

# Data Visualization for Political Social Work

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# 1 How to Navigate This Presentation (scroll down □)

## 1.1 Navigation

- **o** for outline
- **f** for full screen
- **alt-click** for zoom

# 2 Outline of Conversation

## 2.1 Our Discussion Today

- Purpose: Focus on the *conceptual language* of data viz.
- **Not** a deep dive into the technical tools for doing dataviz.
- Whatever tool you are using (Paper and Pencil, Markers on Whiteboard, Excel, Google Sheets, R), what are some conceptual considerations in making a data visualization?
- Considerations for being part of a *team* conversation about visualizing data.
- More specific technical resources at end.

## 2.2 Our Data

The data that we are using come from the **World Development Indicators** (WDI) which are country level statistical information from around the world, collected by the World Bank.

# 3 Basic Considerations (scroll down □)

## 3.1 The Nature of Your Variables Determines the Nature of Your DataViz

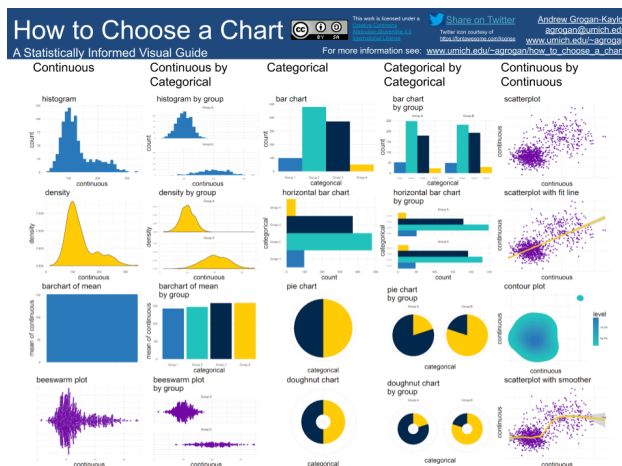
- Deciding upon the right data visualization to represent your data can be a daunting process.
- I believe that a *starting point* for this thinking is some basic statistical thinking about the *type* of variables that you have.
- At the broadest level, variables may be conceptualized as *categorical* variables, or *continuous* variables.

## 3.2 Variable Types

- *categorical variables* represent unordered categories like *neighborhood*, or *religious affiliation*, or *place of residence*.
- *continuous variables* represent a continuous scale like a *mental health scale*, or a *measure of life expectancy*.

