Data Visualization

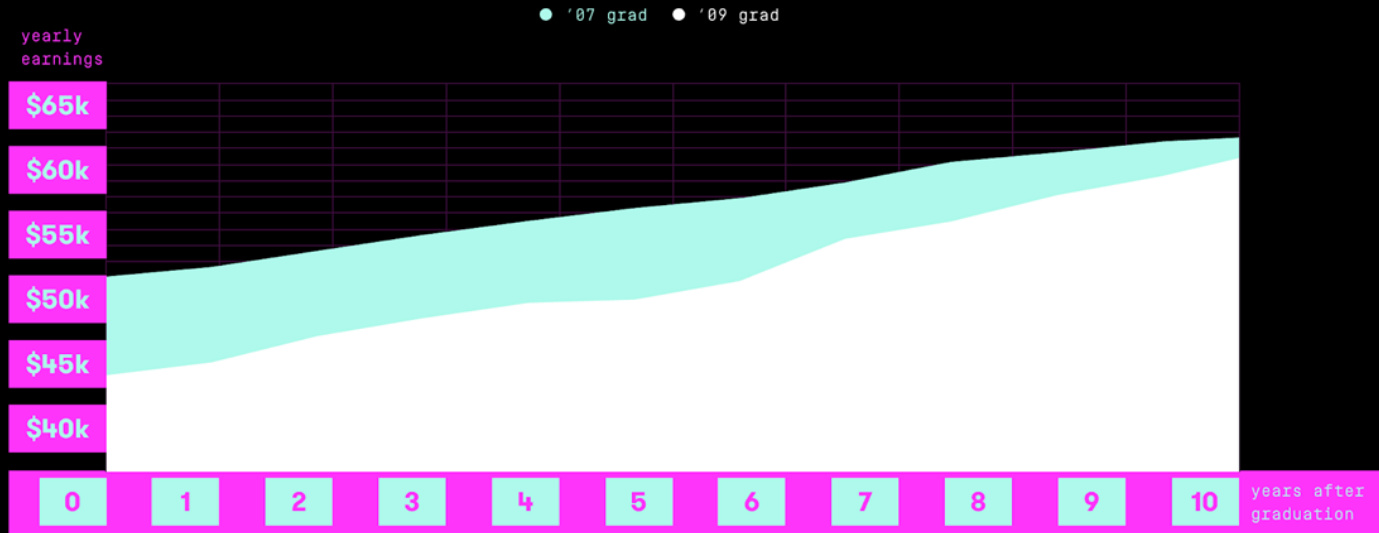## Youth Radio and Rockman et al

Hello!

#iTestDataViz

#itest2018

How does beautiful data enhance a story?

The Class of Oh No

Heaven help you if you graduated on the wrong side of the recession.

● '07 grad   ○ '09 grad

yearly earnings

$65k
$60k
$55k
$50k
$45k
$40k

0 1 2 3 4 5 6 7 8 9 10   years after graduation

Over 10 years, the typical '09 grad could earn up to **$58,600** less than the typical '07 grad.

Sources: "Cashier or Consultant? Entry Labor Market Conditions, Field of Study, and Career Success," by Joseph G. Altonji, Lisa B. Kahn & Jamin D. Speer, Journal of Labor Economics, 2016; and "The long-term labor market consequences of graduating from college in a bad economy," by Lisa B. Kahn, Labour Economics, 2010. Projections assume initial earnings of $50,000 and are based on the researchers' analysis of earnings during periods of growth and recession from 1980 to 2011.
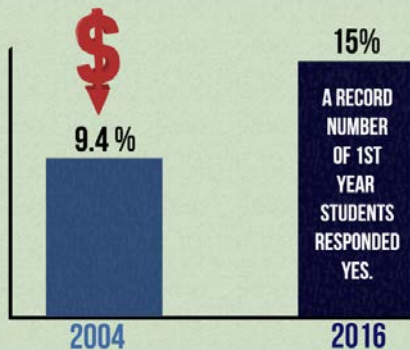
We've taken on at least **300%** more student debt than our parents

