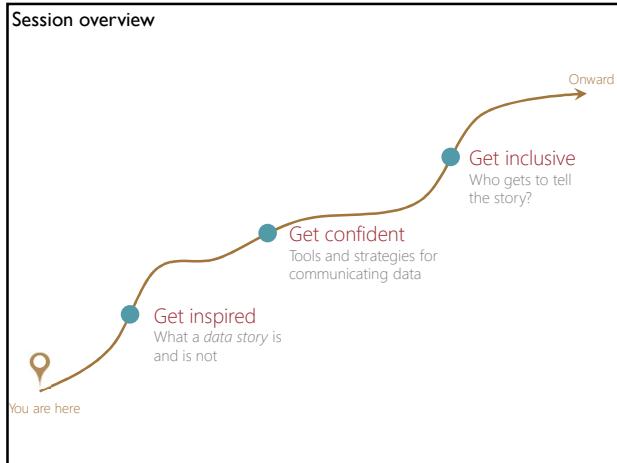


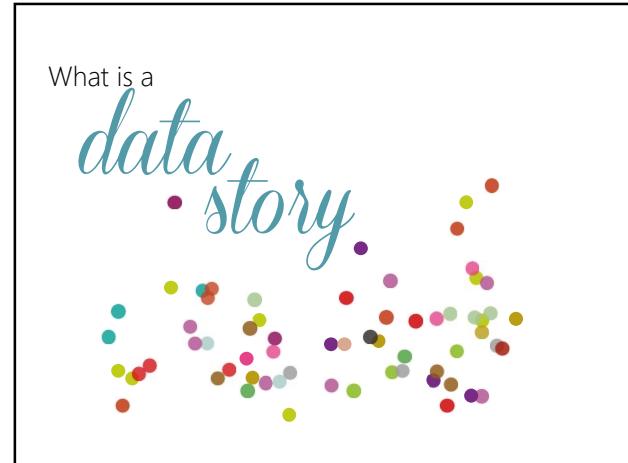
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2



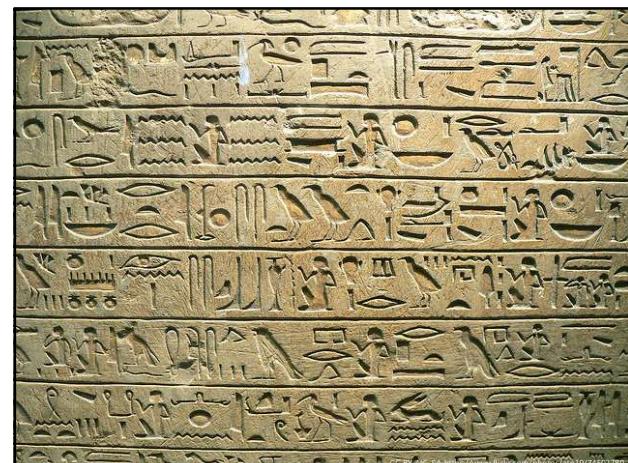
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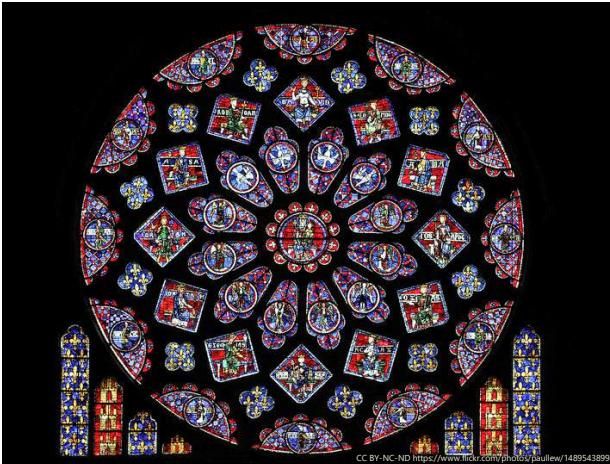
4

What is a story?					
Think of a tale/legend, such as Sleeping Beauty, La Llorona, Raven Steals the Light. What elements make it a story?					
Sequence of causally related events	Beginning, middle, and end	Structure that is easily remembered			
Connective tissue between facts	Psychologically efficient format	Linked by theme and conflict			

