Finding, Evaluating, and Presenting Statistical Info

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Slides available at go.uncg.edu/qdf41b



Plan for today

- Communicating statistical info visually
- Evaluating statistics & data
- Refresher of where to find statistics & data

Communicating Statistical Info



	Brazil	Russia	India	China
Population	194 mil.	142 mil.	1.15 bil.	1.33 bil.
GDP (2009, US\$)	1,573 bil.	1,232 bil.	1,310 bil.	4,985 bil.
GDP Avg. Growth Rate (1990 - 2008)	2.6%	0.7%	6.3%	10.2%
GDP Projected Avg. Growth Rate 2011-14, as of 2009)	3.7%	4.4%	7.6%	10.3%
Merchandise Exports (2009)	153 bil.	303 bil.	162 bil.	1,201 bil.
HDI % Change (1990 - 2010; for Brazil only 2000 - 2010)	7.6%	3.8%	33.3%	44.2%

Global Sherpa 2010; Data sources: World dataBank, UNDP Human Development Report, International Monetary Fund.

1. Which country had the 2nd highest GDP in 2009, in US dollars?

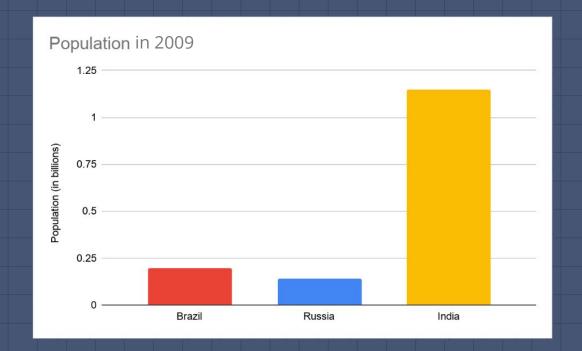
BRIC Country Economy and Development Data					
	Brazil	Russia	India		
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Brazil

Russia

India

2. Which country had the lowest population in 2009?



Brazil

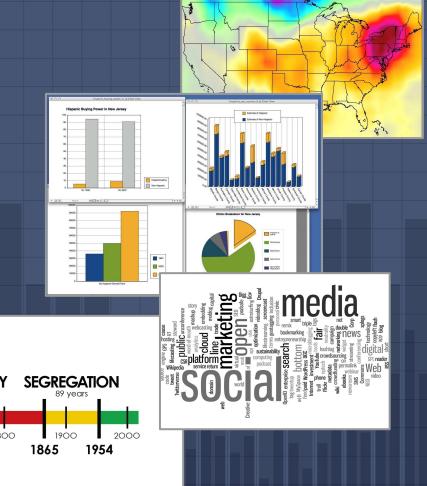
Russia

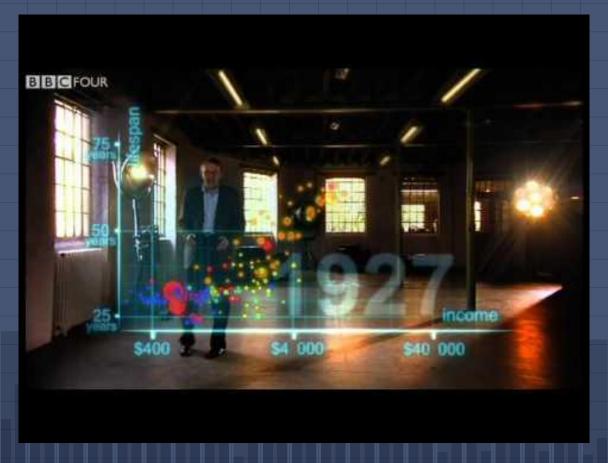
India

Data visualizations help us:

- See patterns
- Make comparisons
- Examine relationships
- Summarize complicated data

1526





BBC. (2010, November 26). *Hans Rosling's 200 countries, 200 years, 4 minutes - the joy of stats - BBC Four* [Video]. YouTube. https://www.youtube.com/watch?v=jbkSRLYSojo

Health & Productivity

GDP per capita in US-Dollars and life expectancy in years for selected countries, 2015.

