UNC GREENSBORO
University Libraries

Ethics & Empathy in Data Visualization

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A little about me

- GIS & Data Visualization Librarian
- Library Liaison to:
  - MS in Informatics & Analytics Program
  - Geography, Environment, & Sustainability Department
- Visualizing the Future Symposia Fellow (https://visualizingthefuture.github.io/)

Previously:

1. **Data visualization at the library**

2. **Empathy's role**

3. **Ethical data visualization**

Data visualization at the library

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The "data-driven" library

- Computer and space usage

- Database and website access

- Circulation statistics

- Reference interactions & instruction sessions

- Financial health & staffing

- Community demographics

- AND MORE

Why?

- Request and justify funding…

- Identify need for collection development (or weeding)…

- Plan programming and services…

…to meet the needs of our users.

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Sources of library data

- Library/Branch/System specific data
- Library surveys:
  - **National Center for Education Statistics (NCES) Academic Libraries Survey (ALS)**
  - **Institute of Museum and Library Services (IMLS) Public Libraries Survey (PLS)**
  - **Public Library Association (PLA)/ALA Public Library Data Service (PLDS)**
- PLA Community engagement resources (bit.ly/pla-engagement)
- Demographic data:
  - US Decennial Census & Annual ACS
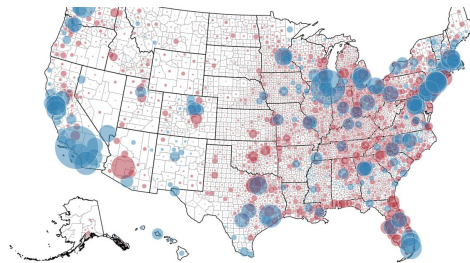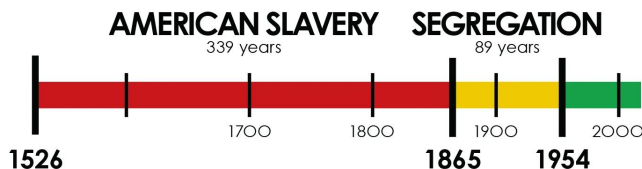 - Databases like PolicyMap, Social Explorer

Community Indicators

Why data visualization?

Data visualization helps us:

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

"The 2016 Election" via Time

AMERICAN SLAVERY
339 years

SEGREGATION
89 years

1526   1700   1800   1865   1900   1954   2000

"But Slavery Was So Long Ago" design by Zerflin

Untitled wordcloud created using Word Cloud Visualization app by Patrick Wied via splunkbase

"Data visualization is another form of visual art that grabs our interest and keeps our eyes on the message. When we see a chart, we quickly see trends and outliers. If we can see something, we internalize it quickly. It's storytelling with a purpose."

From Tableau's Data visualization beginner's guide

What's your purpose?

