

Data Dialogues:
Using data distributions to find and
strategize around achievement gaps

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Key ideas

Big challenge: seeing all the data in one place

Trends and patterns come from looking at aggregate longitudinal data, not just single scores/snapshots

Real life is messy and variable - distributions allow us to see variation in data

Use guided dialogues to help propel conversations and avoid getting stuck on details or preconceived ideas

Accessing data

SIS/LMS Data

Demographics; Grades; Attendance; Behavior

Assessment Data (local and state)

ALL digital data is stored in databases and accessible in spreadsheet form - the trick is finding the right contact to help you access it

Now What??

What do you do with the data once you gather it?

CLEAN

VISUALIZE

Tools:

Excel, Google sheets, Tableau/Looker/Mode, R, python, data warehouse and analytics software

Distributions

Pitfalls with using mean: one or two high/low outliers can skew interpretation

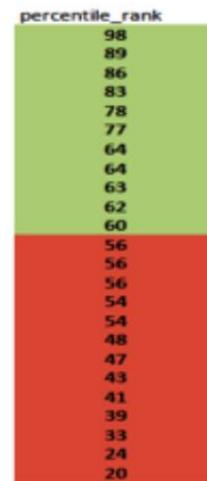
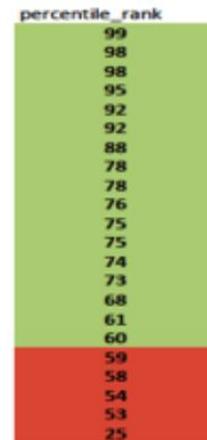
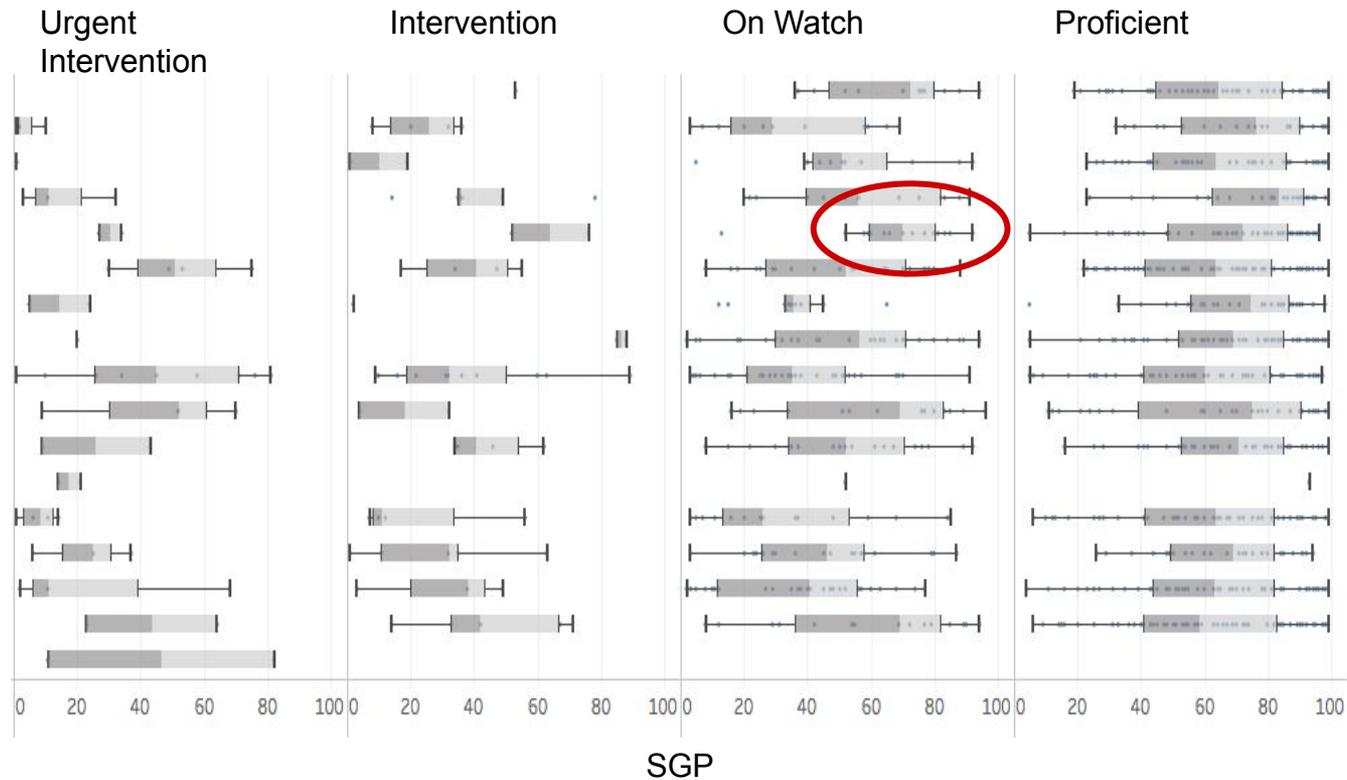
Pitfalls with using median: know that $\frac{1}{2}$ above and $\frac{1}{2}$ below, but what is the spread around the middle value?