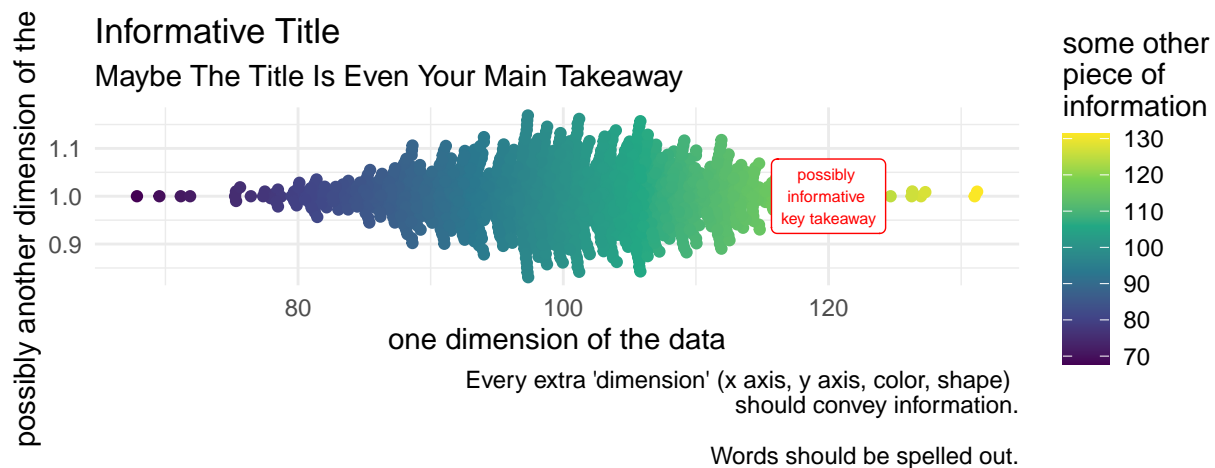
## 3.3 Visualization Possibilities

### How To Choose A Chart



## 4 Story-Telling (scroll down ☐)

### 4.1 Your Graph Should Be A Self-Contained Story

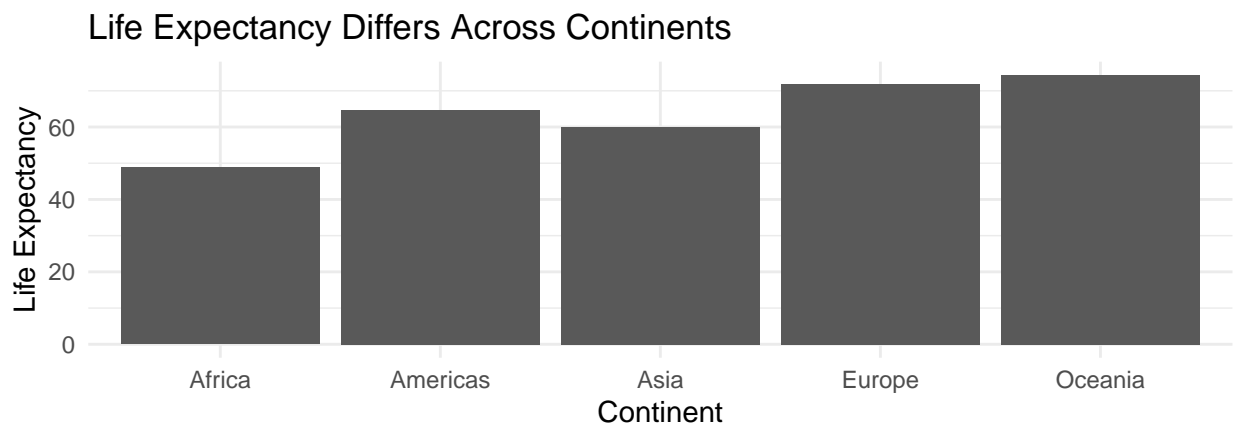


## 4.2 Your Graph Should Be Embedded In A Story



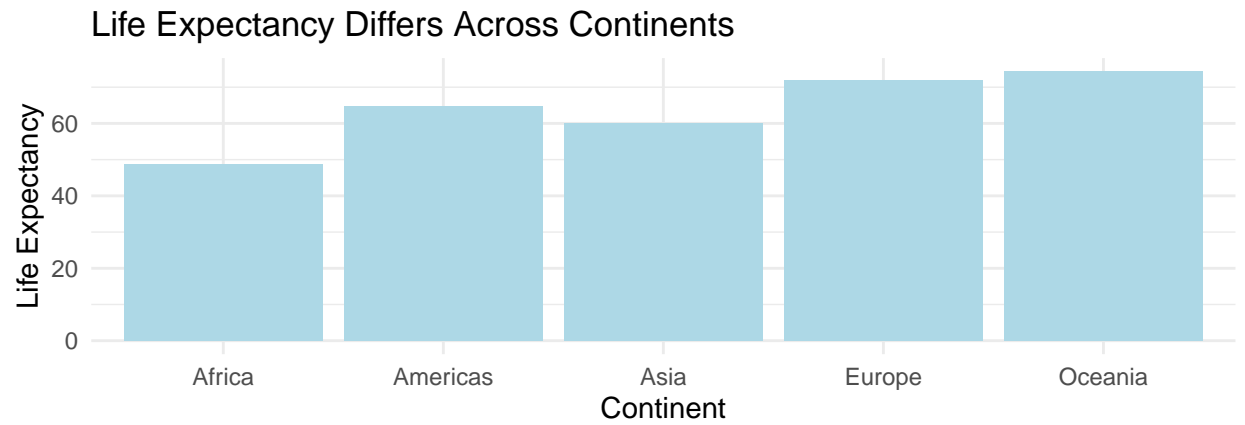
## 5 Color (scroll down ☐)