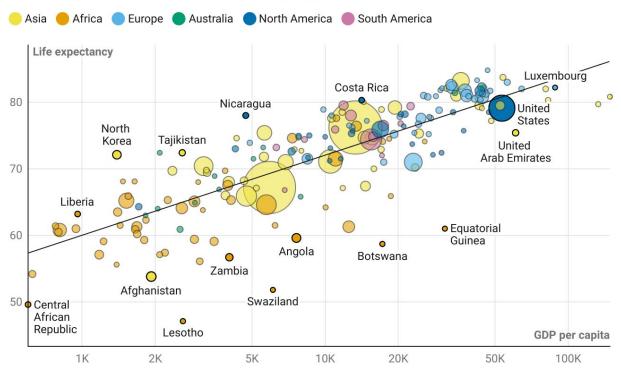


Chart: Jo Klein, 2021 • Source: Gapminder • Created with Datawrapper

Infographics:

- Contextualize data, statistics, or information
- Tell a story or make a point
- Can include multiple data viz, a single data viz, or none

INFOGRAPHICS

THE BENEFITS OF THEIR USE ONLINE -

PRESENTERS WHO USE VISUAL AIDS ARE



43% MORE EFFECTIVE
IN PERSUADING AUDIENCE MEMBERS TO TAKE A
DESIRED COURSE OF ACTION





40%
OF PEOPLE
RESPOND BETTER TO VISUAL INFORMATION
THAN TEXT



TEXT = SHORT TERM MEMORY
IMAGES = LONG TERM MEMORY



IT IS MUCH EASIER TO SHOW A CIRCLE

USERS HAVE
TIME TO READ
28 % OF THE
WORDS ON AN
AVERAGE WEB
PAGE AT MOST









SOCIAL NETWORKS
MOST POPULAR SITES
RELY MAJORLY ON
IMAGE POSTS
INFOGRAPHICS CAN
BE SHARED IN AN





SOURCES: "The Power of Vi

*The Power of Visual Communication

nfographic Effectiveness Statistics*

ttp://ansonaley.com/infographics/infographic-effectiveness-statist

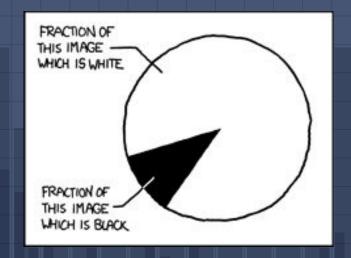
20% IS MORE LIKELY)

How Little Do Users Read?"

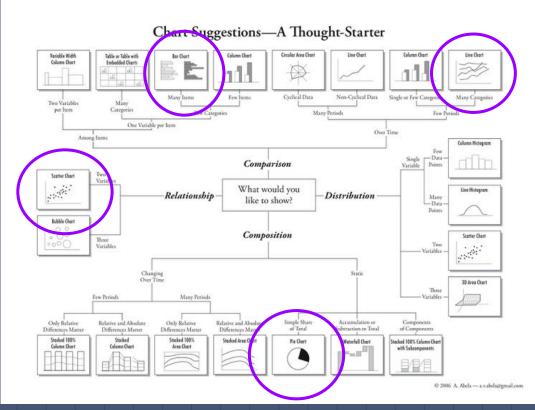


Communicating Statistical Info:

Data Visualization Best Practices



Which chart do I use?



- Line charts show trends over time.
- Bar graphs compare categories of data.
- Scatter plots show distribution& relationship of data points.
- Pie charts show proportions of a whole.
 - Whole = 100%

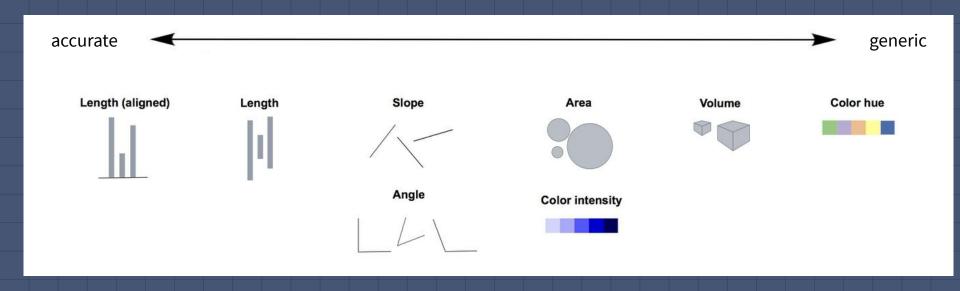
From Data as Sources:

https://ohiostate.pressbooks.pub/choosingsources/chapter/data-as-sources/

For more help picking a chart: https://datavizcatalogue.com/index.html

http://www.infographicsblog.com/wp-content/uploads/2011/11/chart-suggestion-infographic.jpg

Representing & comparing data





Use colors with symbols/icons, lines, or other visual indicators

Representing & Comparing Data

Types of debt

The total owed by the average U.S. household, by debt type.