Aggregations are used to establish benchmarks and make decisions, but there is ALWAYS variation -- it is necessary to acknowledge/consider to avoid making conclusions based on incorrect assumptions

Why do distributions matter?

Looking at distributions lets you ask:

- Who are the children in the tails?
- Who is in the middle?
- Is the instruction received across the distribution equitable?
- What drivers are in our control?
- How can we use awareness of external (uncontrollable) drivers to help make decisions?



Guided Dialogue

Dialogue = an exchange of ideas and opinions

30000' View

District level (removes defenses -- these are ALL our kids)

Cohort trajectories allow view of vertical patterns (grade to grade) and consistent challenges (not just one group of students)

Mixed discussion groups of district and building administrators allows for diverse perspectives and insights

The most constructive conversations come from seeing top-down trends and brainstorming causes from bottom-up knowledge

Guided Dialogue Steps

Step 1: Predictions

Step 2: Observations

Step 3: Inference

Step 4: Action

Guided Dialogue: STEP 1

Predictions -talk through expectations prior to seeing data

Rationale: Gets preconceived ideas out on the table, opportunity to voice fears, allows a place for anecdotal information

Questions:

- What are your expectations/assumptions around the data in question?
- Who do you expect will be the high-fliers? The most challenged?
- What assumptions do you have about known/returning students? What about new/transition grade students?

Guided Dialogue: STEP 2

Observations - look at patterns and see whether they confirm or contradict expectations. DO NOT use the word 'because' yet -- only making observations on what the data show

Rationale: Observe opportunities/challenges, surprises AND celebrations

Questions:

- What patterns and trends do you see?
- What challenges/obstacles do you see in the data?
- What strengths/celebrations do you see in the data?
- Are there surprises? How do the data differ from your predictions/expectations?
- What new questions surface as you look at the data?

Guided Dialogue: STEP 3

Inferences - what might explain the data

Rationale: Analysis of data -- NOW you can use 'because'

Questions:

- What hypotheses might explain what we see in the data?
- How would we test our inference(s)?
- What other information might we need to confirm/investigate our hypotheses?
- What are possible solutions to implement to address the needs seen in the data?

Guided Dialogue: STEP 4

Actions - So what do we DO with the data?

Questions:

- What top three actions can be implemented AND MEASURED to move the needle

Practice

4th grade NAEP Reading data from 2011 - 2019

MT compared with US

Lunch program eligibility comparison in MT and US

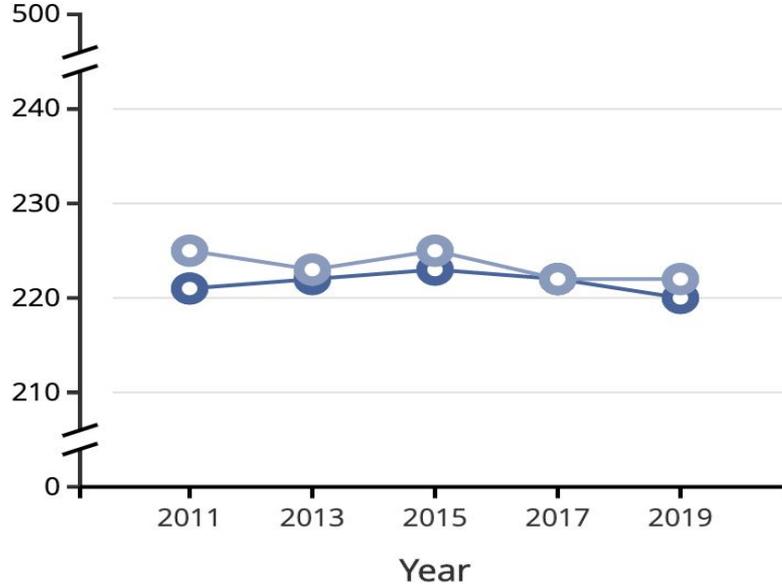
Predictions ...

