Ideas**

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.

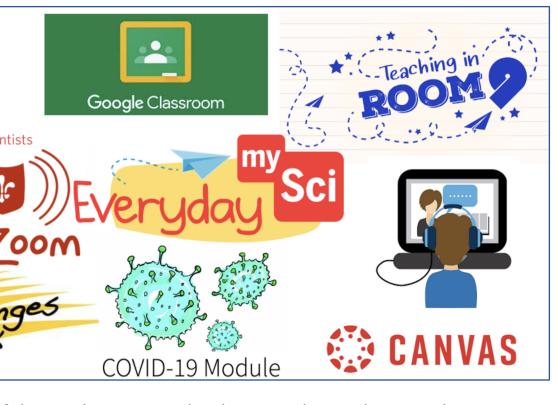
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A selection of change ideas proposed and projects designed to meet the aim. Not all change ideas were well suited to a PDSA. PDSA cycles were organized to study some of the change ideas, including:

- Office hours
- Facebook pages
- Adapting PD to a virtual environment
- Adapting mySci curriculum for distance learning
- ttps://doi.org/10.1108/QAE-12-2016-0086
- National Research Council. (2012). A Framework for K–12 Science Education: Practices, Crosscutting Concepts, and Core Ideas. Washington, DC: The National Academies Press.
- nce Abuse and Mental Health Services Administration (SAMHSA). (2014). SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach. HHS Publication No. (SMA) 14-4884. Rockville, MD: Substance Abuse and Mental Health Services Administration.



Bryk, A.S., Gomez, L. M., Grunow, A., & Mahieu, P.G. (2015). *Learning to improve: How America's schools can get better at getting better*. (Fifth printing). Harvard Education Press. Darling-Hammond, L., Hyler, M. E., Gardner, M. (2017). *Effective Teacher Professional Development*. Palo Alto, CA: Learning Policy Institute. 1ahieh, P.G., Bryk, A.S., Grunow, A., & Gomez, L. M. (2017). Working to improve: seven approaches to improvement science in education. Quality Assurance in Education, 25, 1, 2-4.

# PDSA: Adapting PD to a Virtual Environment

Over multiple rapid PDSA 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):

- practice
- 98% Agrees/Strongly Agrees that they felt engaged in learning throughout the PD • 98% Agrees/Strongly Agrees 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

Templates and tools developed to embed best practices and promote consistency across the team

Provided by Facilitator		my Sc	Virtua Develo
		PO TITLE	SHORT DESCRIP
	S for virtual PD and iterations thereafter) bat Virtual Learning Experience Set-Up/Staging (Arrival time, logistics planning, breakout grouping of participants)	Intro to mySci (for MIW districts or Taj	This PD provides an easy the mybic program and physical and What cer- tratize chars need to for standard with mybic. Den- teachers may also bers used to an antived er a on all of the new wints resources and website N2 PD helps to chem an
Zoom Link ~ participants Roles/Contacts:	Open Zoom meeting to yourself 15-30 min prior to the official start time to: Check for stable internet connection; have your hotspot as backup Perform sound check, visual check (lighting/ background), and screen staging (only 1 tab open during screen sharing) E dit breakout room names and set timers for the first breakout activity	mySci Kit PD	big science ideas from a unit and engage in the ' of key issues and mate haddens who are need that and will leave men and skilled in teaching in prementing their gas mytici units.
Co-Facilitator: Melanie Turnage Co-Facilitator: Heather Milo Logistics Coordinator: Lauren Church	<ul> <li>(see sample)</li> <li>Host ENABLE simultaneous screen share if needed in small groups</li> <li>If you plan to have participants edit the slides at any point, set the sharing settings to "anyone with the link can edit."</li> <li>Ensure the first slide contains all necessary info (bit.ly to slides, instructions for any asynch, work (remaining in Zoom) and Zoom link)</li> </ul>	Launching a mySci Unit Virtualiy	Teachers will engage in of a mytici unit as learn wirtual environment. To experience tools and so learning studient inter- maling space for perso studient learning in the mytici unit.
	Open Zoom meeting to participants in the waiting room 5-10 min before the official start time. As people arrive:  Host should share screen of first slide at the start time	Strategies for Implementing mySci Virtually (Inst for intensing district)	This sealor provides to an overview of the resSe and receives of the resSe support the backling of initially, instructional si and backling for virtual and learning will also be disc
	Virtual PD Agenda		P

### 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 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

"We appreciate your continued support and thought partnership during COVID19. 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

Learning About the Improvement Science Process A novice team can learn by doing. The crisis forced us to jump in to using improvement science tools and applying principles which accelerated our learning.