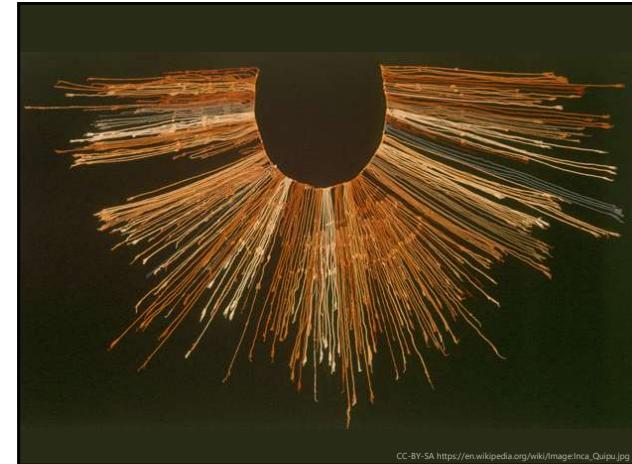
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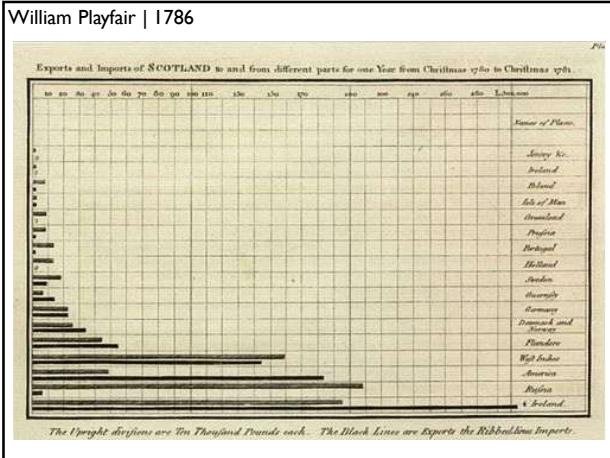
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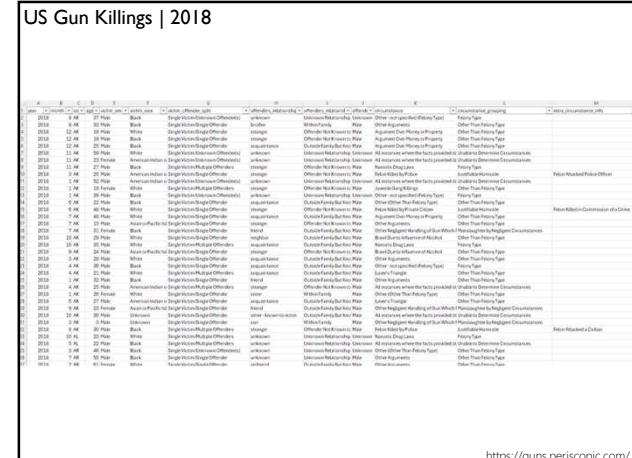
7



8



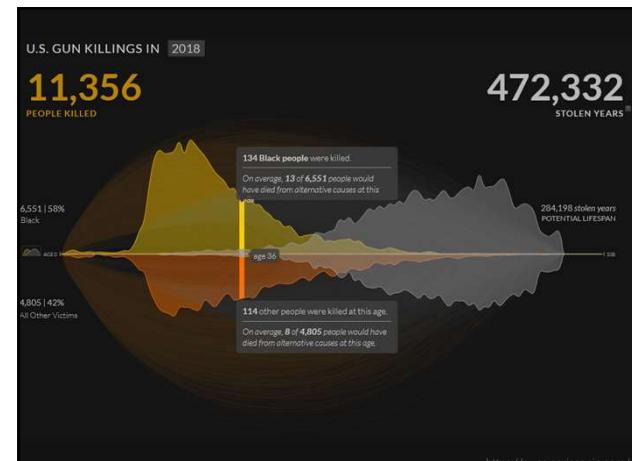
9



<https://qns.periscopic.com>



11



13

What is a *data story*?

Rely on author and reader	Combines exploratory and persuasive techniques	Backed with data and annotations
Interactive	Entangles experience and affect	Invites verification, questions, and alternatives

13

We can improve our
communication
using
data.