### 5.1 Greyscale Graph



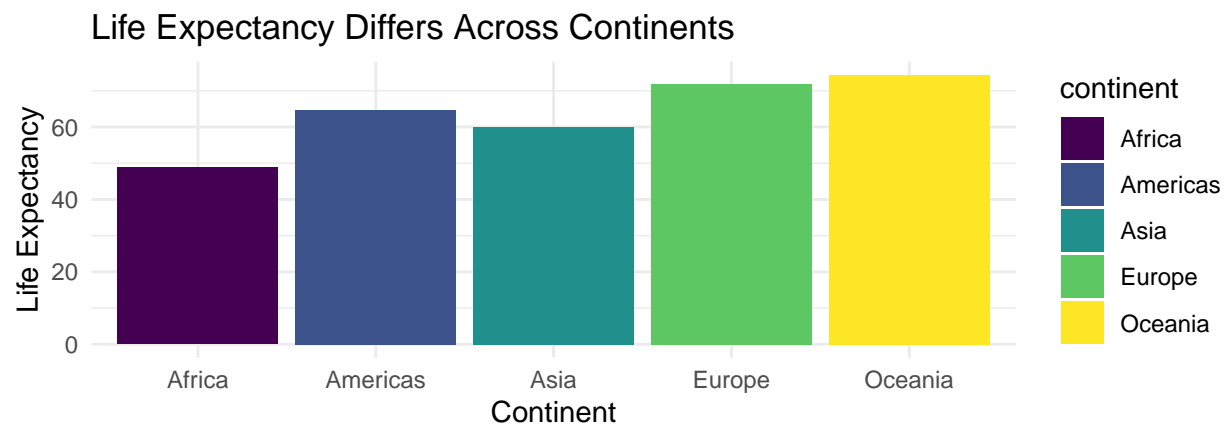
Source: Gapminder Data Set

## 5.2 Color is Organizational Identity



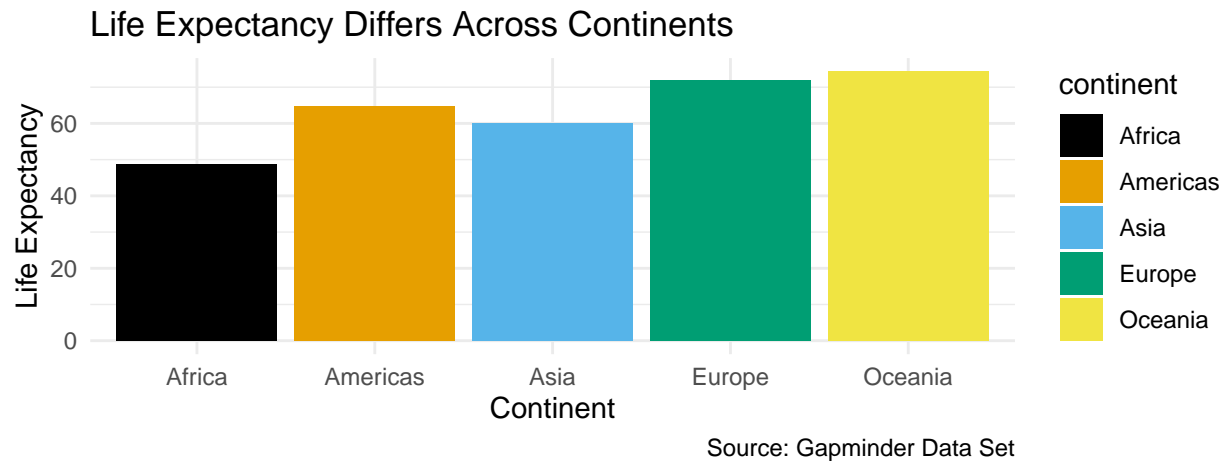
Source: Gapminder Data Set

## 5.3 Color Is Information

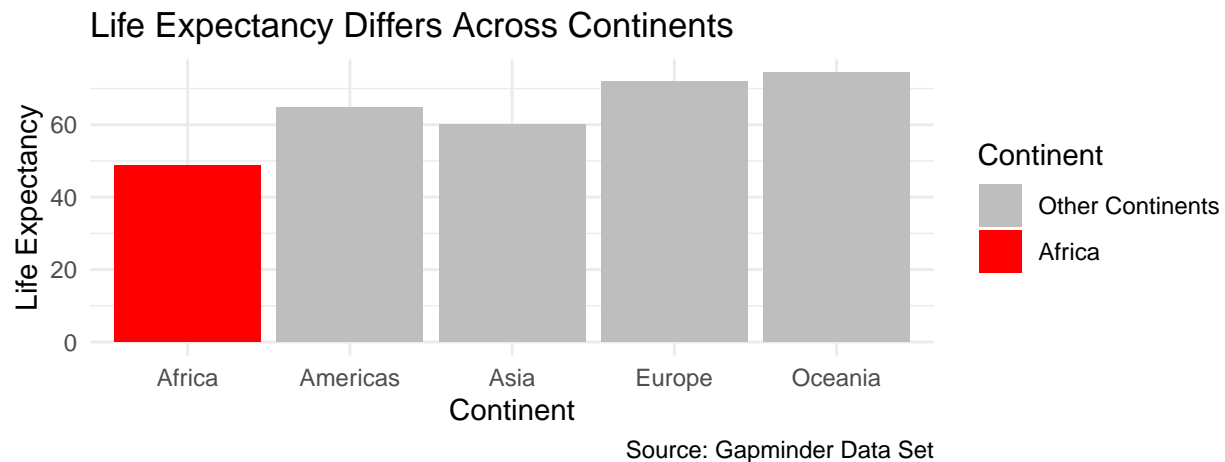


