

3A. Learning from Variation: A Case-Based Approach

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Advancement of Teaching

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Foundation

The livestream session will
begin shortly.



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This session will be recorded.



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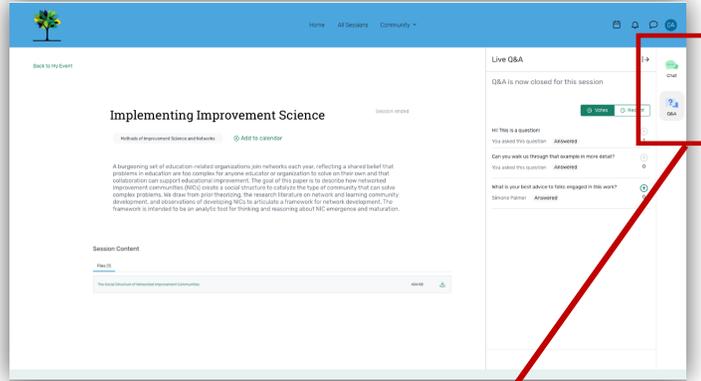


Summit Community Norms for this Moment

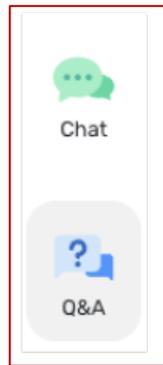
- Keep your mask on indoors (unless presenting)
- Try to eat or drink outside, when you can
- Feel free to stay, go, or move when you need to
- Ask first before borrowing, sharing, or elbow-bumping
- Approach colleagues and friends with patience and kindness
- Honor the buttons: give red space, yield to yellow, and hug green



Remote Attendees:



Chat is a great place to exchange ideas and drop a comment.

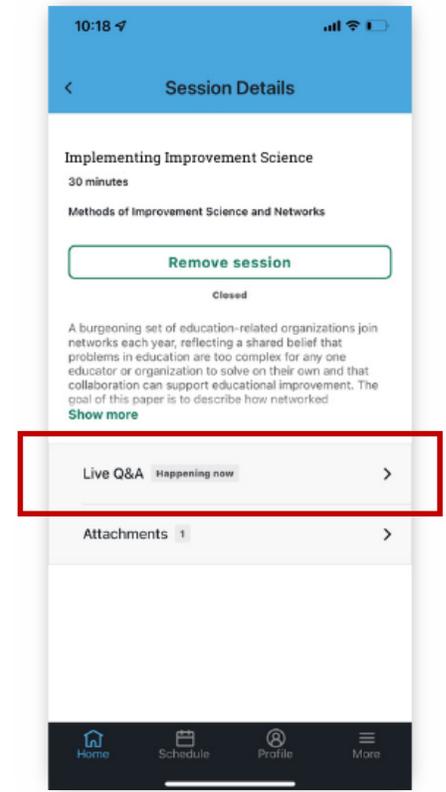


Click on the Q&A icon to ask your questions.

If you see a question you like on the list, click on the up arrow to up vote it!

In-Person Attendees:

After adding the session to your schedule...





Carnegie Foundation
for the Advancement of Teaching

3A. Learning from Variation

A case-based approach

3/28/22



Laila Sarah
Project Director,
Arizona Meta Network



Brandon Bennett
Improvement Advisor,
ISC
and Senior Fellow,
CFAT



The Meta Network is focused on increasing well-matched postsecondary enrollment rates* for Black, Latino and low-income students.

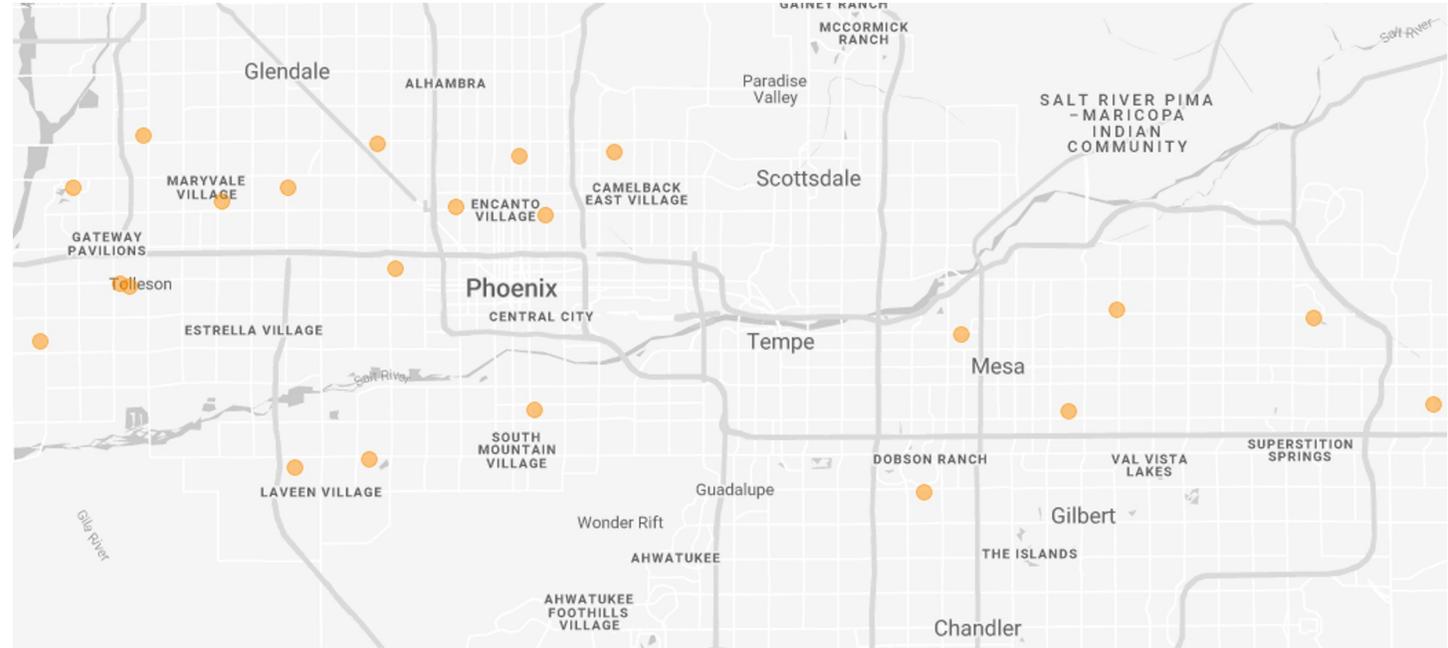
We believe talent and opportunity should not be defined by an individual's zip code. We strive to adopt equitable practices to ensure that postsecondary participation rates reflect the diversity of our state.

*Measures

students enroll in a post-secondary institution the fall after HS
(# student enroll 50% + grade rate)

The Network

- Network of 24 Arizona high schools (across 3 districts) serving over **12,000 seniors**
- 66% Latino
- 8% Black
- 67% Low-Income



6 High Schools



11 High Schools



7 High Schools

Our Journey



Launch!



What is the variation in FAFSA rates?