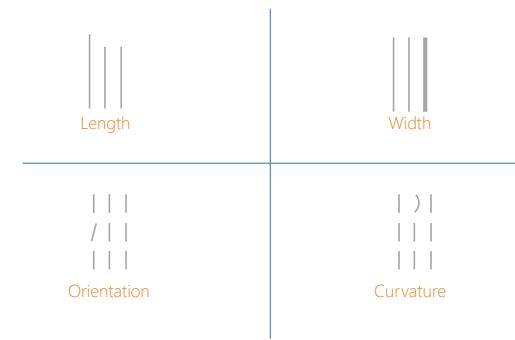
14

Pre-attentive attributes



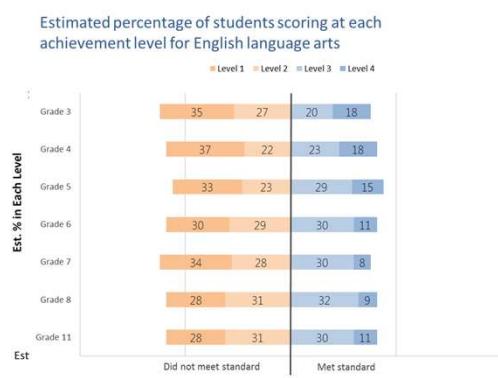
15

Pre-attentive attributes: Form



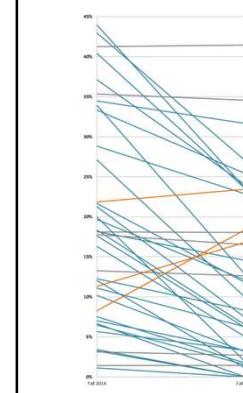
16

We see length more accurately



17

Orientation

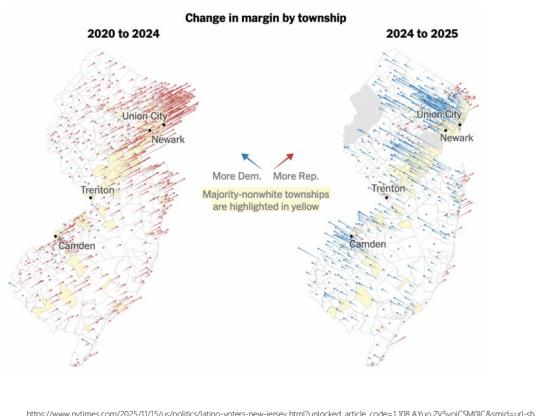


18

How has the percent of Ds and Fs assigned by teachers changed?

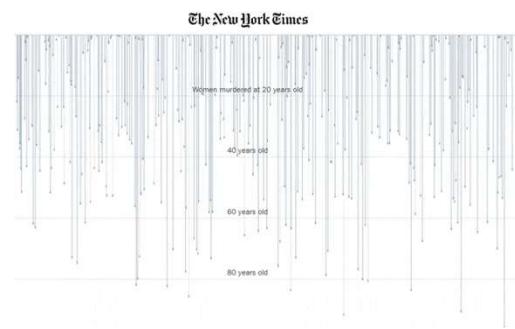
- 30 teachers assigned fewer Ds and Fs
- 7 teachers assigned about the same percent of Ds and Fs
- 3 teachers showed an increase in the percentage of Ds and Fs assigned to students

Orientation



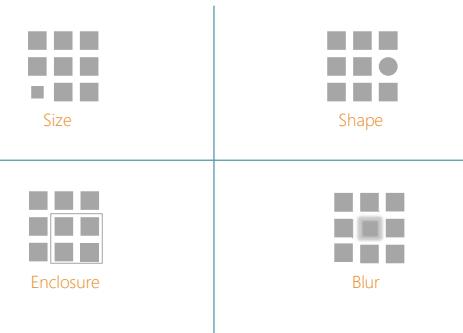
19

Bend the rules to tell the story



20

Pre-attentive attributes: Form



21

Enclosure and Intensity

Student	Item Number				
	1	2	3	4	5
Student	1	0	0	0	0
Anderson, Melanie	1	0	0	0	0
Dalton, Craig	1	1	1	0	0
Gallego, Peter	1	1	1	1	1
Herrera, Sylvia	1	1	0	1	0
LaCrosse, Martin	1	1	1	0	0
Peterson, Michelle	1	0	1	1	0
Sanders, Karen	0	0	0	0	0
Walters, Darren	0	1	1	0	0
Wu, Alice	1	1	0	0	0

22

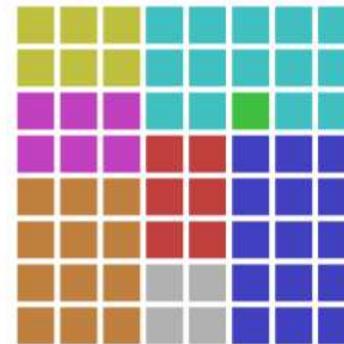
Pre-attentive attributes



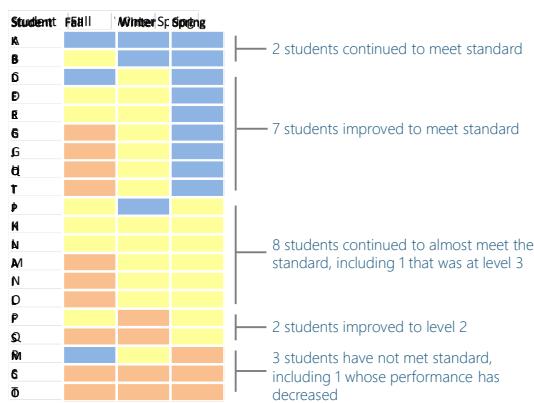
23

Grouping

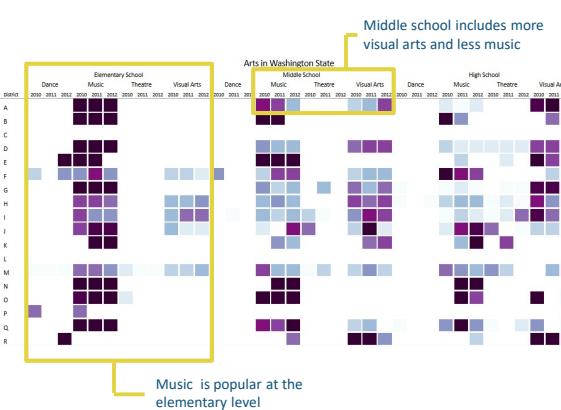
Raise your hand when you see the unique square.