Source: Gapminder Data Set

## 5.4 Color Is Accessibility



## 5.5 Color Is Emphasis



## 6 Cognition (scroll down ☐)

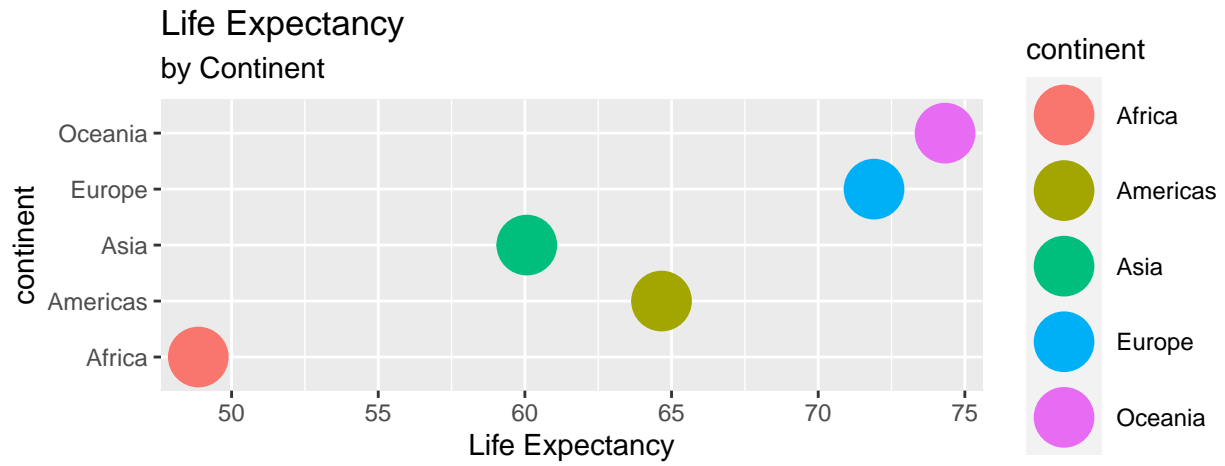
### 6.1 “Graphical Perception”

“Ordering elementary tasks by accuracy (Cleveland and McGill 1985):”

