

Activity: Build Your Own Visualization

Instructions

In groups, design and build a visualization in Excel that responds to one of the scenarios below using provided dummy data. There is no right choice for either scenario, and you are encouraged to think creatively about how you can represent the data. Use the pre-build questions and the chart chooser to help guide your design. After finishing, discuss the post-build questions in groups and be prepared to share your visualization.

Context

The Personnel Development Program (PDP), authorized by the Individuals with Disabilities Education Act (IDEA), is a Federal program managed at the Office of Special Education Programs aimed at increasing the supply of qualified personnel in the field of special education. This program awards competitive grants to Institutions of Higher Education to support scholars who are preparing to provide special education and related services to children and youth with disabilities. Scholars who receive funding agree to work in the field of special education or related services for two years for each year of support they receive. In the following scenarios, we profile a hypothetical PDP's use of data collected on these scholars. These fake data were created for learning purposes and do not reflect any real PDP outcomes.

Scenario A

The PDP is interested in change in educator use of evidence-based practices for students with disabilities before and after PDP participation. The PDP has data from observations of educator practice that rate implementation of best practices on a scale of 1 to 5 for each practice area, and the PDP would like to be able to compare change in the average of those scores before and after PDP participation.

Scenario B

The PDP is interested in learning more about where scholars who completed their program ended up. They would like to visualize the makeup of program completers by district and by professional position within each school district.

Pre-Build Questions



Research Question

- What are the outcomes of interest?
- What are the key comparisons?



Data

- What variables are needed?
- How should the data be structured?



Audience

- Who is the audience for this visualization?
- What is their level of understanding?



Tools

- What software is available to make this visualization?

Post-Build Questions



Interpretation

- What is the immediate takeaway from this visualization?
- What are any secondary takeaways from this visualization?
- What, if anything, could be confusing or unclear about this visualization?



Inquiry

- Does this visualization provoke any new questions?
- Could this visualization be extended to answer those questions?
- If not, what additional visualizations could be used to answer those questions?

Chart Chooser

COMPOSITION

What groups make up the whole? How do group sizes compare to each other and the whole?



DONUT CHART

Compare sizes of up to 5 groups to the size of the whole



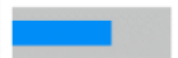
TREE MAP

Simultaneously display the groups that make up a whole and subgroups within each group



STACKED BAR

Highlight the size of the whole in addition to the size of each group within the whole



NESTED BAR

Emphasize a difference between a whole or target value, and a value nested within it

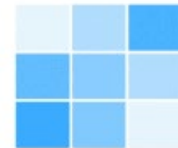
RELATIONSHIPS

Do values of one variable change according to another? Do groups have different values?



BAR CHART

Compare values of a variable across different groups



HEATMAP

Uncover patterns in a variable according two axis variables



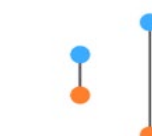
CHOROPLETH MAP

Highlight differences in a variable according to geographic region

TIP: Add an axis to a stacked bar or nested bar to make a bar chart that compares composition across groups.

CHANGE

How have values of a variable changed over time? Is change different across groups?



DUMBBELL DOT PLOT

Emphasize the magnitude of change between two timepoints for one to many categories



LINE CHART

Highlight trends in values over time by category



SLOPE CHART

Emphasize the magnitude and direction of change between two timepoints for up to 5 categories

TIP: Use time as one of the variables in any relationship chart to make it a change chart.