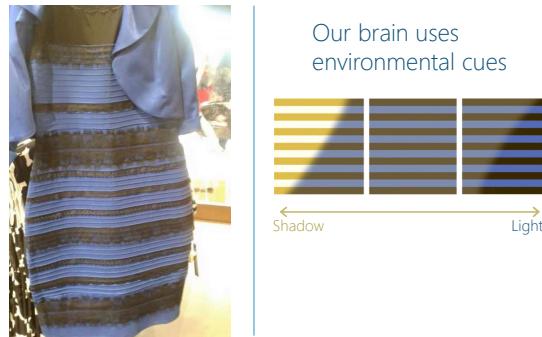
24

Grouping

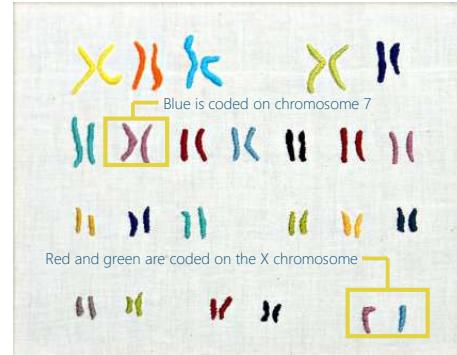
25

Intensity

26

What colors are this dress?

27

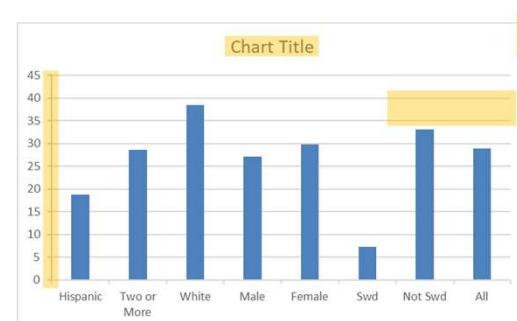
Color perception starts smallCC BY https://www.flickr.com/photos/hey_paul/7611617022

28

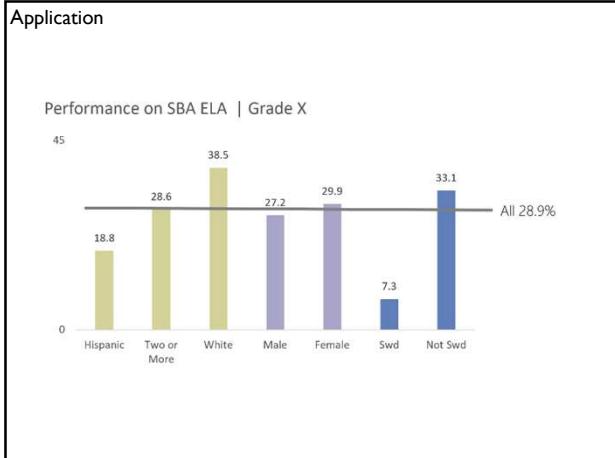
Was van Gogh color blind?

Wheat Field Behind Saint-Paul Hospital

29

Be mindful of data-to-ink ratio

30



31

Data visualization checklist

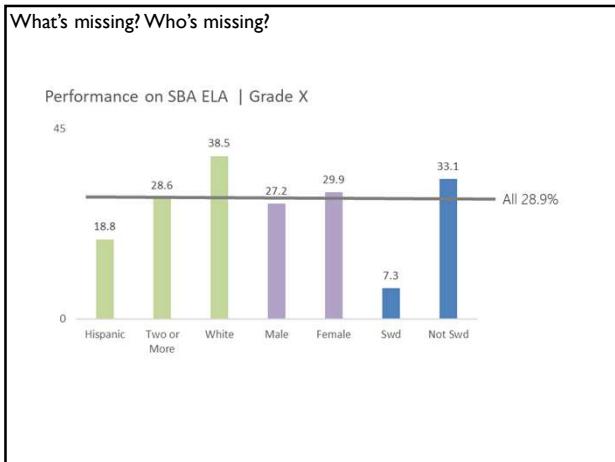
TEXT

Graphs don't contain much text, so existing text must encapsulate your message clearly and concisely.