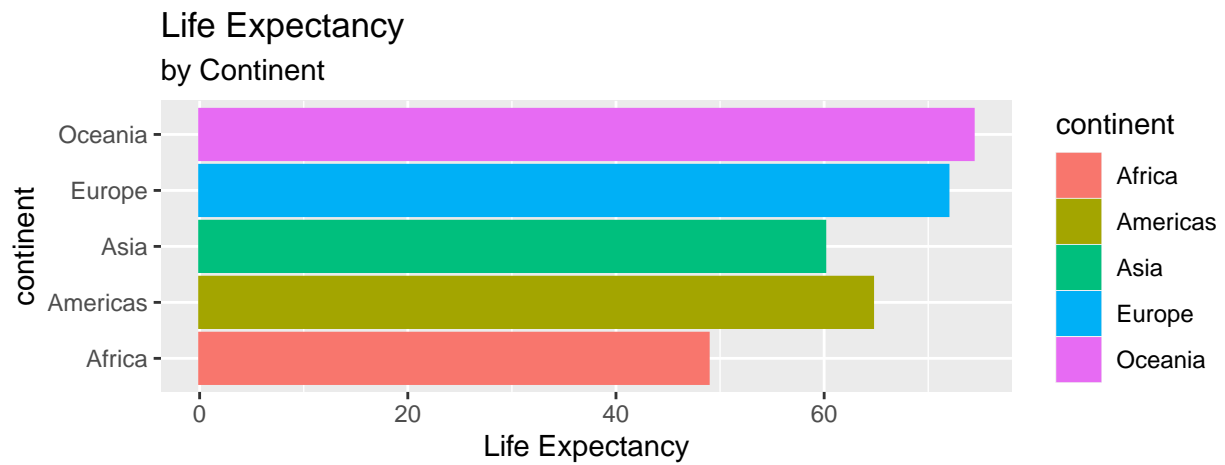
1. Position along a common scale
2. Position on identical but nonaligned scales
3. Length
4. Angle & Slope
5. Area

- 6. Volume, Density, Color Saturation
- 7. Color Hue

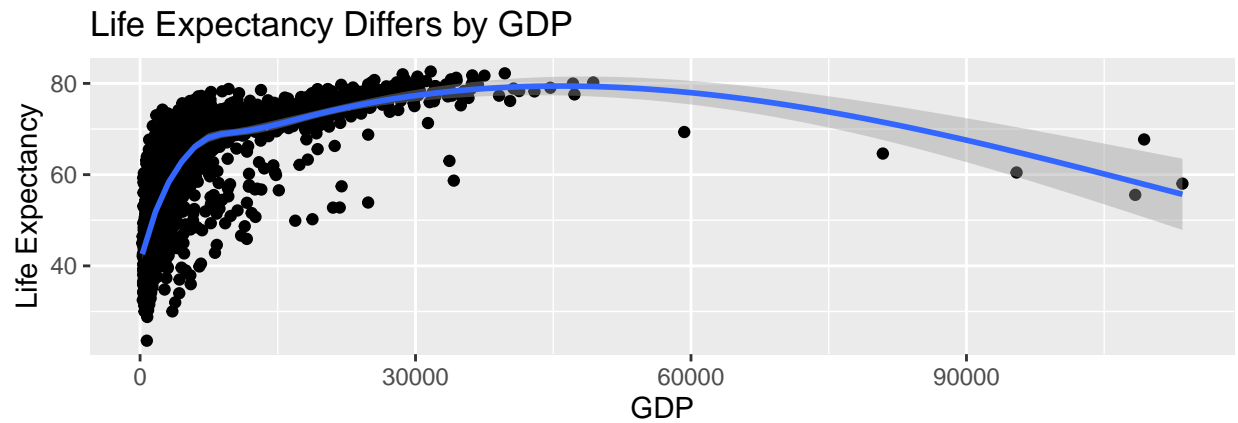
## 6.2 Example (Position Along A Common Scale)



## 6.3 Example (Length)



## 6.4 Example (Angle)



## 7 Resources for Further Learning

### 7.1 Resources

- How to Choose a Chart: A Visual Guide. [Extended Version]
- *Introduction to R*:
  - HTML Web Book
- *Introduction to ggplot2*:
  - HTML Web Book
- *Two Page R*:
  - PDF
- *Two Page ggplot2*:
  - PDF

## 8 Questions? (scroll down ☐)

### 8.1 Please Contact

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[www.umich.edu/~agrogan](http://www.umich.edu/~agrogan)

[agrogan1.github.io](https://agrogan1.github.io)



## References

Cleveland, William S, and Robert McGill. 1985. "Graphical Perception and Graphical Methods for Analyzing Scientific Data." *Science* 229 (4716): 828–33. <http://www.jstor.org/stable/1695272>.