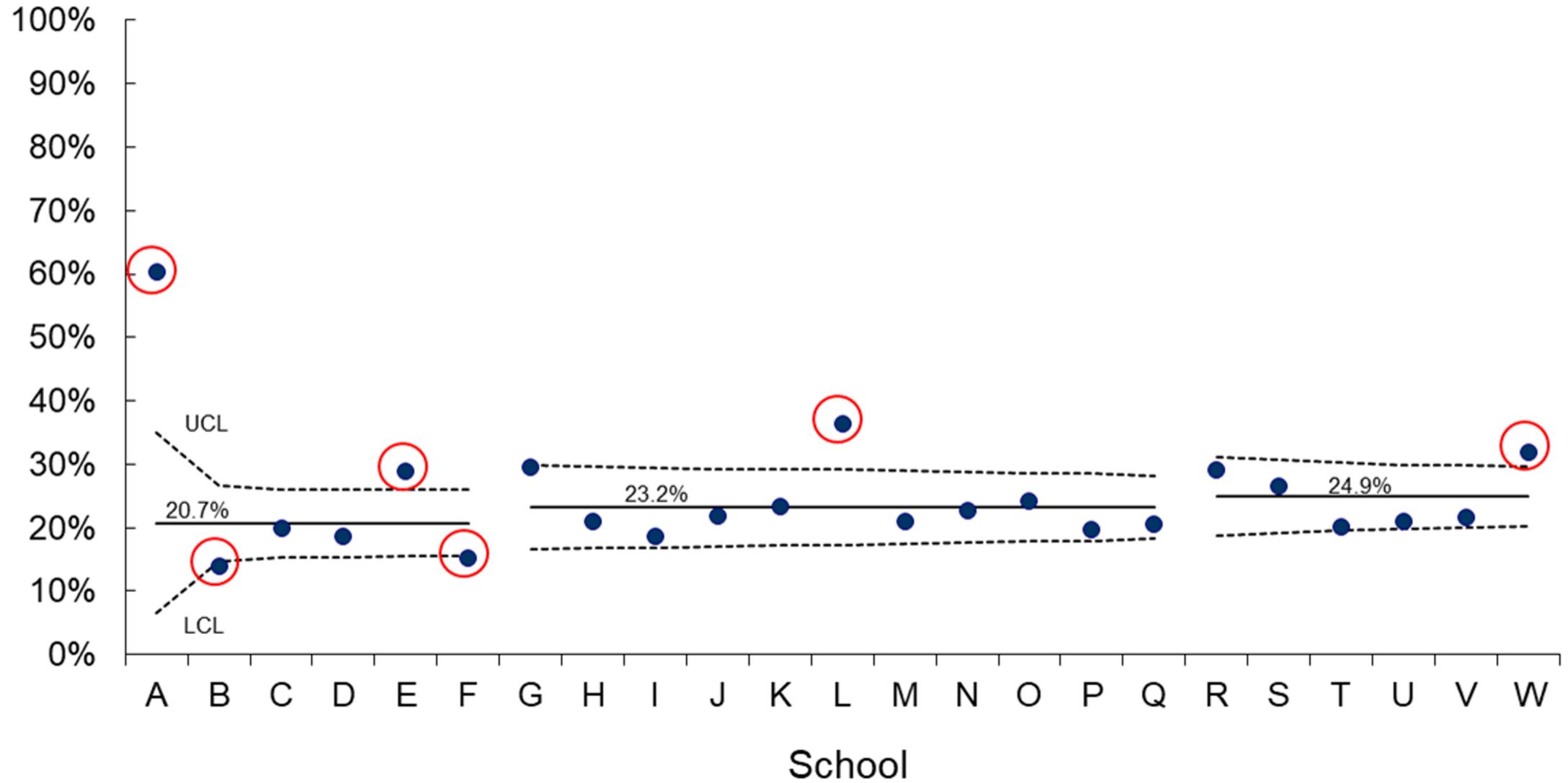
Arizona's Class of 2021
missed out on
\$104,475,997 in Pell
Grants

NCAN Report: \$3.75 Billion
in Pell Grants Goes
Unclaimed for High School
Class of 2021

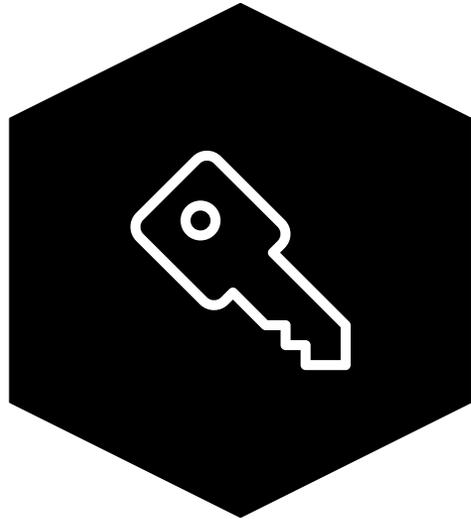
National College Attainment
Network, 1/24/22



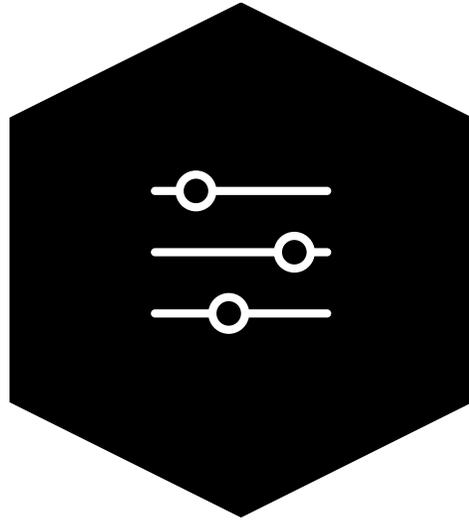
Percent FAFSA completion by December 2020 P Chart



OVERVIEW



Identify key metric.



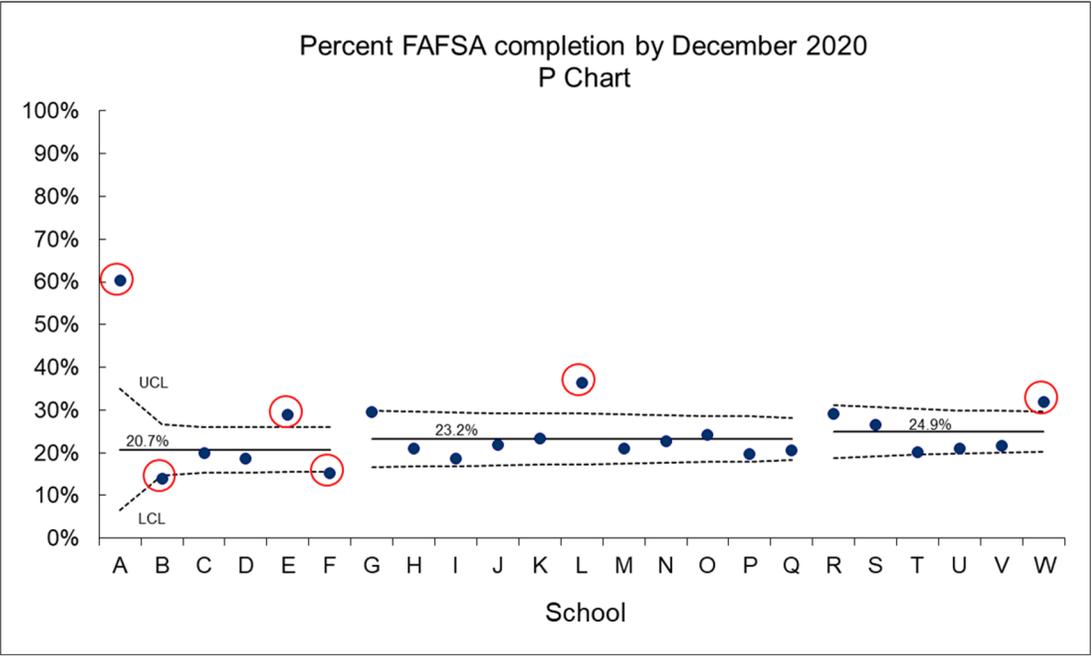
Analyze current performance (variation)