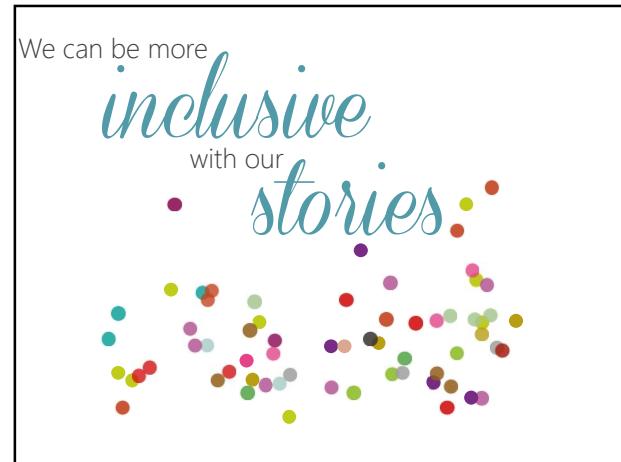
Guideline	Description	Rating
8-20 word descriptive title is a full sentence, left-justified, in upper left	Rather than a generic phrase, use a full, descriptive sentence that encapsulates a takeaway message about the graph's finding or "so what?" When communicating to Western cultures put the title in the upper left. Not centered.	2 1 0 n/a
Subtitles and annotations provide additional information	Subtitles and annotations can add explanatory and interpretive power to a graph. Use them to answer potential viewer questions or to highlight specific data points. Annotations only count if they're within the graph, not in a paragraph around it.	2 1 0 n/a
Text size is hierarchical and readable	Titles are a larger font size than subtitles or annotations, which are larger than labels, which are larger than source information. The smallest text is at least 9-point font size for arm's length reading, at least 20 for large room reading.	2 1 0 n/a

<https://stephanieevergreen.com/wp-content/uploads/2024/08/Data-Viz-Checklist-2024.pdf>