- Use principles to guide the work there is no one right way to do it
- wrong, definitely incomplete" mindset • It wasn't comfortable or easy but having a team to lean on helped

Our team adapted the IS tools to fit our needs **and** achieve our aim. This made our work better and more focused, which was desperately needed to guide action during a pandemic.





eedback given from internal practice of virtual PD using Jamboard

Quick and	Norms for breakout	What are the norms		Have designated "bink time" and "respond time" for activities verbal responses and written responses are difficult to do at the same time - LC (MT)			NEXT STEPS: Tech team (Denise and Tori): "best virtual PD
simple activity - bite sized -LC	an improvement! AL	that facilitate using the technology and how do we introduce and support these?	Is there an effective way to do verbal "roadmapping" during a session? -LC	It would be good to have the sentence stems/table tents for discussion visible in the breakout room +1 TE	We were not all back in the main Zoom room when directions were given - be sure people are back (MT)		practice"
Cog-load was fine					0		
for me. I have been up for two hours now (no coffee yet) and don't feel overwhelmed, this	I liked having an easy "intro" activity for	I wonder what this PD would look like in	ls it important to use one consistent tool	Clarity of directions is always important - in	It's difficult to go between various platform. For example, looking at the shared		Tori told us you can make the timer
worked for met - Melanie	those who are still feeling out Jamboard	Google slides	(Jamboard vs. GOogle)? -AL	the breakout rooms it was a little hard to go back to the norms/directions/roles (=1MT)	screen and finding the jamboard and then trying to find the zoom screen again. I didn't get back to see		visible to participants in the Zoom Breakout Rooms (I want to learn how to do this!
					Lauren's grass before you moved on. Add		AL) +ILC!
	Jamboard	-	Can you save what is shared		,		
This was a good example	is cool (+1	Do kids have to have such extensive access to edit slides	in the jamboard to	Task card not on the	I probably would not		Setting up Zoom breakout rooms: you need to be the host
of a student-facing lesson	AL, ME, TE)	in order to do sticky notes? JK	revisit another time? - MT	same page as the breakout room jamboard slide was	have done a whole-groups consensus slide and instead asked Ss to		and there's a difference between random & assigning
	-			confusing +1 TE	use the chat for themes		people to specific rooms
			How do we "lift up the curtain" in a PD when demoing a				
What did you like		What questions	lesson to annotate the cool teacher moves when doing them?		Notes get "lost" behind other notes	What	Some districts reduce the
about this?		do you have?		What would you change about this?	behind other notes if people don't know that they have to move themTE	did you	use of Jamboard
						learn?	

/hite paper written to share our

earning about high-quality virtual PD

esigning effective, high-quality,

with others in our region and beyonc

Connect to the people in your room

• 99% Agrees/Strongly Agrees that they will incorporate what they learned in PD into their

ofessional Jent Menu 2020				
TINE FRAME	Template dev team	Draft Slides	"Clean" Reot Template	Platende
60 minutes asynchronous synchronous Q56 with a myScl specialist	Jeanne (K-5) Jeanne (6-8)	Agindhraneus K-ä slides Arginchraneus 6-8 slides	N.S Template Nil Template	Hello and WELCOME to mySci PD! We will begin promptly at TIME.
60-60 Eve minutes	Jeanne (K-S) Jeanne (6-8)	Unit 21 draft Init 13 draft regime Re mainles stridy part of school of the Research or References or Stride or References of the scing	K.S Template Ed Template	In the meantime, please: <ol> <li>Access the slides at: <u>TINYURLHERE</u></li> <li>Read slides 3-9 for important instructions and an overview o our time together.</li> </ol>
60-60 Eve minutes	Jeanne (K-S) Heather (6-8)	Mod II oldes Jambsond VI and Jambsond VI x2 ± notice wonder, chart in K Unit 21, draft Unit 23, draft	K-5 template S-8 Stroplate	In the event that you: internet connection is disrupted, click this Zoom Link to get back into the PD session.
60-80 live minutes - asynchronous took??	Tori (H 6)	Daik	KeS Tamplatin Kanisplea Litti serk with units from lawsh with go with what poor le mare conducatio	
Menu				Slides Template

# Key Learnings

### Supporting our partners during a crisis looked different for different partners.

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

• Adopt a learning orientation - know enough to get started and embrace the "possibly"