 Credit cards
 \$16,748

 Mortgages
 \$176,222

 Auto loans
 \$28,948

 Student loans
 \$49,905

 Any type of debt
 \$134,643

Average U.S. household debt



Total amount owed (USD)

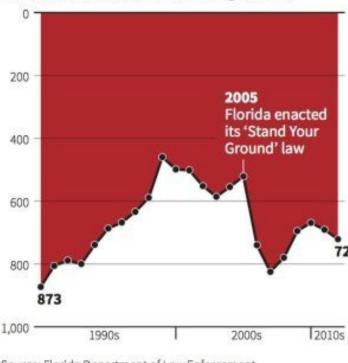
Chart: Jo Klein, 2020. Created with Google Sheets



SciToons. (2019, January 31). *Data visualization and misrepresentation* [Video]. YouTube. https://www.youtube.com/watch?v=x-rDVXVwW9s

Gun deaths in Florida

Number of murders committed using firearms



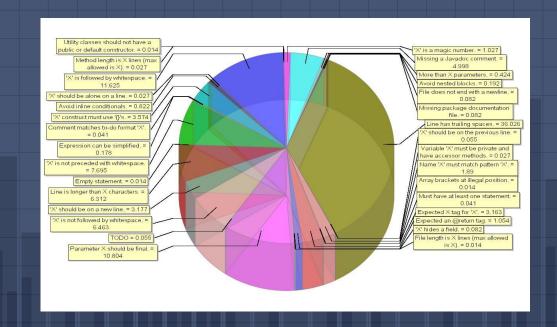
Source: Florida Department of Law Enforcement

C. Chan 16/02/2014

(REUTERS

Things to keep in mind:

- 1. Scale
- 2. Axes
- 3. Exclusion
- 4. Readability
- 5. Chart Choice



Criteria for Evaluating Statistical Info

Authority
Bias
Currency
Documentation

Currency
Authority
Accuracy
Relevance
Purpose



Need help? go.uncg.edu/qpotjm

Criteria for Evaluating Statistical Info



5 W's and an H



Who

Feline fans

More households in the USA own dogs (48%) than cats (40%), but most adults agree that:

Source PetSmart Charities survey of 1,022 U.S. adults



Cats make great pets

77%

Cats are easier than dogs

72%

Too many people have negative impressions of cats

66%

More people would have cats if stereotypes were removed

56%

What

Feline fans

More households in the USA own dogs (48%) than cats (40%), but most adults agree that:

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Cats make great pets

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Cats are easier than dogs

72%

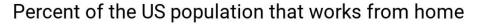
Too many people have negative impressions of cats

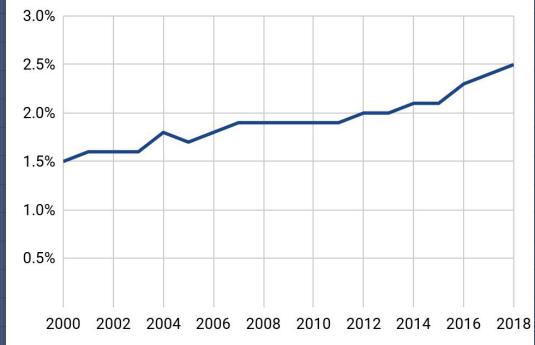
66%

More people would have cats if stereotypes were removed

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When





Where



Why

Feline fans

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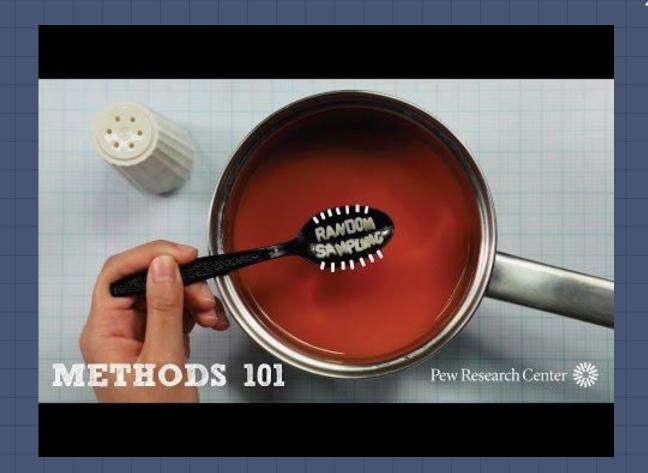
Too many people have negative impressions of cats

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56%

When How



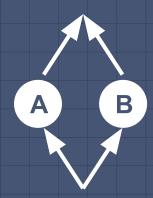
How

Is this presentation informational and fun?