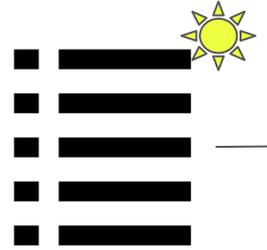
GO AND SEE to generate hypotheses



Test in a broader set of contexts



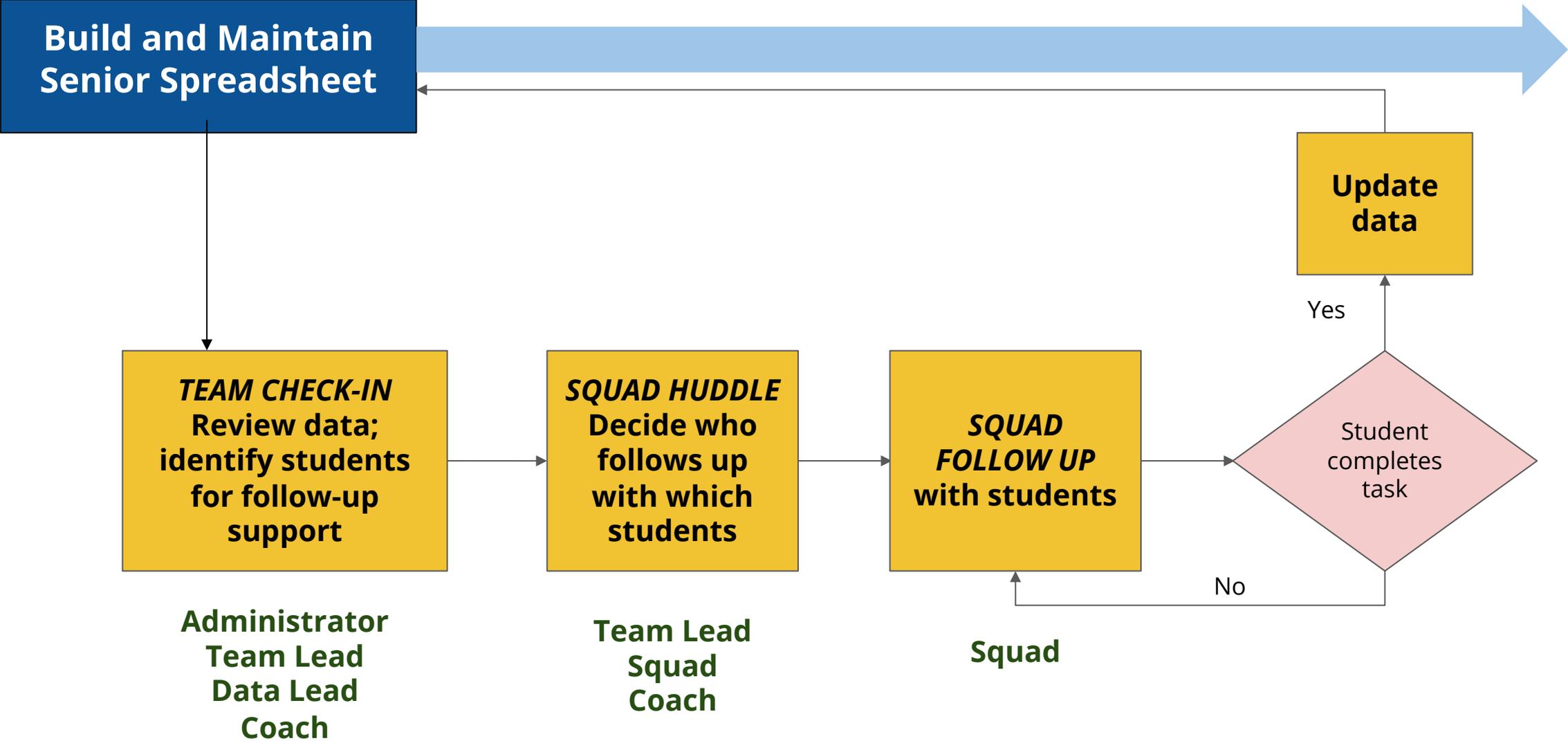
Interviews Round 1



Interviews Round 2



Data Routine to Spread



Our Journey



MAY
2020

MAY
2021

MAY
2022

Launch!



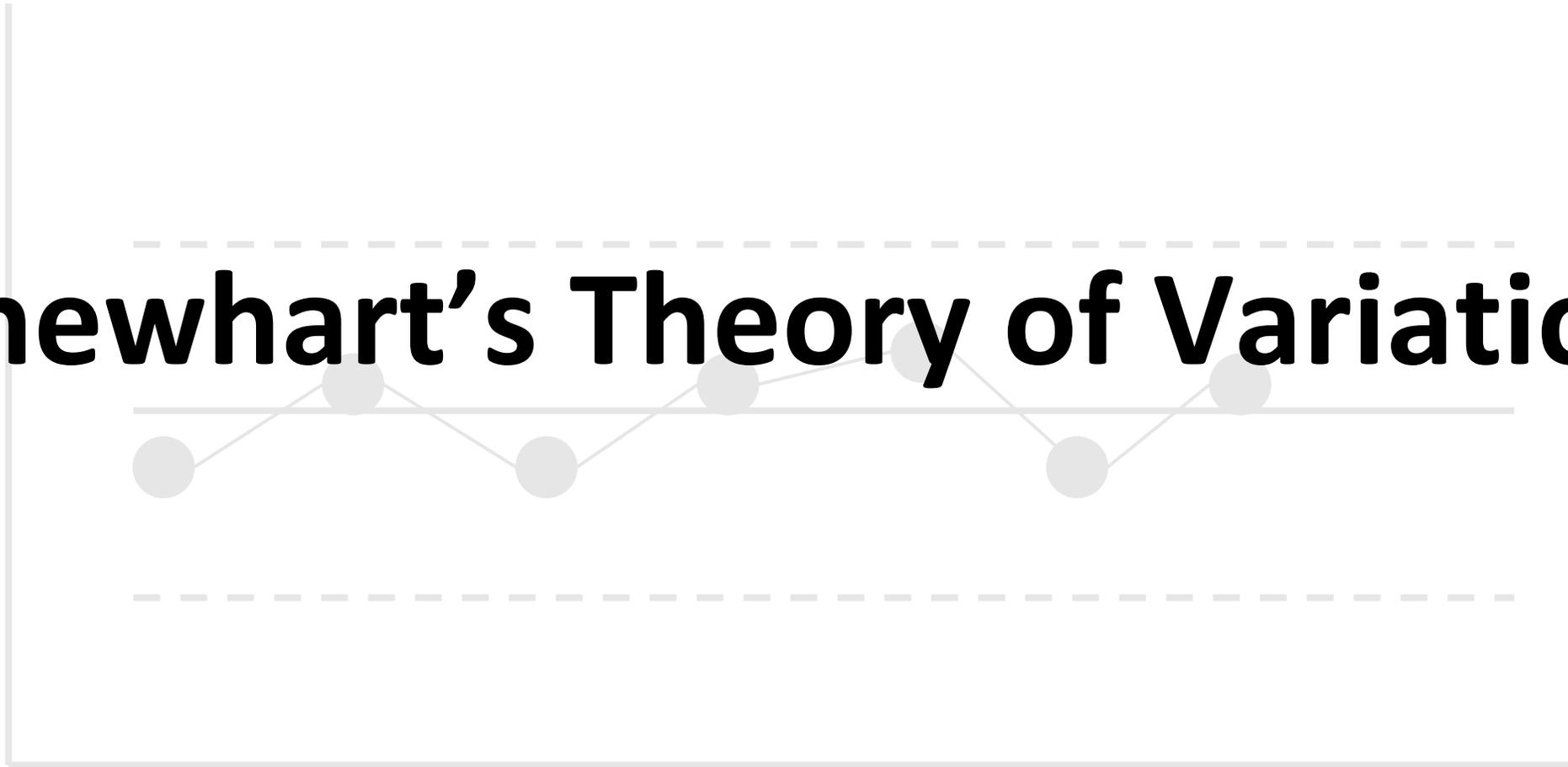
Spread
Data
Routine!

Questions connected to the Arizona Meta Network?