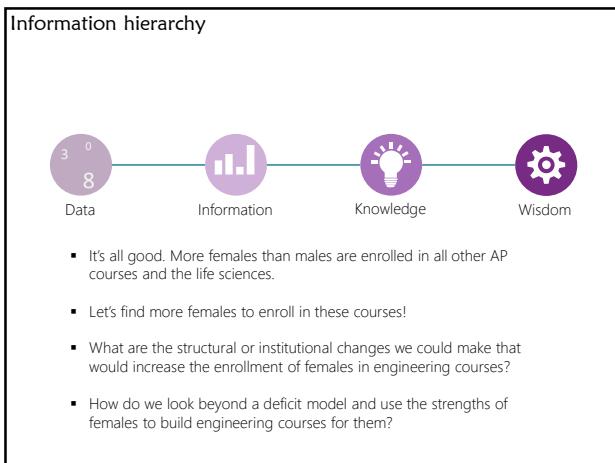
32



33



34



35

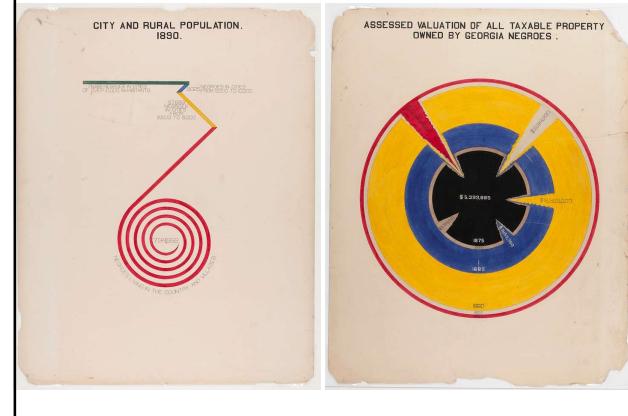


36

Pluralism

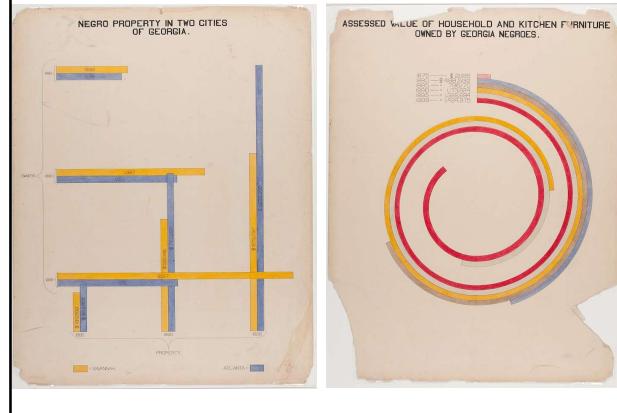
37

W.E.B. DuBois



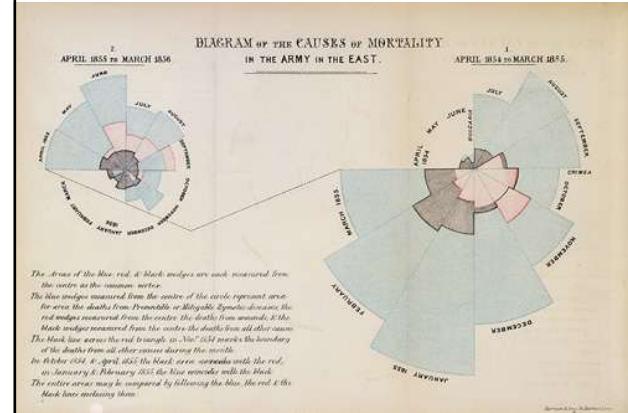
38

W.E.B. DuBois



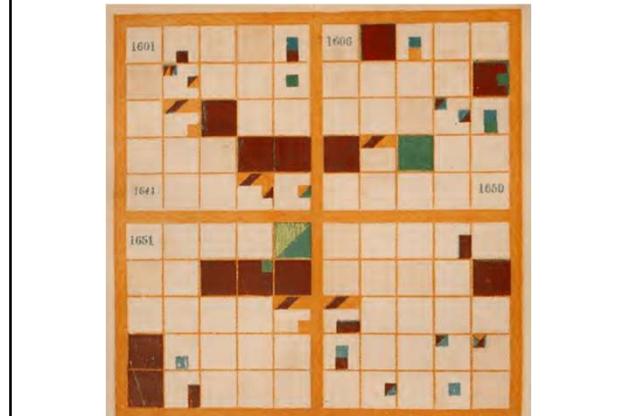
39

Florence Nightingale



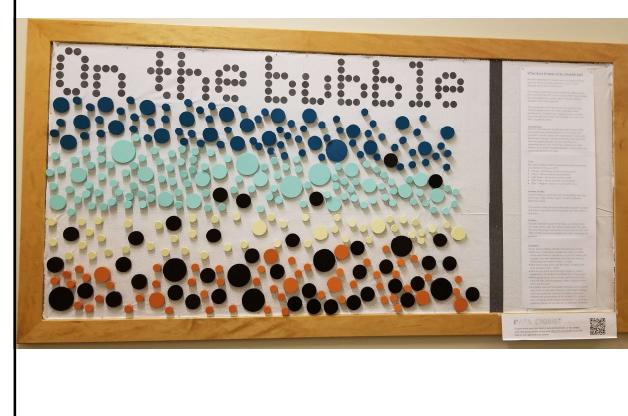
40

Elizabeth Peabody



41

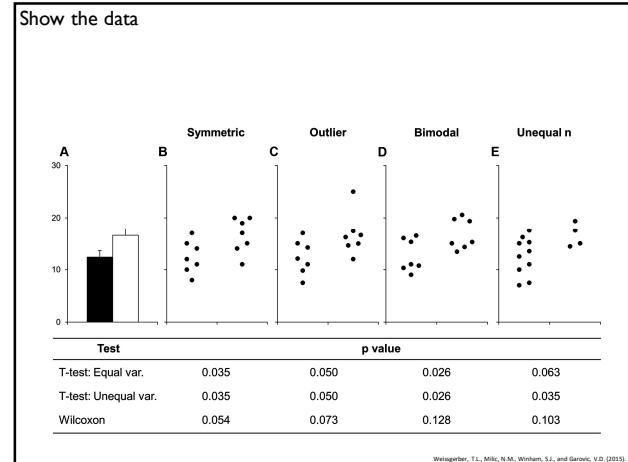
Show the data



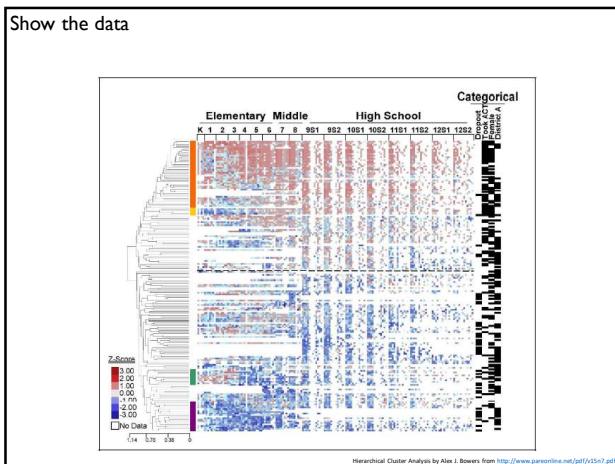
42



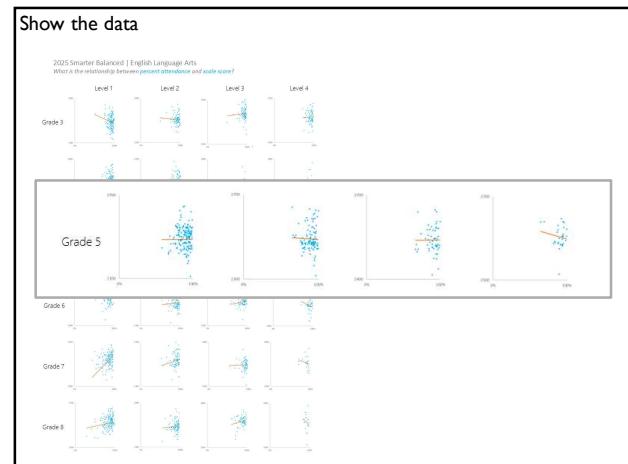
43



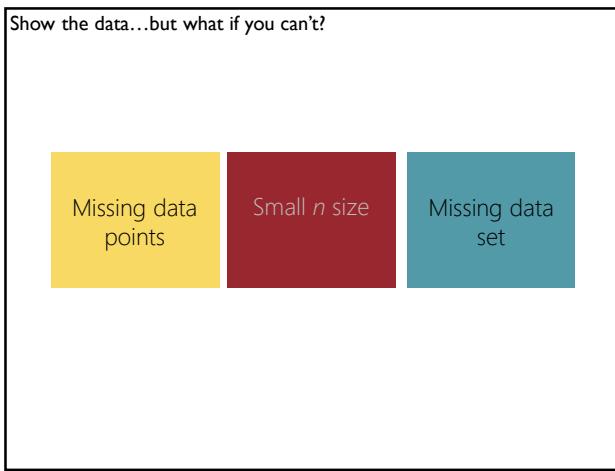
44



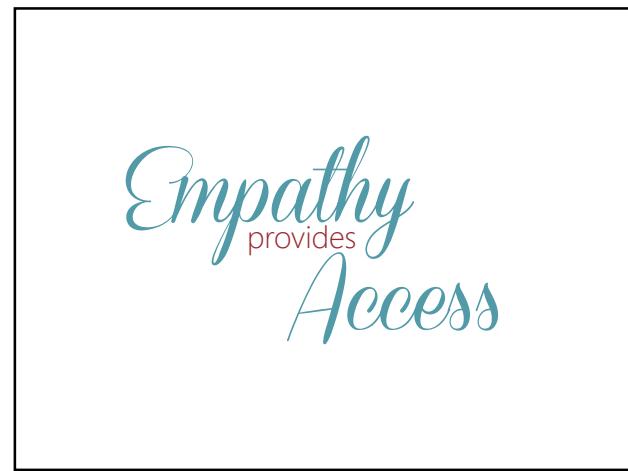
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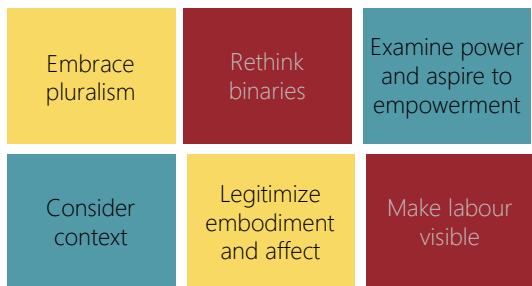
46



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Data feminism

Catherine D'Ignazio and Lauren Klein

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Intersectionality

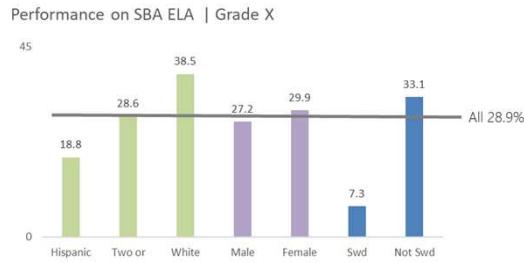