- Yes
- No



What problems do you have with your boss?



"Would you vote for a woman for President if she qualified in **every other respect**?"

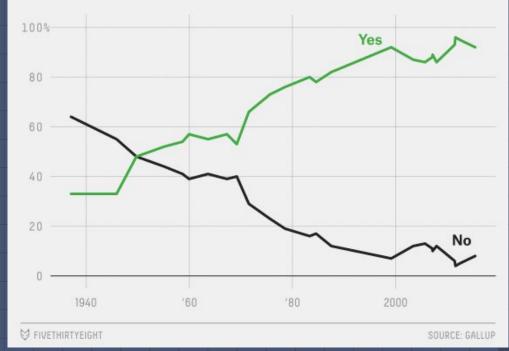
(Source: Gallup Poll (AIPO), Jan, 1937)

"If the party whose candidate you most often support nominated a woman for president of the United States, would you vote for her if she seemed best qualified for the job?"

(Source: Gallup Poll (AIPO), Jan, 1945)

Would you vote for a woman for president?





https://fivethirtyeight.com/features/from-1937-to-hillary-clinton-how-americans-have-felt-about-a-female-president/

Helpful Data Sources:

- UNCG Library databases, including:
 - PolicyMap
 - Roper Center for Public Opinion Research
- Research/subject/class guides:
 - Data Services: Finding Data Libguide: uncg.libguides.com/data
- Re3data, Google Dataset Search, gov't data sites, & other websites
- UNCG Factbook

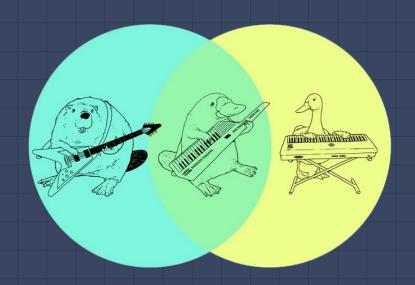
Any questions?

Jo Klein

GIS & Data Visualization Librarian

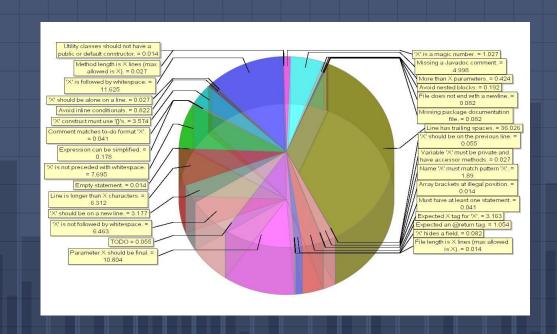
- ejklein@uncg.edu
- Schedule an appointment with me at go.uncg.edu/joklein
- Request to chat with me at go.uncg.edu/iminerva

THANKS!



Back to things to keep in mind:

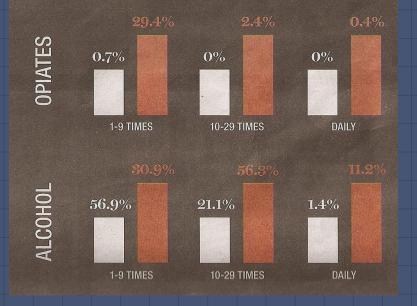
- 1. Scale
- 2. Axes
- 3. Exclusion
- 4. Readability
- 5. Chart Choice



Now for some examples...

BY THE NUMBERS

The National Collegiate Health Assessment was taken by 1,000 UCSB students in Spring 2009. Participants were asked how frequently they used substances over the past 30 days. Numbers in white reflect actual student use, while red numbers indicate perceived substance use. The average age of participants was 20 years and approximately 99 percent were full-time students.



Scale

- Does bar length, icon size, pie slice angle, etc. match the data?
- Does anything look skewed?
- Does the data start at zero?

Geographic scale

Demise of rural hospitals

Since 2010, 50 rural hospitals with a total of 1,794 beds — have closed. States that lost the most:

Note Non-federal, general acute care hospitals.