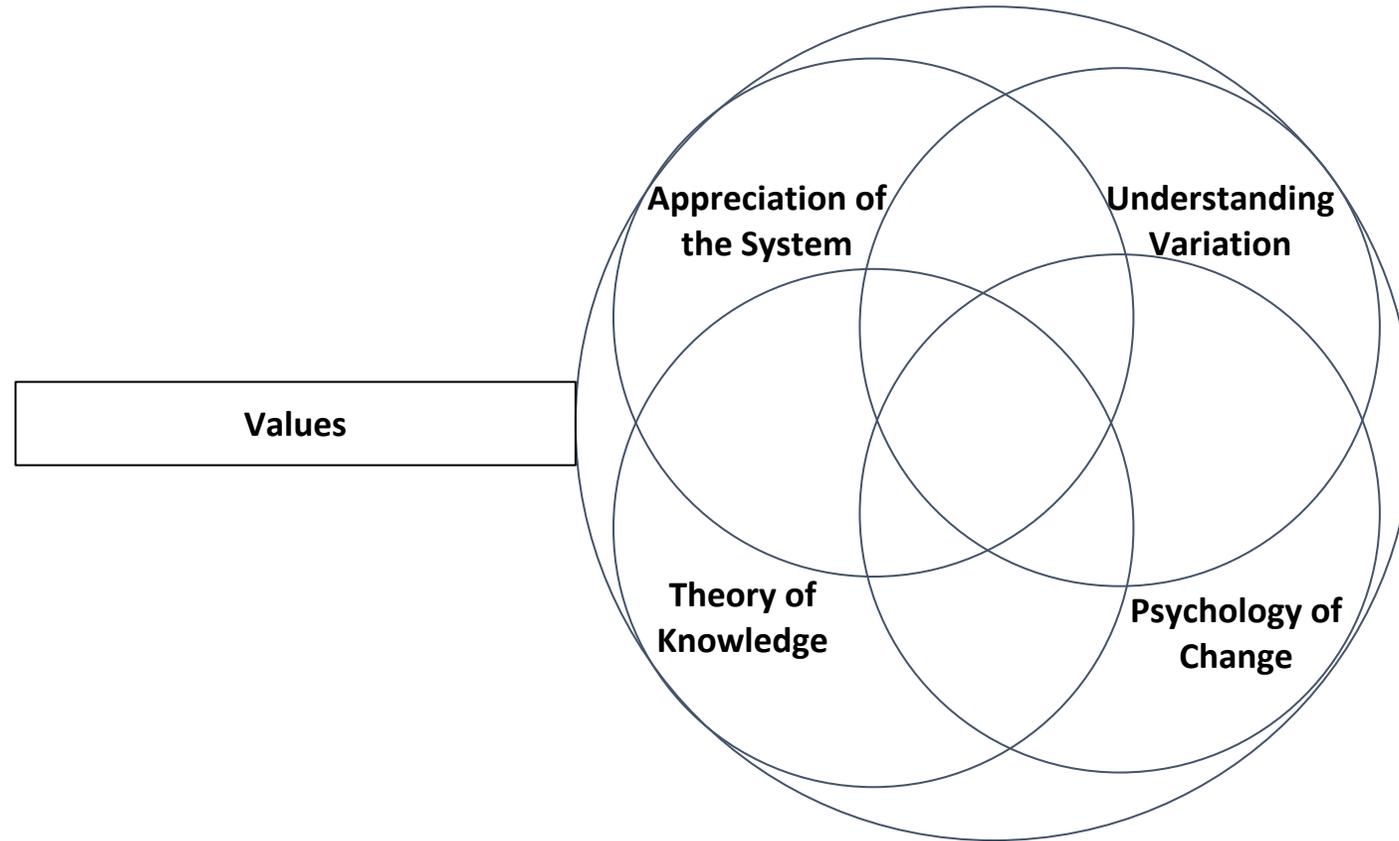
Speak them out

Chat them in the event app Q & A

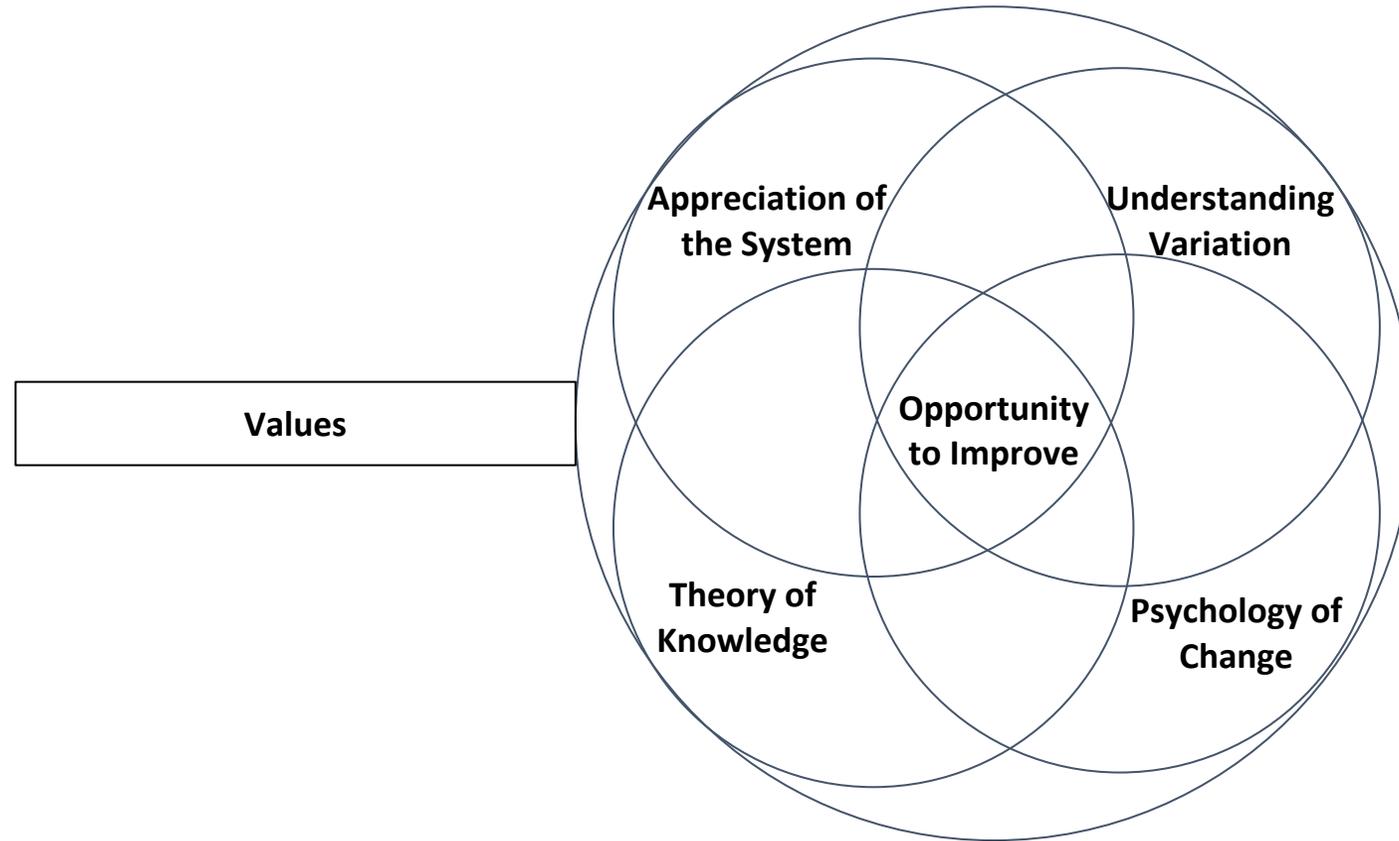
Shewhart's Theory of Variation



What does improvement of systems require?



What does improvement of systems require?



Four things leader want to know

Is my system stable?

- If it is stable, it is predictable, making management easier

What needs improvement?

- Leaders understand they can't work on everything

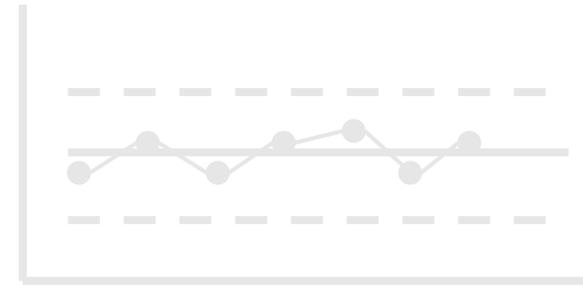
Where is improvement needed in my system?

- Leaders understand they can't work everywhere

Are there any parts of my system working particularly well or poorly?