Summarizing or simplifying findings
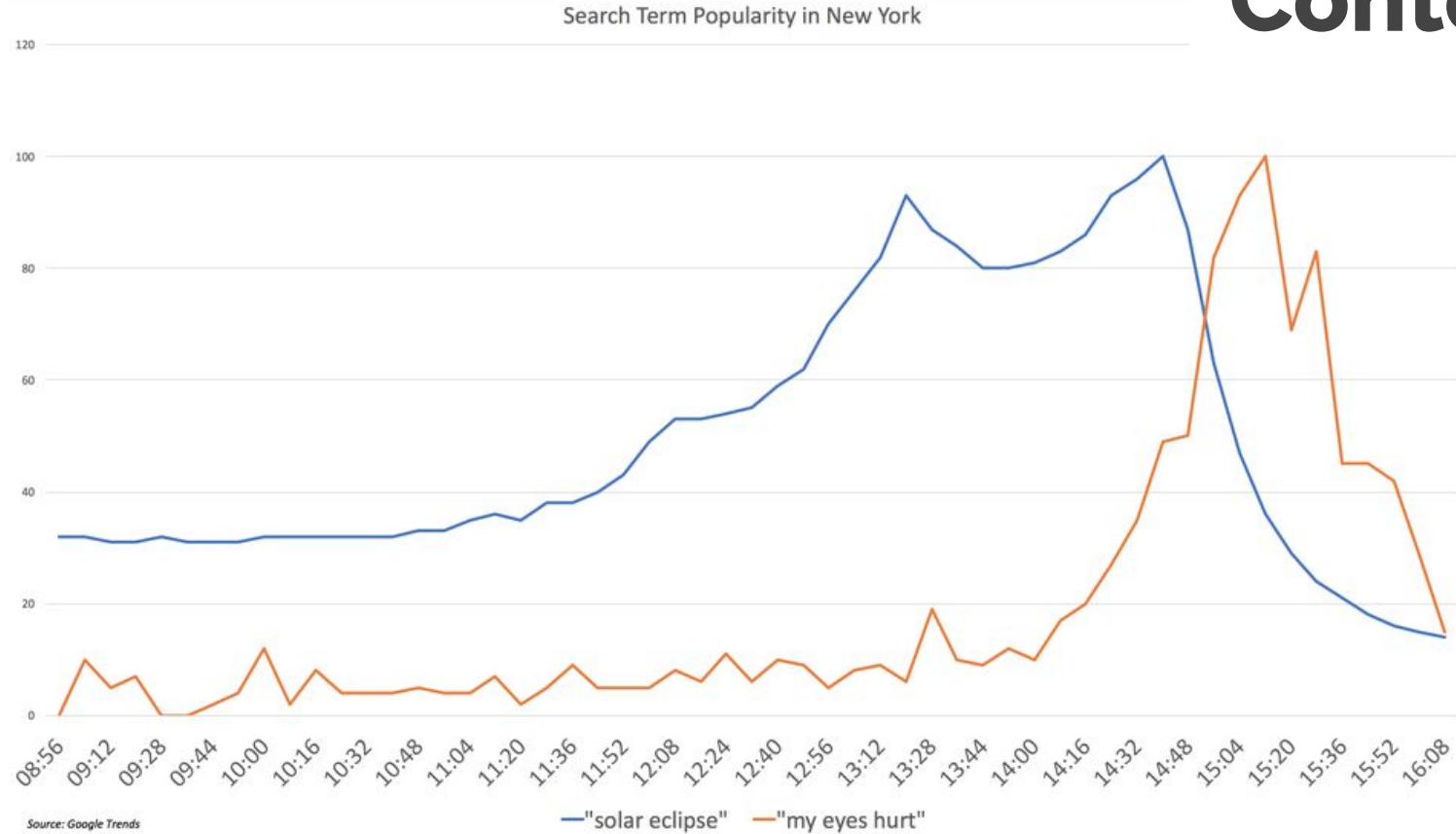
Starting a conversation

Reporting on a target or goal

Investigating where your piece fits in the puzzle

Empathy's role

Context

Search Term Popularity in New York

Source: Google Trends

— "solar eclipse"   — "my eyes hurt"

Experience

bit.ly/accessible-design
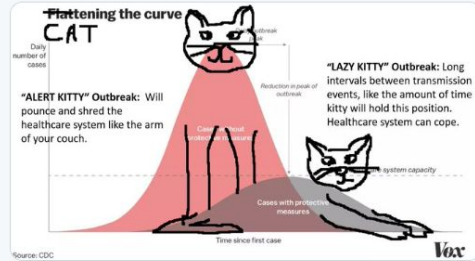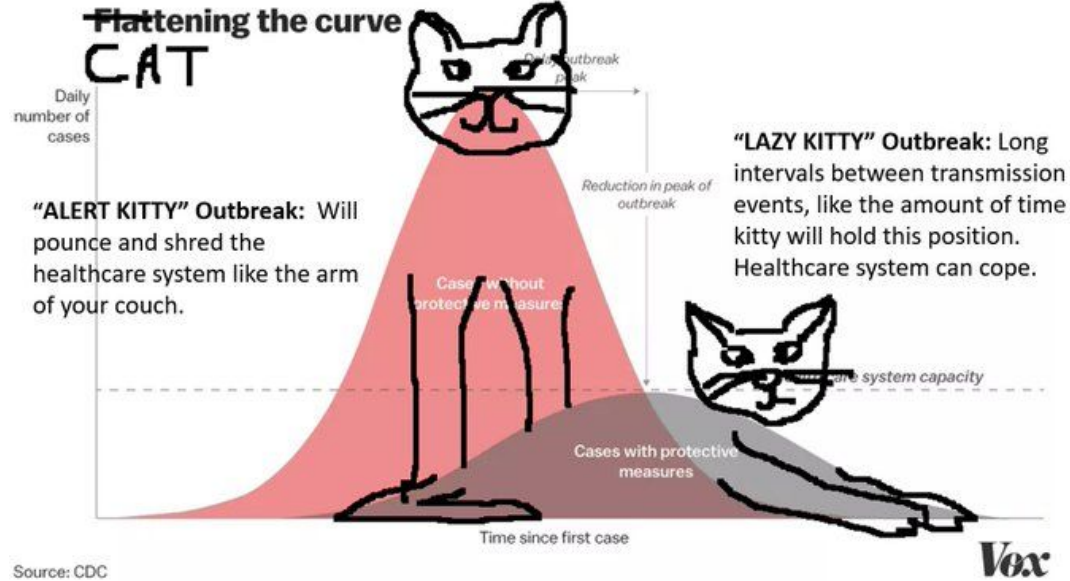
Design