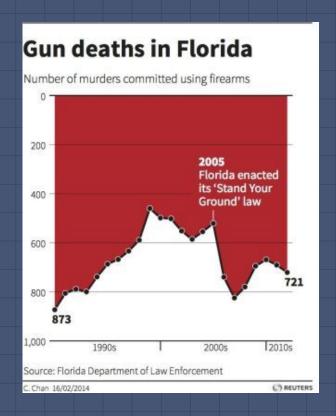
Source National Rural Health Association; shepscenter.unc.edu; data through April 7





Axes

- Are they flipped?
- Are they labeled correctly?
- Are gridlines and date ranges equal?



Scale + Axes

Types of debt

The total owed by the average U.S. household, by debt type.

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Auto loans \$28,948

Student loans \$49,905

\$134,643

Any type of debt



Exclusion

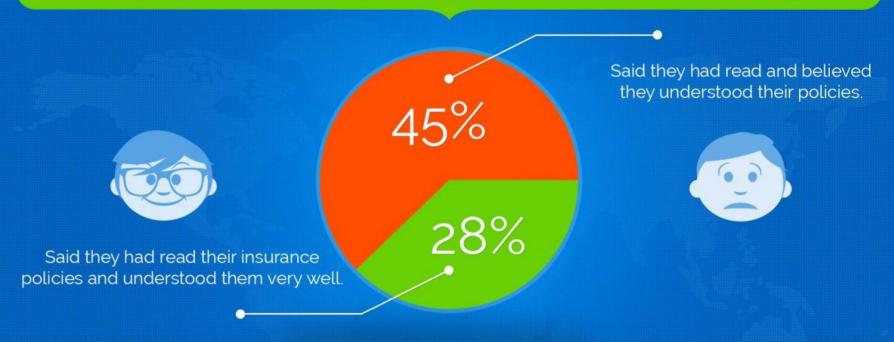
- What data is not being shown?
- Do the numbers match up (pie charts especially)?

Readability

- Does the chart use too many colors, or red and green or low-contrast colors?
- Is there too much text?

Exclusion + Readability

1 in 4 survey respondents either had not read or did not understand their insurance policies.



Readability

In the Twin Cities, psychologists, marriage and family therapists and clinical social workers/therapists are the most prevalent job titles, with 83.7% of all professionals identifying as such. The least prevalent job titles are psychiatric nurses, drug and alcohol counselors, art therapists and pastoral counselors.



Readability

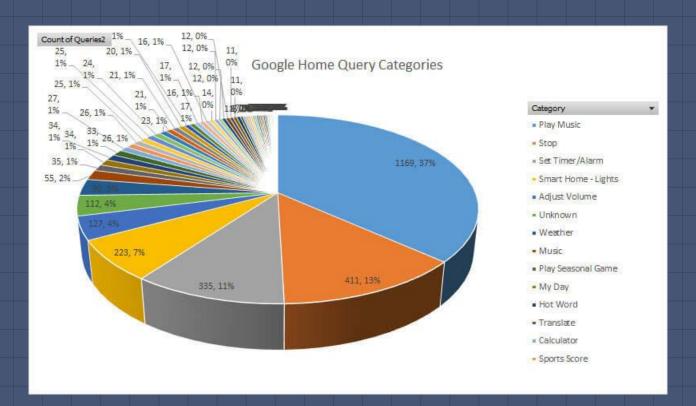
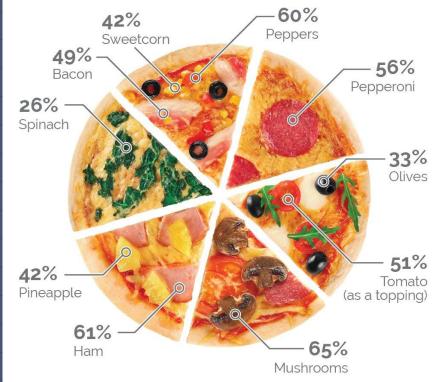


Chart Choice

 Has the right chart been chosen for what you're trying to show?

Mushroom is the UK's most liked pizza topping

Generally speaking, which of the following toppings do you like on a pizza? Select as many as you like



Other items not depicted include: onions (62%), chicken (56%), beef (36%), chillies (31%), jalapeños (30%), pork (25%), tuna (22%), anchovies (18%). 2% of people say they only like Margherita pizzas

Chart Choice







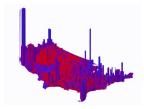


















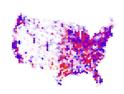








Chart Choice