- Leaders understand variation exists

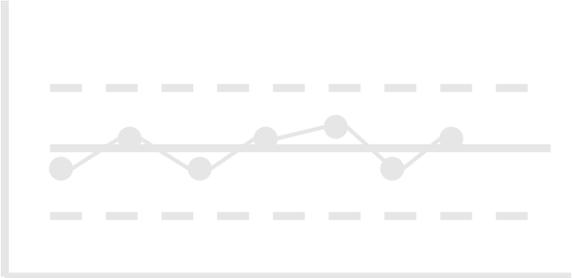
Shewhart's Theory of Variation



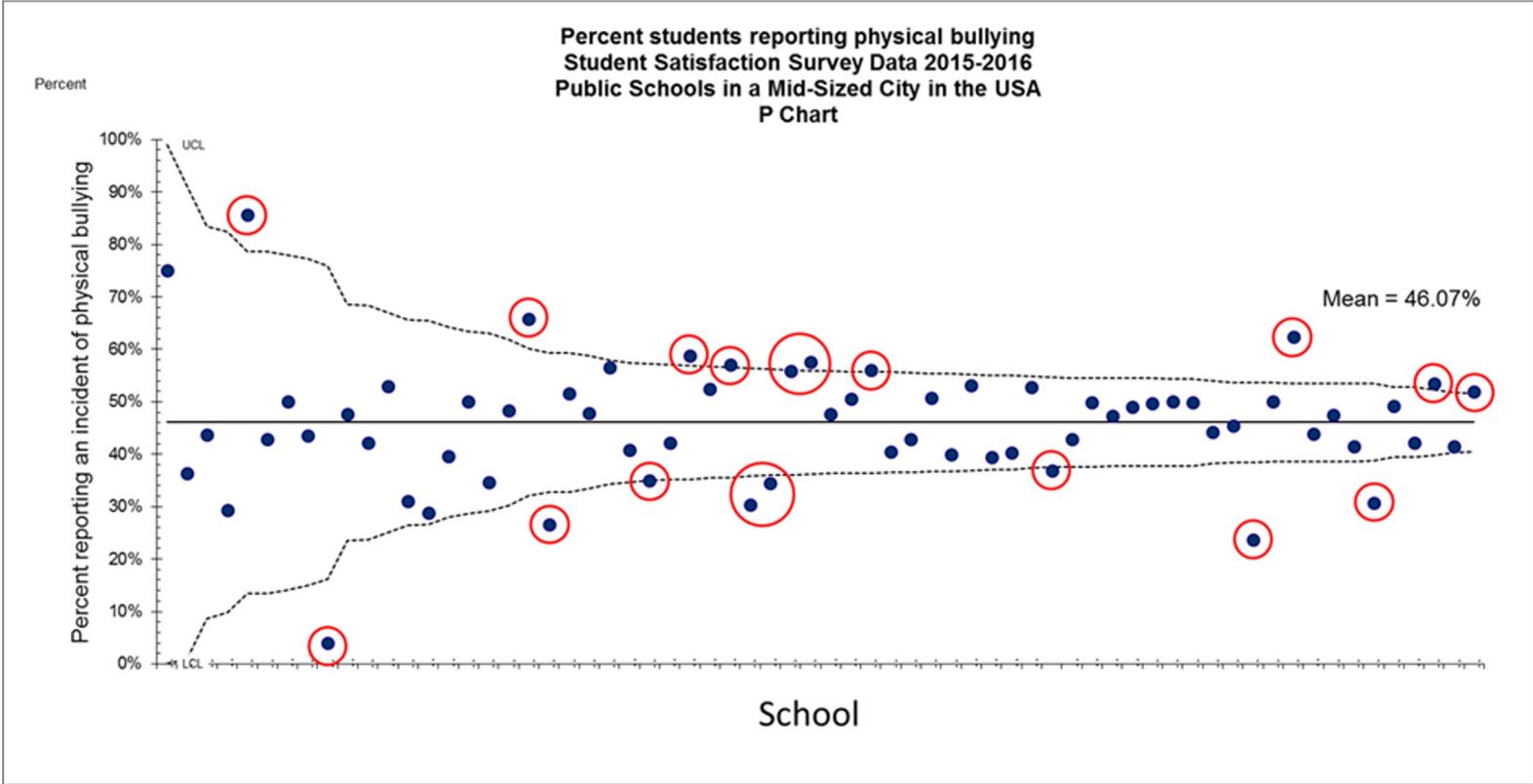
Two reasons (or causes) of variation

1. Common Causes - those causes inherent in the system over time, affecting everyone in the system and affecting all outcomes of the system.
1. Special Causes - those causes not part of the system, which do not affect everyone, but arise because of specific circumstance.

Shewhart Charts



A statistical tool used to distinguish between common and special cause variation in a measure of interest



Distinguishing Features:

- 1) Data points
- 2) Center Line
- 3) Upper and Lower Control Limits

Mistakes leaders of systems make

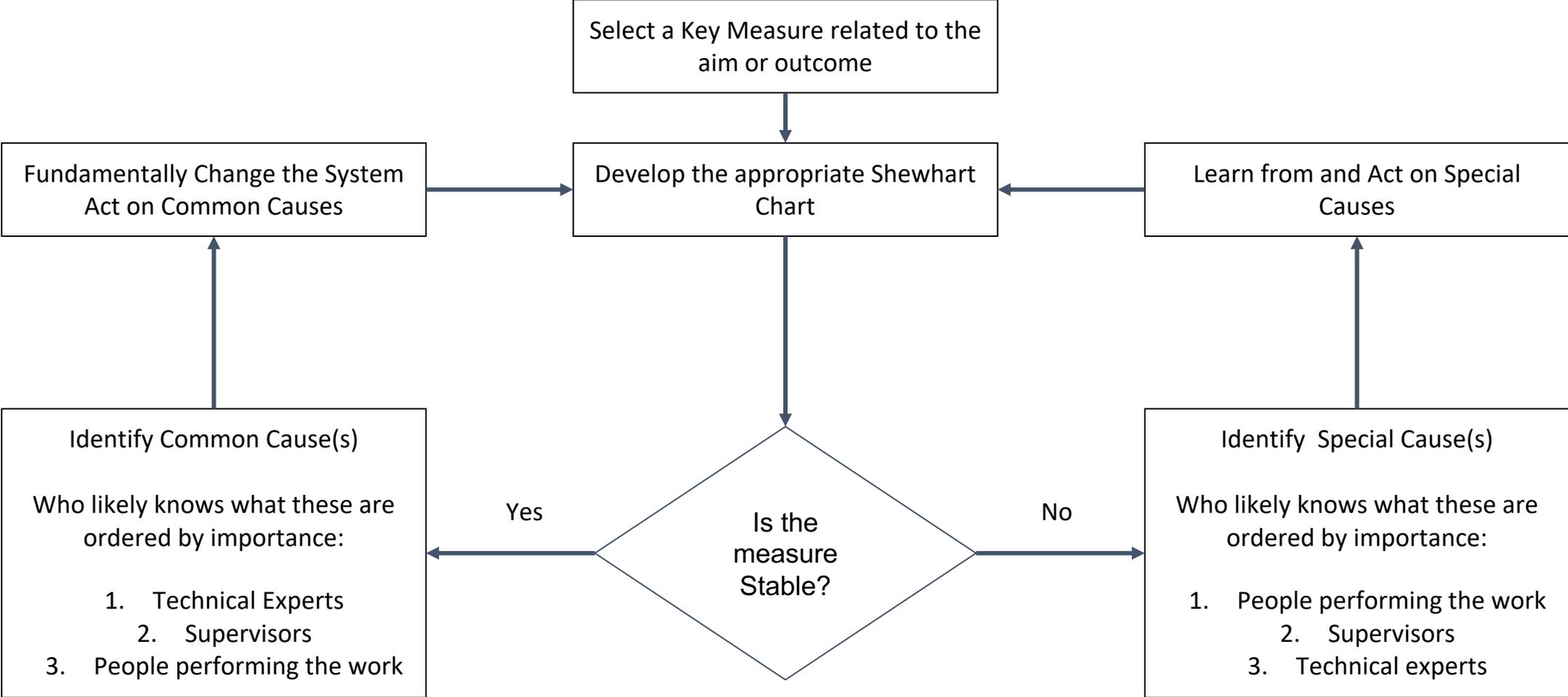
Mistake 1:

Taking action on something believed to be extraordinary when it is in fact ordinary

Mistake 2:

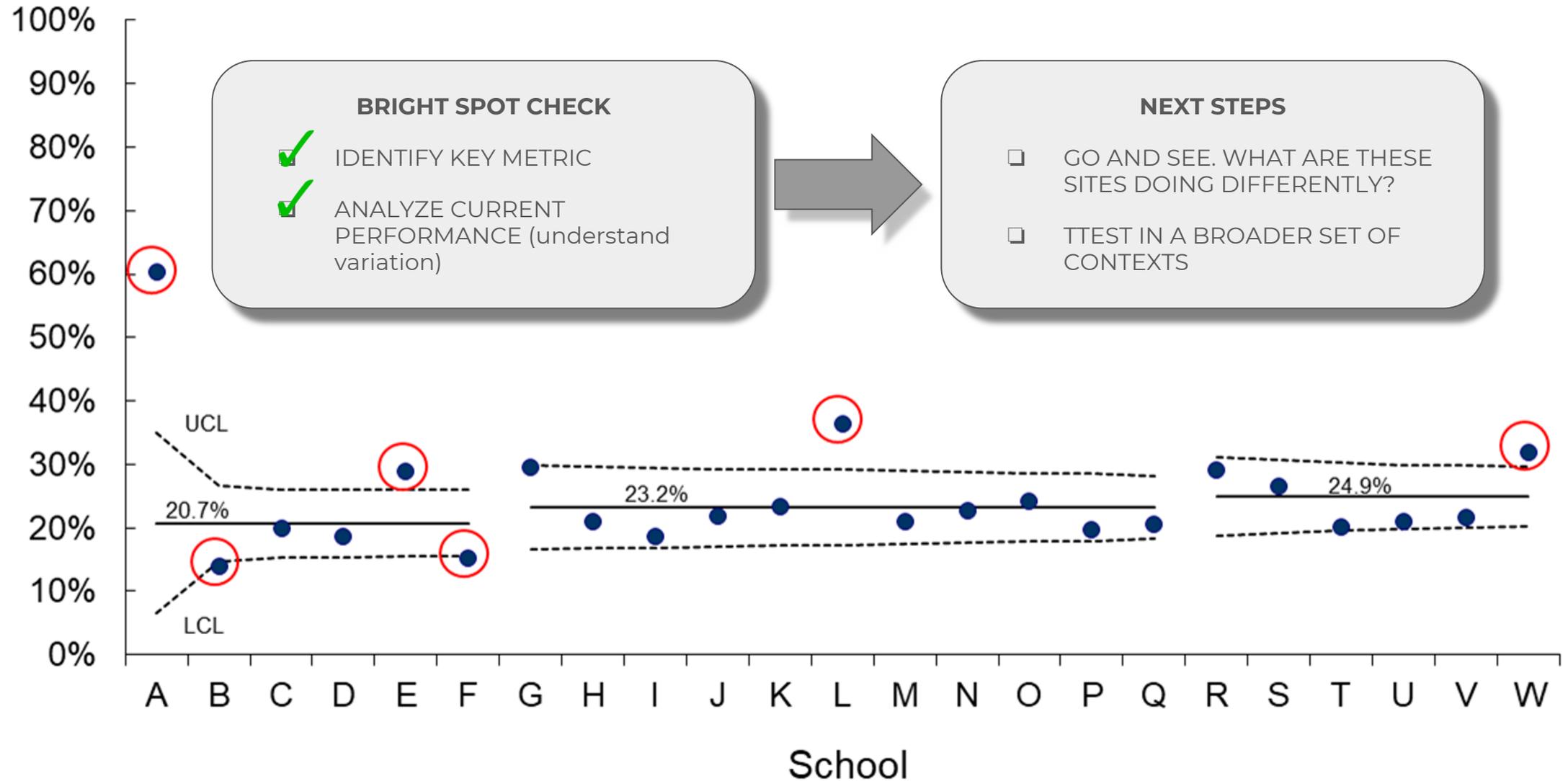
Failing to act on the extraordinary believing it is ordinary