The term *intersectionality* was coined by Kimberlé Crenshaw in 1989. She describes how interlocking systems of power affect those who are most marginalized in society.

Intersectionality considers a collection of factors that affect an individual in combination, rather than considering each factor in isolation.

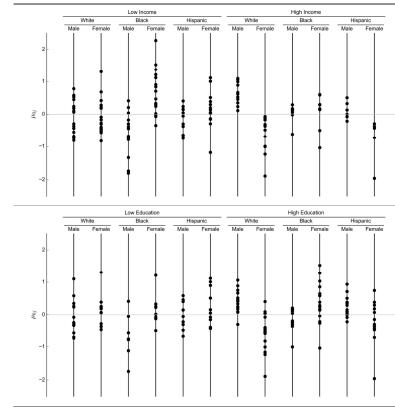


CC-BY-SA Mohamed Badrane

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Representing intersectionality

51

Representing intersectionality<https://www.sciencedirect.com/science/article/pii/S0277953617306654>

52

Representing intersectionality

Students with disabilities

Category	Female	Male	Female	Male	Female	Male
Hispanic H F	~100	~100	~100	~100	~100	~100
2+ races H M	~100	~100	~100	~100	~100	~100
White H F	~100	~100	~100	~100	~100	~100
Hispanic 2+ M	~100	~100	~100	~100	~100	~100
2+ races 2+ M	~100	~100	~100	~100	~100	~100
White 2+ M	~100	~100	~100	~100	~100	~100