Designing for users with low vision

Do...

use good colour contrasts and a readable font size	**Aa**
publish all information on web pages	HTML
use a combination of colour, shapes and text	Start ▶
follow a linear, logical layout	200% magnification
put buttons and notifications in context	Submit

Designing for users who are Deaf or hard of hearing

Do...

write in plain English	Do this.
use subtitles or provide transcripts for videos	CC
use a linear, logical layout	
break up content with sub-headings, images and videos	
let users ask for an interpreter when booking appointments	

Don't...

use complicated words or figures of speech	
put content in audio or video only	
make complex layouts and menus	
make users read long blocks of content	
don't make telephone the only means of contact for users	

For more information, contact:
access@digital.homeoffice.gov.uk

Designing for users on the autistic spectrum

Do...

use simple colours	
write in plain English	Do this.
use simple sentences and bullets	
make buttons descriptive	Attach files
build simple and consistent layouts	

Don't...

use bright contrasting colours	
use figures of speech and idioms	
create a wall of text	
make buttons vague and unpredictable	
build complex and cluttered layouts	

For more information, contact:
access@digital...

Designing for users with physical or motor disabilities

Do...

make large clickable actions	Yes
give form fields space	
design for keyboard or speech only use	Tab
design with mobile and touchscreen in mind	
provide shortcuts	Postcode / Find address

Don't...

demand precision	No
bunch interactions together	
make dynamic content that requires a lot of mouse movement	1 2 2a 3 2b 2c
have short time out windows	Your session has timed out
tire users with lots of typing and scrolling	Address

For more information, contact:
access@digital.homeoffice.gov.uk

Home Office · Home Office Digital

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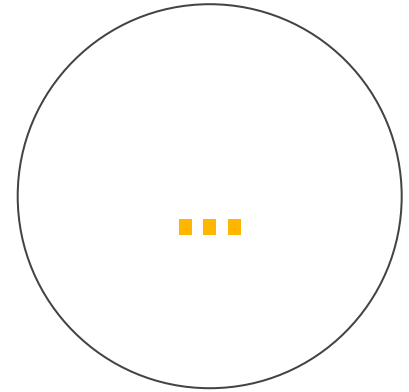"Dos and don'ts on designing for accessibility" by Karwai Pun. 2 Sept. 2016, retrieved 5 May, 2020.

Design elements:

- Space and scale

- Color

- Iconography
  - "Anthropographics"

- "Data comics" - datacomics.net

"Data Visualization + Empathy" (bit.ly/dataviz-empathy) by Sally Gore and Tess Grynoch, Visualizing the Future Symposia Research Fellows

The majority is accumulating in landfills and the environment at large, where it will outlive the next several generations of human civilization.