What actions should leaders take to avoid making mistakes?



Percent FAFSA completion by December 2020

P Chart





Specialized Academic Instruction

Mid-sized City in California



Background

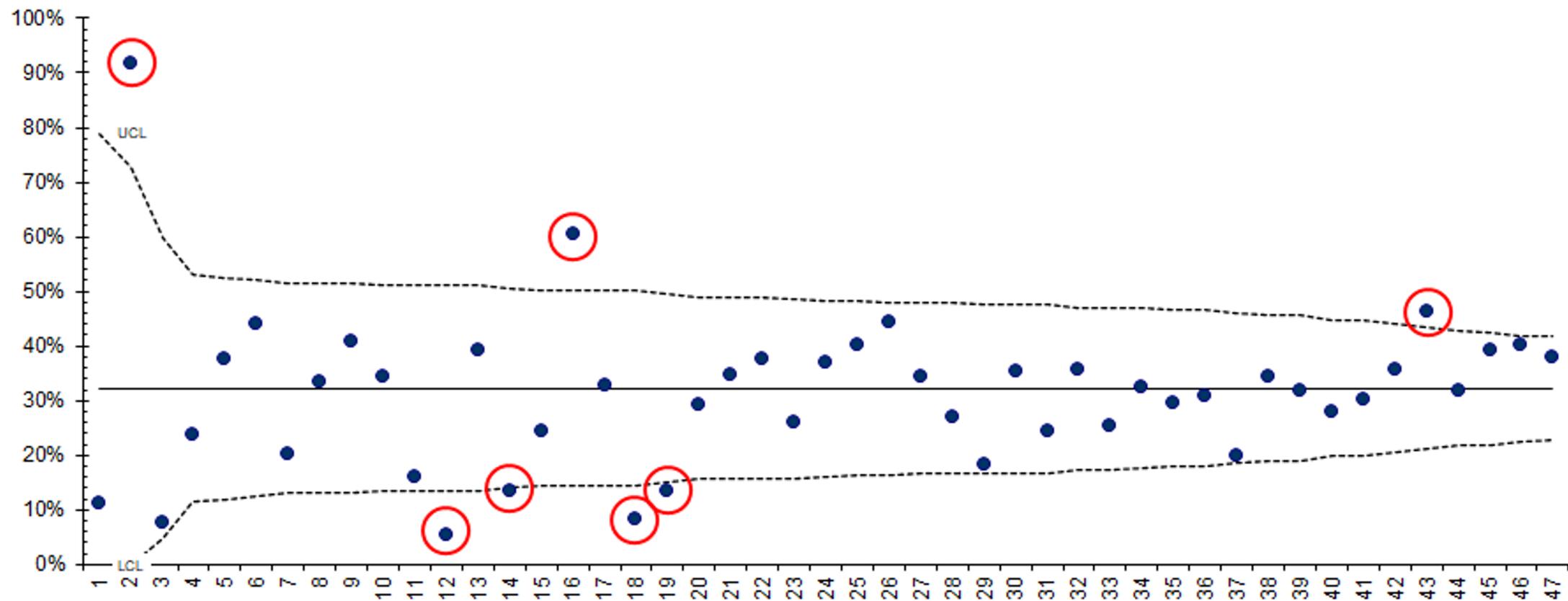
A mid-sized school district in the United States was interested in understanding their data on the Amount of Specialized Academic Instruction (SAI) time students were receiving. They suspected students were out of the classroom more than 40% of their instructional day.

If that were true then they felt like they needed to get involved and make some changes to decrease minutes of SAI

1800 min of instruction per week is common (40% = 720 min)

Overall % of Student <40% in Regular Class P Chart

Percent



Learning Questions

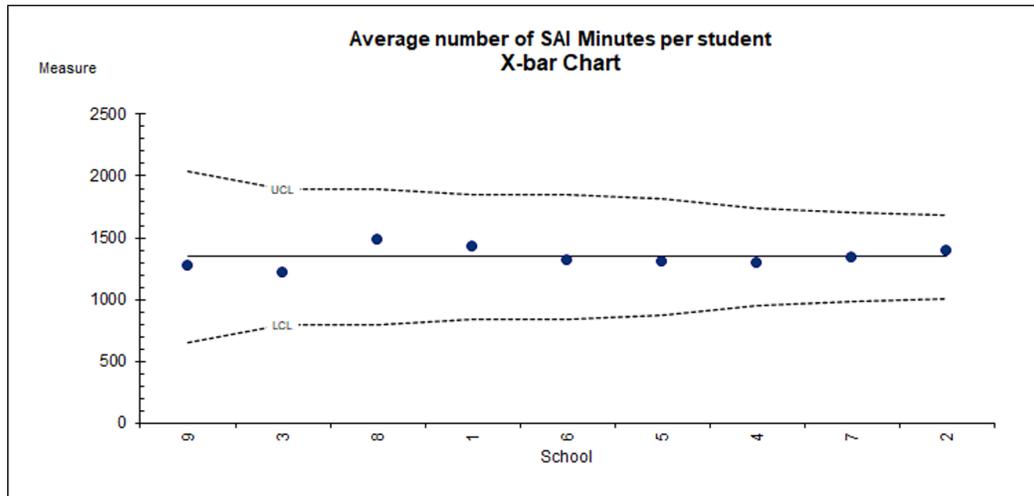
How much time do students spend in SAI?

Does this differ depending on their school?

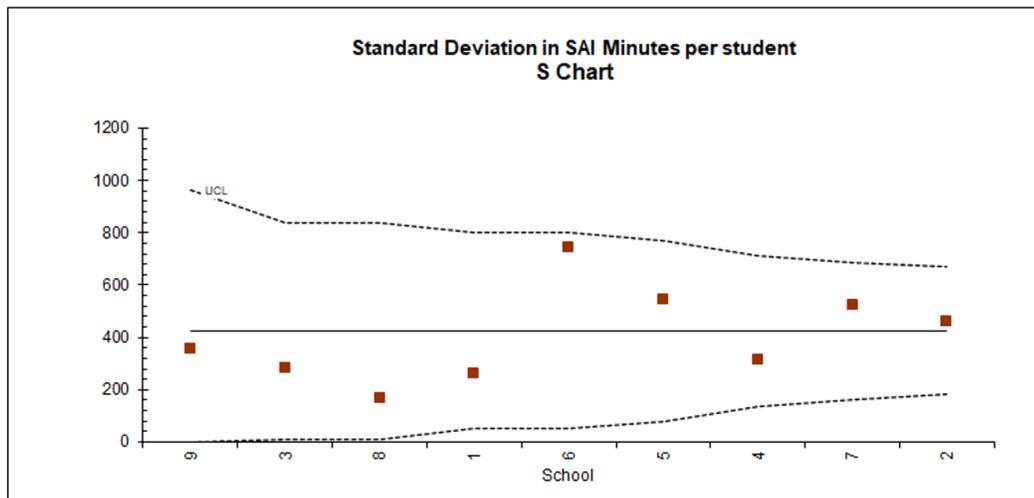
Does this differ depending on their case manager?