Source: The College Board, Trends in Student Aid 2013. Calculations based on average per-student borrowing in 1980 and 2010.
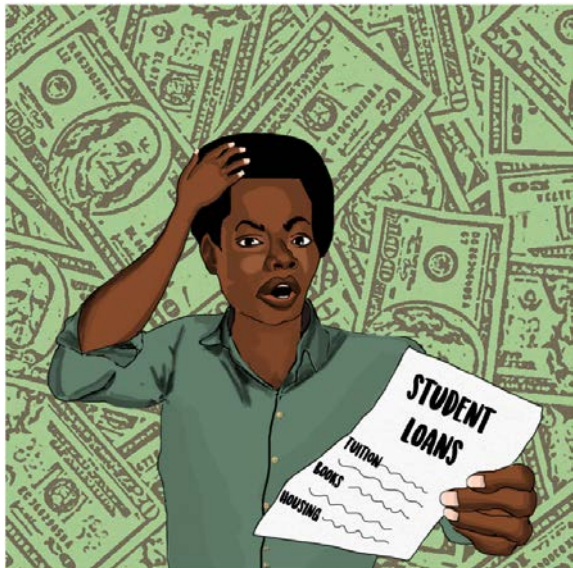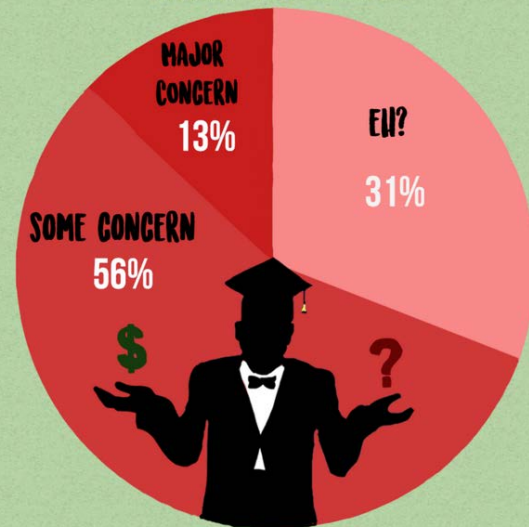
Illustrated by Dominik Vaughan/Youth Radio

WERE YOU UNABLE TO AFFORD YOUR FIRST-CHOICE SCHOOL?

9.4% — 2004

15% — A RECORD NUMBER OF 1ST YEAR STUDENTS RESPONDED YES. — 2016

Illustrated by Dominik Vaughan. Based on 2016 survey data collected by The Cooperative Institutional Research Program of the Higher Education Research Institute at UCLA

HOW CONERNED ARE YOU ABOUT PAYING FOR COLLEGE?

MAJOR CONCERN 13%

EH? 31%

SOME CONCERN 56%

Illustrated by Dominik Vaughan. Based on 2016 survey data collected by The Cooperative Institutional Research Program of the Higher Education Research Institute at UCLA
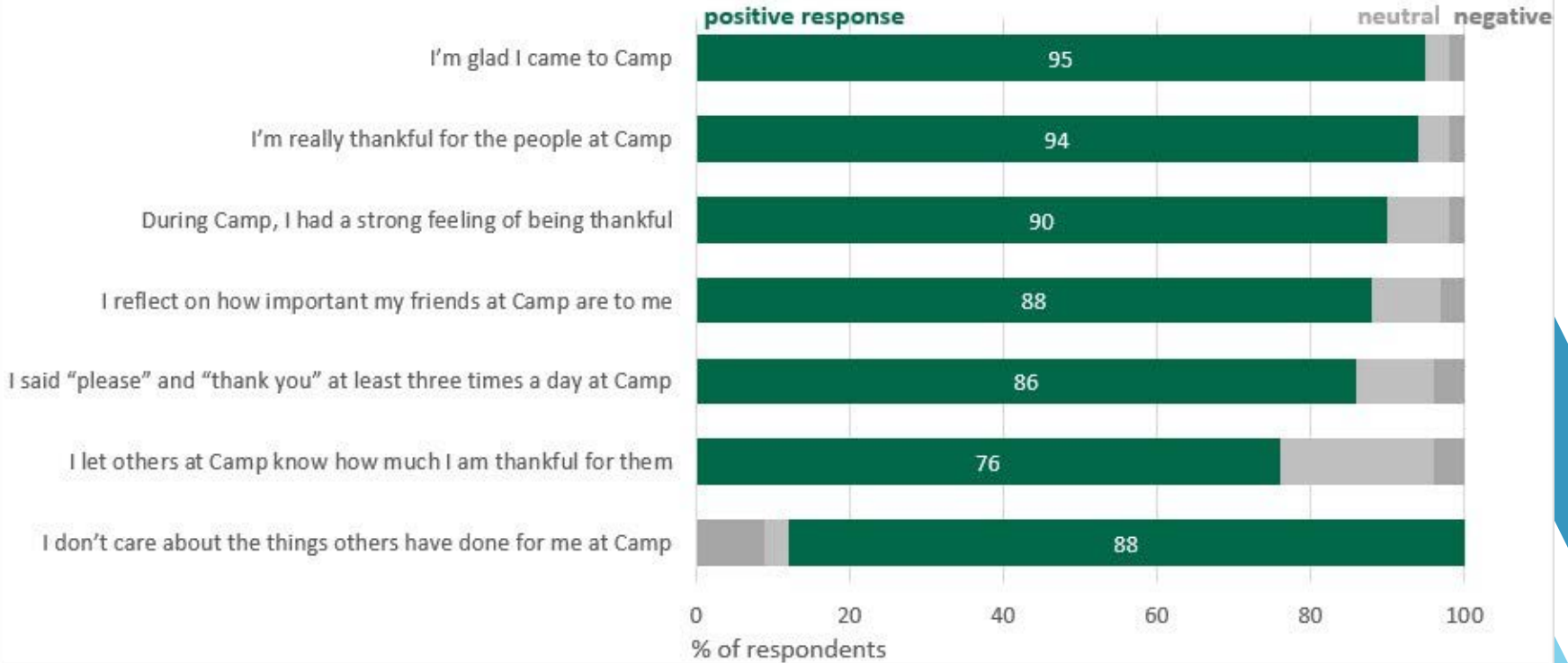
Moodring
slide