400-1000+ years to degrade

80-100 years to degrade

Connecting with your community using empathy

Context

Experience

Design

...
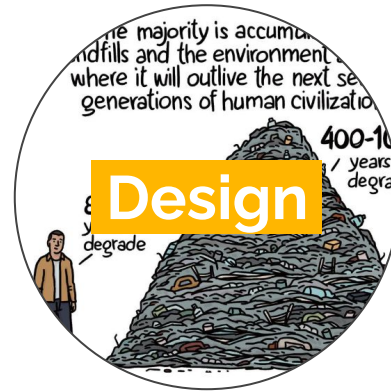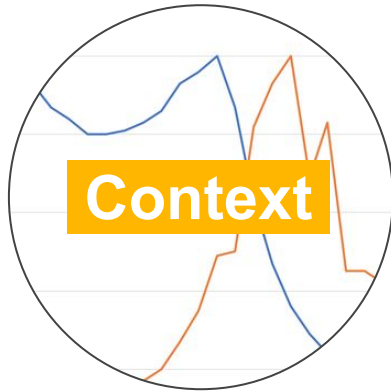
Gun deaths in Florida

Number of murders committed using firearms

2005 Florida enacted its 'Stand Your Ground' law

873

721
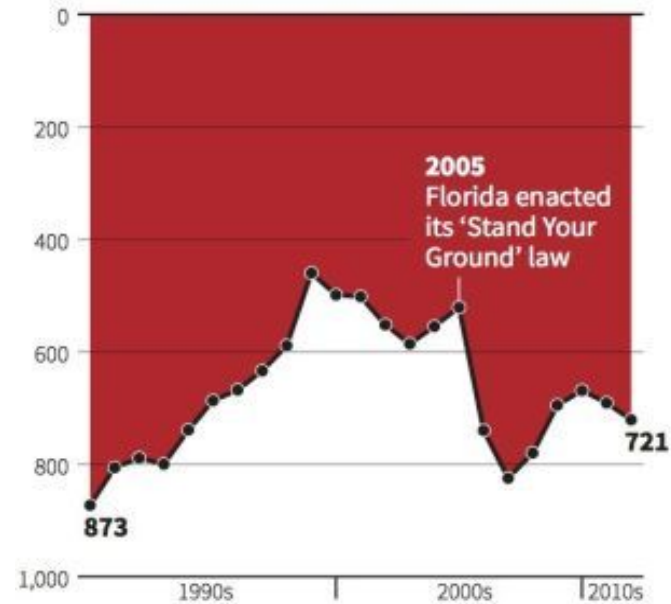
Source: Florida Department of Law Enforcement

C. Chan 16/02/2014

REUTERS

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Ethical data visualization

Things to keep in mind

- Exploitation vs. benefit

- Privacy and confidentiality

- Is the data being accurately represented

- Data visualization is an extension of other data activities

california guy now
@InternetHippo

I like how ads have gone from "buy a toyota" to "this is a difficult and uncertain time for us all...buy a toyota"

10:32 AM · Apr 14, 2020 · Twitter for iPhone

33.2K Retweets   **188.8K** Likes

Data visualization is an extension of other data activities

Discovery/Collection

Storage

Sharing & Publishing

Analysis

Creation

Questions to ask

- Who is your community?

- Is the data considered public knowledge/information, and/or is there an expectation of confidentiality?

- Does your community/subject know about the data collection?

- Did they consent to collection **and** give permission for sharing?

- How will the data be used?

  - How **could** the data be used?

- What are the risks and what is the risk level?

State in
the nation

County in
the state

Tract in
the county

Block group
in the tract

Block in the
block group

Block centroid
in the block

Tectonix GEO @TectonixGEO · Mar 24

Want to see the true potential impact of ignoring social distancing? Through a partnership with @xmodesocial, we analyzed secondary locations of anonymized mobile devices that were active at a single Ft. Lauderdale beach during spring break. This is where they went across the US:

13B

6.7M views   0:00 / 1:14

1.4K   16.9K   22.1K

Does the benefit to the community outweigh the risk?

References not cited directly on slides:

erhardt. (2013, June 12). Respecting the Data. *MIT Center for Civic Media Blog*. https://civic.mit.edu/2013/06/12/respecting-the-data/

ALA Council. (2019, January). Core Values of Librarianship. *American Library Association*. http://www.ala.org/advocacy/intfreedom/corevalues

Ozeran, Megan. (2019, August). The Ethics of Data Visualization. *Visualizing the Future Symposia Documentation*. https://visualizingthefuture.github.io/documentation/

Thanks!

Any questions?

You can also find me at:

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