Does this differ depending on their age?

What is the average amount of time students are experiencing SAI?



Average and Standard Deviation provide insight into what we can expect from the district system

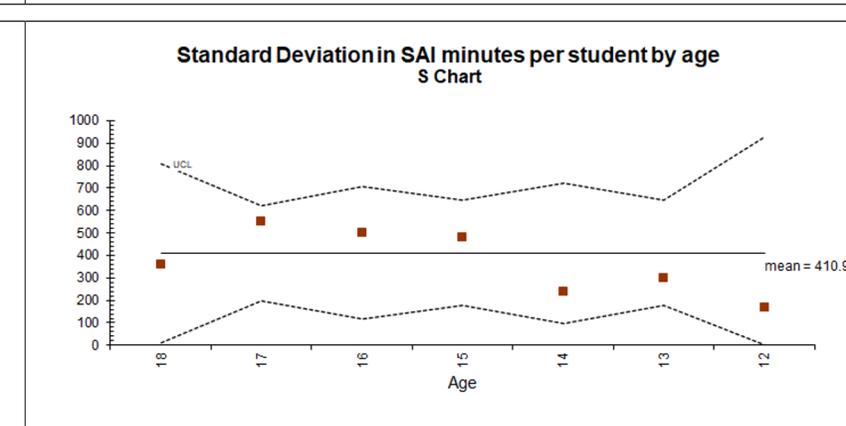
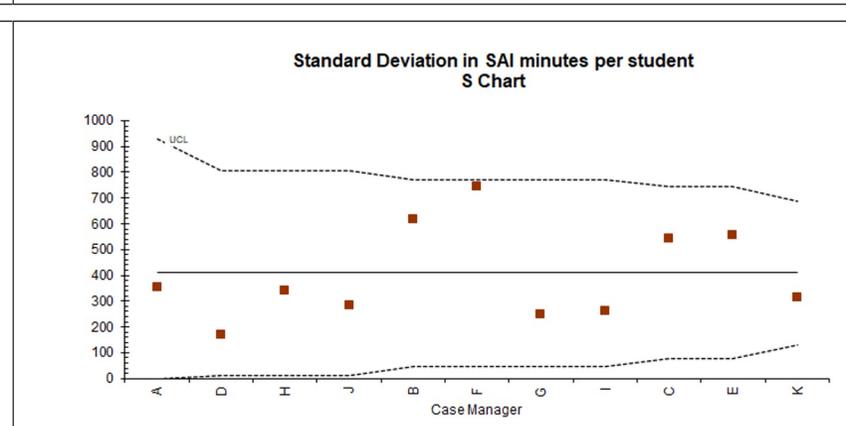
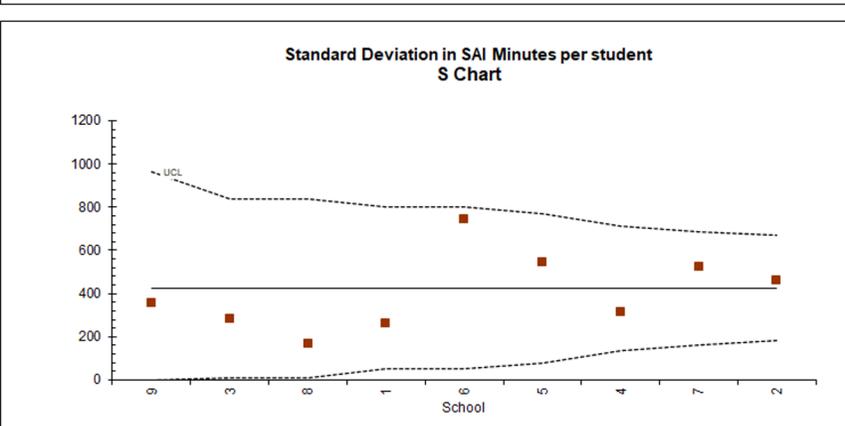
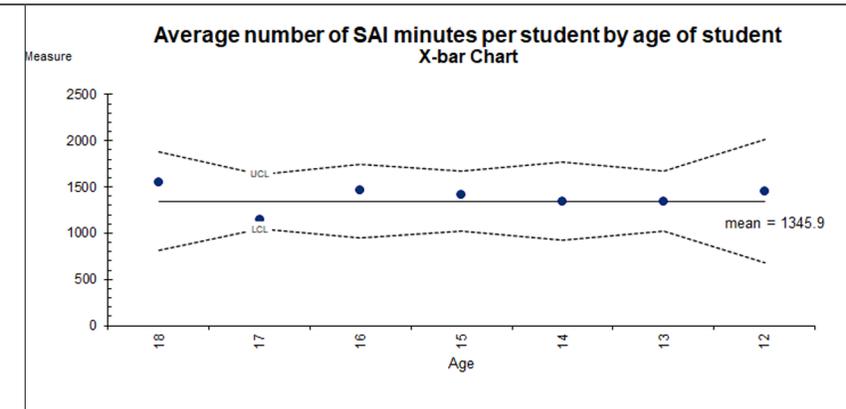
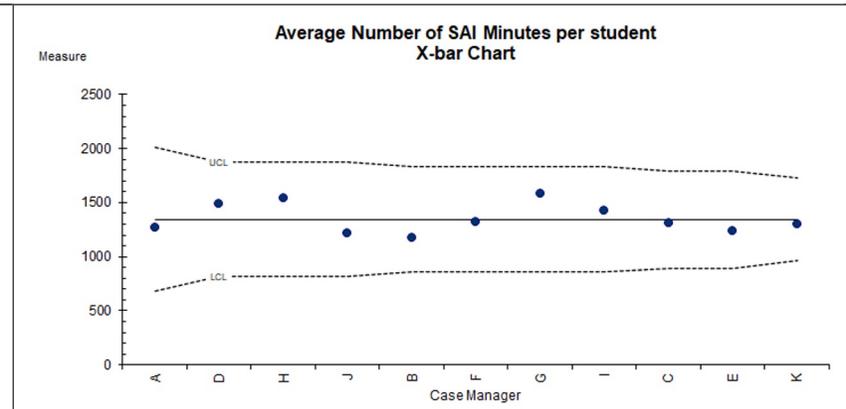
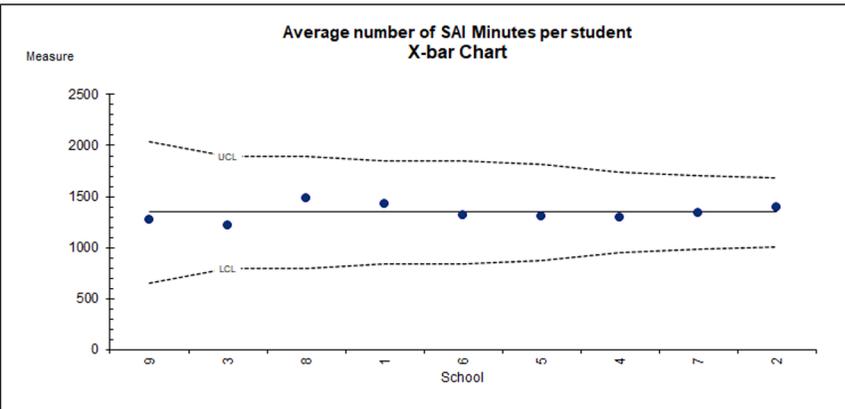