Students without disabilities

Category	Female	Male	Female	Male	Female	Male
Hispanic N F	~1000	~1000	~1000	~1000	~1000	~1000
2+ races N M	~1000	~1000	~1000	~1000	~1000	~1000
White N F	~1000	~1000	~1000	~1000	~1000	~1000
Hispanic N M	~1000	~1000	~1000	~1000	~1000	~1000
2+ races N M	~1000	~1000	~1000	~1000	~1000	~1000
White N M	~1000	~1000	~1000	~1000	~1000	~1000

53

UpSet Plot

An UpSet Plot showing the size of intersections between genres (Crime, Thriller, Fantasy, Comedy, Drama) and sets. The y-axis represents the intersection size, and the x-axis represents the set size. The legend indicates the genre for each bar.

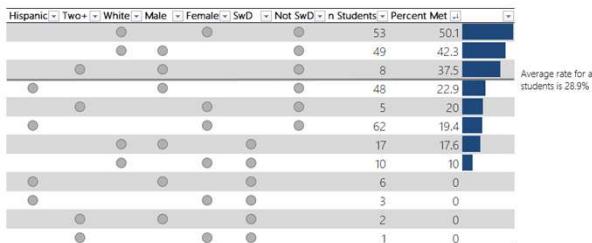
Genre	Set Size	Intersection Size
Crime	1	890
Thriller	1	783
Fantasy	1	386
Comedy	1	263
Drama	1	213
Crime	2	163
Thriller	2	70
Fantasy	2	48
Comedy	2	45
Drama	2	36
Crime	3	18
Thriller	3	12
Fantasy	3	11
Comedy	3	6
Drama	3	5
Crime	4	4
Thriller	4	4
Fantasy	4	3
Comedy	4	2
Drama	4	1

54

9

Representing intersectionality | UpSet Plot

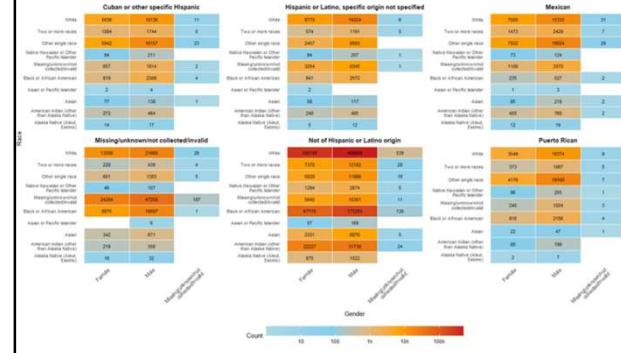
Performance on SBA ELA | Grade X



55

Representing intersectionality

Race-Gender-Ethnicity Distribution in TEDS Data

<https://navigatingdvs.com/beyond-the-binary/>

56

Representing intersectionality

Compare how policy implementation in different settings affects outcomes

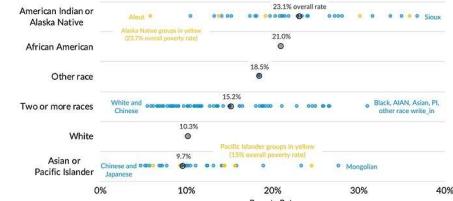
		Odds Ratio			
		Chicago	Los Angeles	New York	San Francisco
Race X education interactions					
Black	OR less than high school	3.280	1.752	2.580	4.850
	OR high school graduate	1.896	1.200	1.950	2.540
	OR some college	1.461	1.390	1.428	2.102
	OR college graduate (ref)	1.000	1.000	1.000	1.000
White	OR less than high school	2.133	1.450	1.890	3.504
	OR high school graduate	1.621	1.325	1.450	2.320
	OR some college	1.181	1.120	1.320	1.950
	OR college graduate (ref)	1.000	1.000	1.000	1.000

<https://weallcount.com/2019/06/21/intersectionality-data-2/>

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Representing intersectionality

Variation in Poverty Rates

<https://community.weallcount.com/presenting-intersectional-data/1032/1>

58

cc-nd-nc-by Christopher Penn https://www.flickr.com/photos/financialrevolution/287799325/

59

Once you find the truth, you have to put the humanity back in

—Neil Halloran

DATA HUMANISM

SMALL data
imperfect data
SUBJECTIVE data
INSPIRING data
SERENDIPITOUS data
SPEND time with data

data **bands** with **QUALITY**
infatuated data
impartial data
descriptive data
predictive data
convictions **Possibilities**
to simplify complexity / DEPICT
processing **DRAWING**
driver **design**
is numbers **people**
will make us more efficient **HUMAN**.

@giorgialupi

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Tara Richerson

Director of Assessment and Data

Management

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360.426.1687

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700 S First St
Shelton WA 98584



 Final presentation and resources:
<https://github.com/tlricherson/WERA-2025>

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