Observations ...

Inferences ...

Average Scaled Scores: 4th grade NAEP Reading

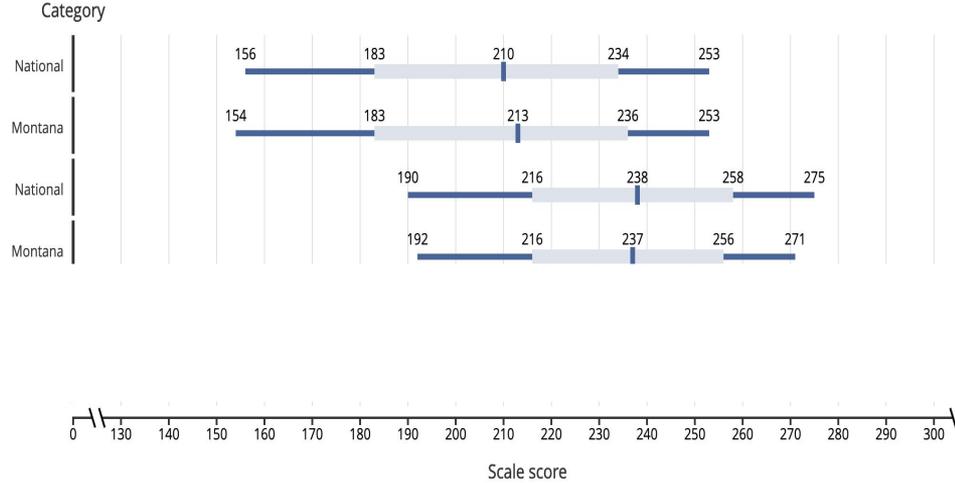
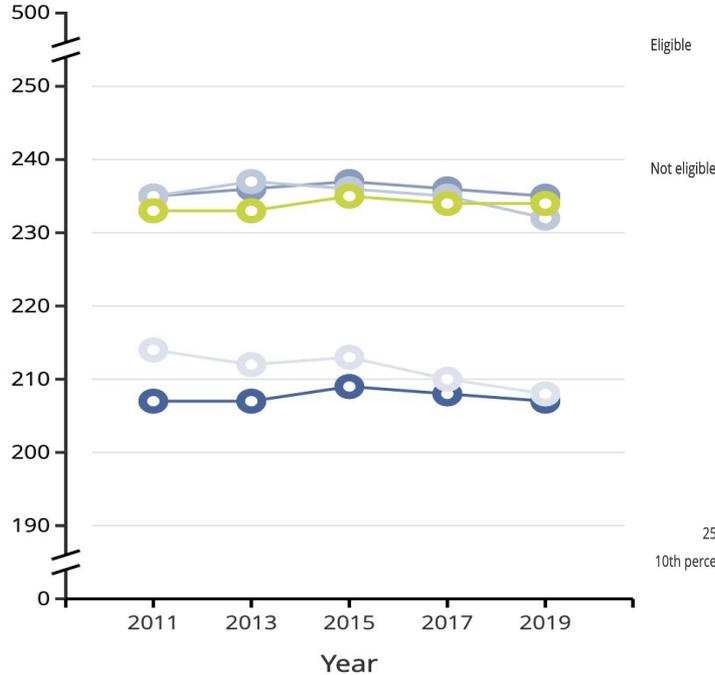
Average scale scores



● National ● Montana

Average Scaled Scores: 4th grade NAEP Reading

Average scale scores



2019 data

- National | Eligible
- National | Not eligible
- National | Information not available
- Montana | Eligible
- Montana | Not eligible
- Montana | Information not available ‡

Conclusions

Take time to figure out where your data is coming from and how to access it

Find tools that work for you

Remember to look at ALL the data, not just aggregations

Data-informed decisions come from having conversations about data

Structured dialogues can help start productive conversations about data

Sources:

https://schoolreforminitiative.org/doc/data_driven_dialogue.pdf

https://ncs.uchicago.edu/sites/ncs.uchicago.edu/files/uploads/tools/NCS_FOT_Toolkit_ISBT_SetB_Wagon%20Wheel%20Tool.pdf

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