Observed only common cause variation

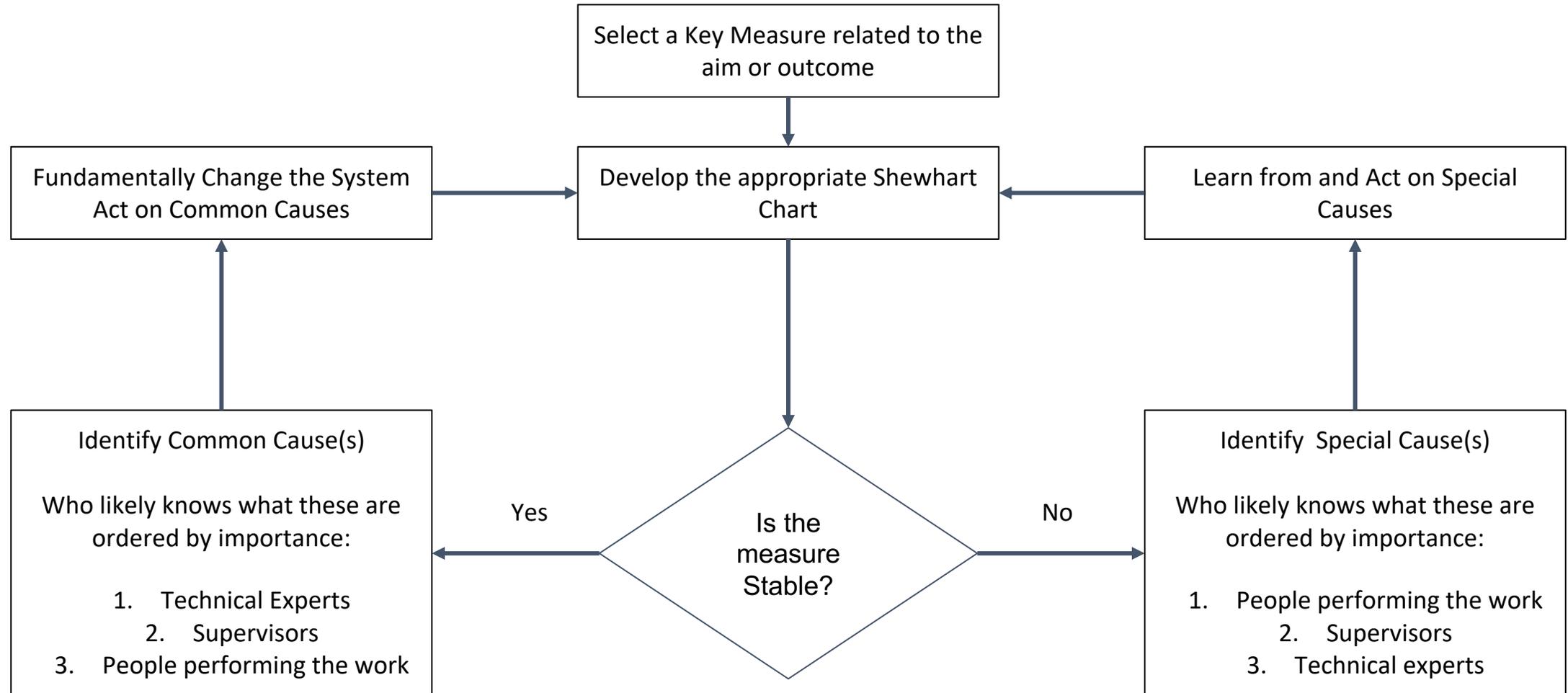
Average time in SAI by School

Average time in SAI by Case Manager

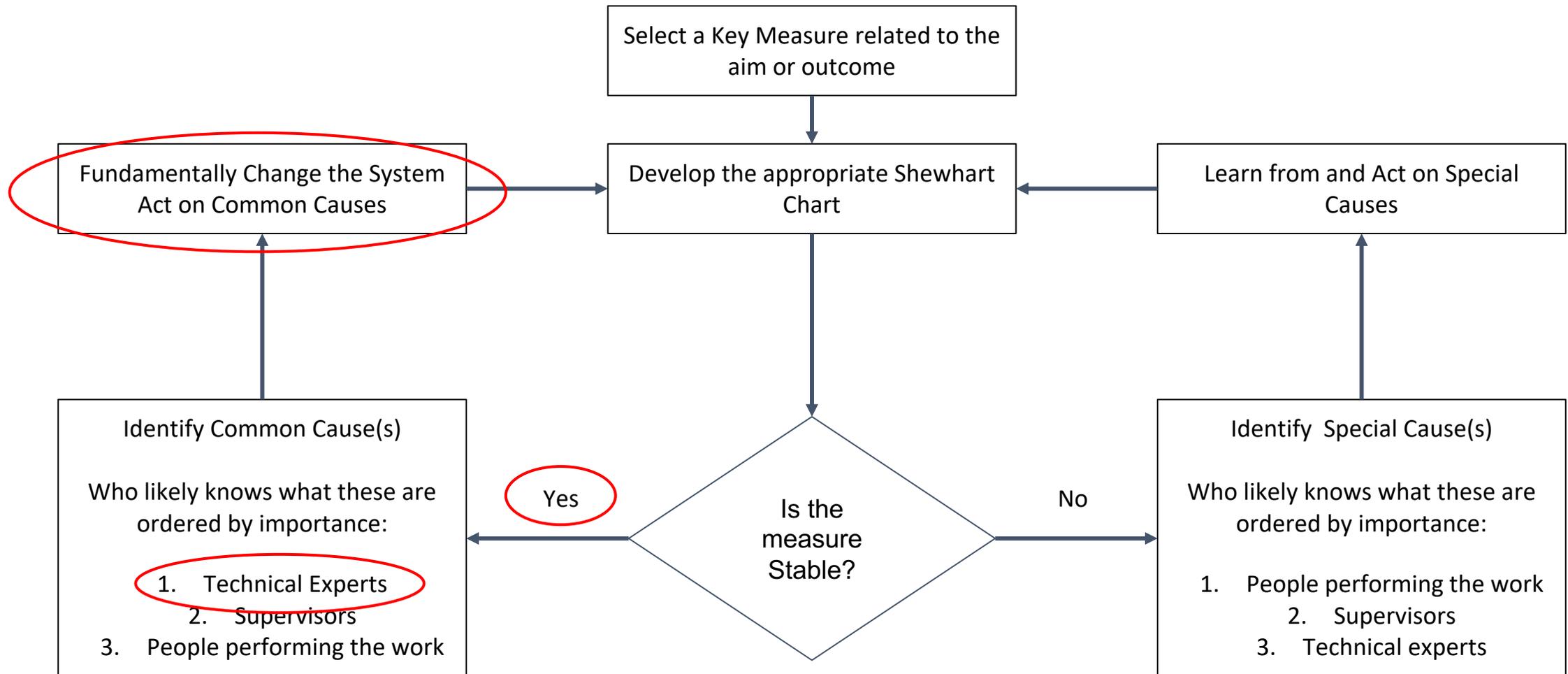
Average time in SAI by Age of Student



Discussion: What improvement approach should the leaders of this system do to reduce SAI time?



Discussion: What improvement approach should the leaders of this system do to reduce SAI time?



Discussion:

Where do you see opportunities to apply Shewhart's theory of variation in your system?



QUESTIONS

Where to learn more:

Examples of use in practice from many industries:

[Understanding Variation](#)

[Understanding Variation: 26 Years Later](#)

Exploring the application of Shewhart's Theory in a complex system:

[Controlling Variation in Health Care: A consultation from Walter Shewhart](#)

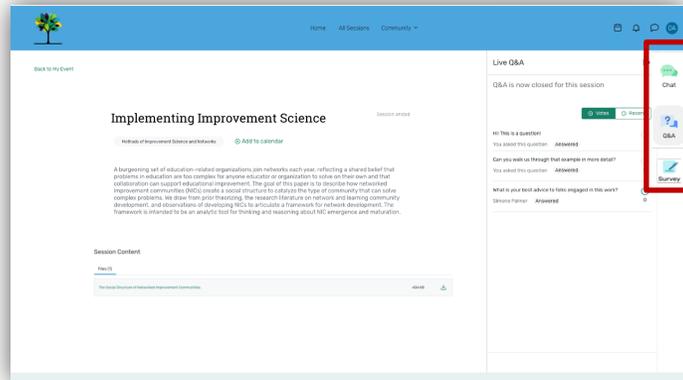
Exploring the statistics of when to use what:

[On probability as a basis for action](#)

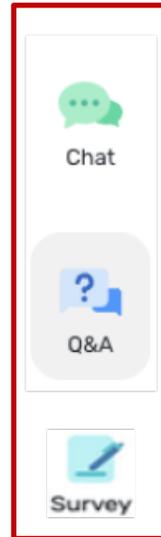
[Analytical studies: a framework for quality improvement design and analysis](#)

HELP US IMPROVE!

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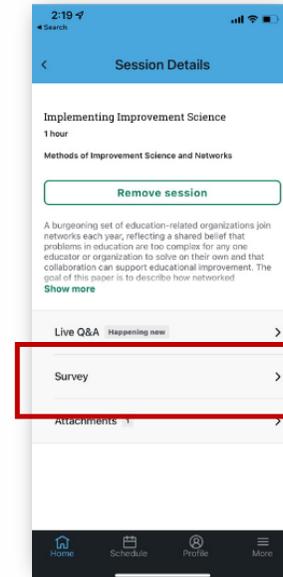


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...and then select **Survey** to answer 4 short questions.