Data Viz is also for Evaluation!

Campers were **overwhelmingly thankful** for their Camp experience.
Note that the last question is intentionally negatively-worded.

positive response | neutral | negative

I'm glad I came to Camp	95
I'm really thankful for the people at Camp	94
During Camp, I had a strong feeling of being thankful	90
I reflect on how important my friends at Camp are to me	88
I said "please" and "thank you" at least three times a day at Camp	86
I let others at Camp know how much I am thankful for them	76
I don't care about the things others have done for me at Camp	88

0   20   40   60   80   100
% of respondents

Source: http://stephanieevergreen.com/aggregated-stacked-bars/

Has the program influenced the courses you plan to take next year?

This program showed me how hard I.T. can be and showed me that it might not be my strong suit.

No, 15%

Somewhat, 23%

Yes, 62%
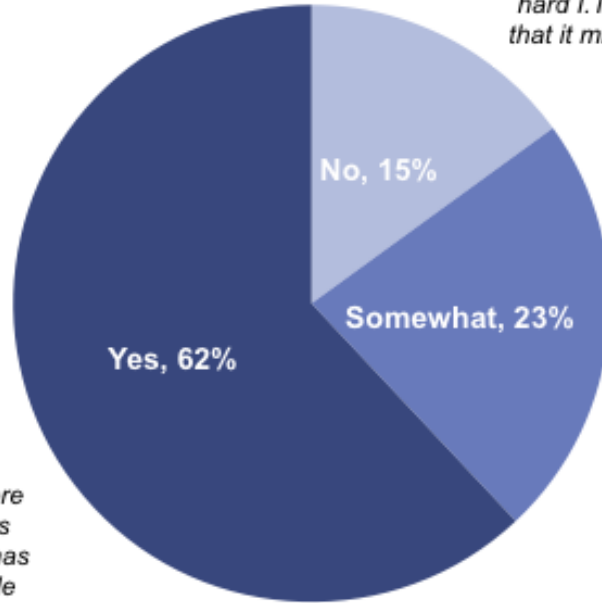
After learning more about computers and animation it has helped me decide majors I will definitely pursue and has opened my mind to where I could go from there.

Source: Allen & Quimby (2015)

Kindergarten readiness increased between Fall and Spring.

Minimum entry requirement: 65% in all areas.

Area	Fall	Spring
Literacy	34	69
Language	67	75
Mathematics	63	77
Science	92	98
Creative Arts	96	100

Source: http://stephanieevergreen.com/easy-dot-plots-in-excel/

HOW DO WE GET THERE?

DATA → CHART → DESIGN
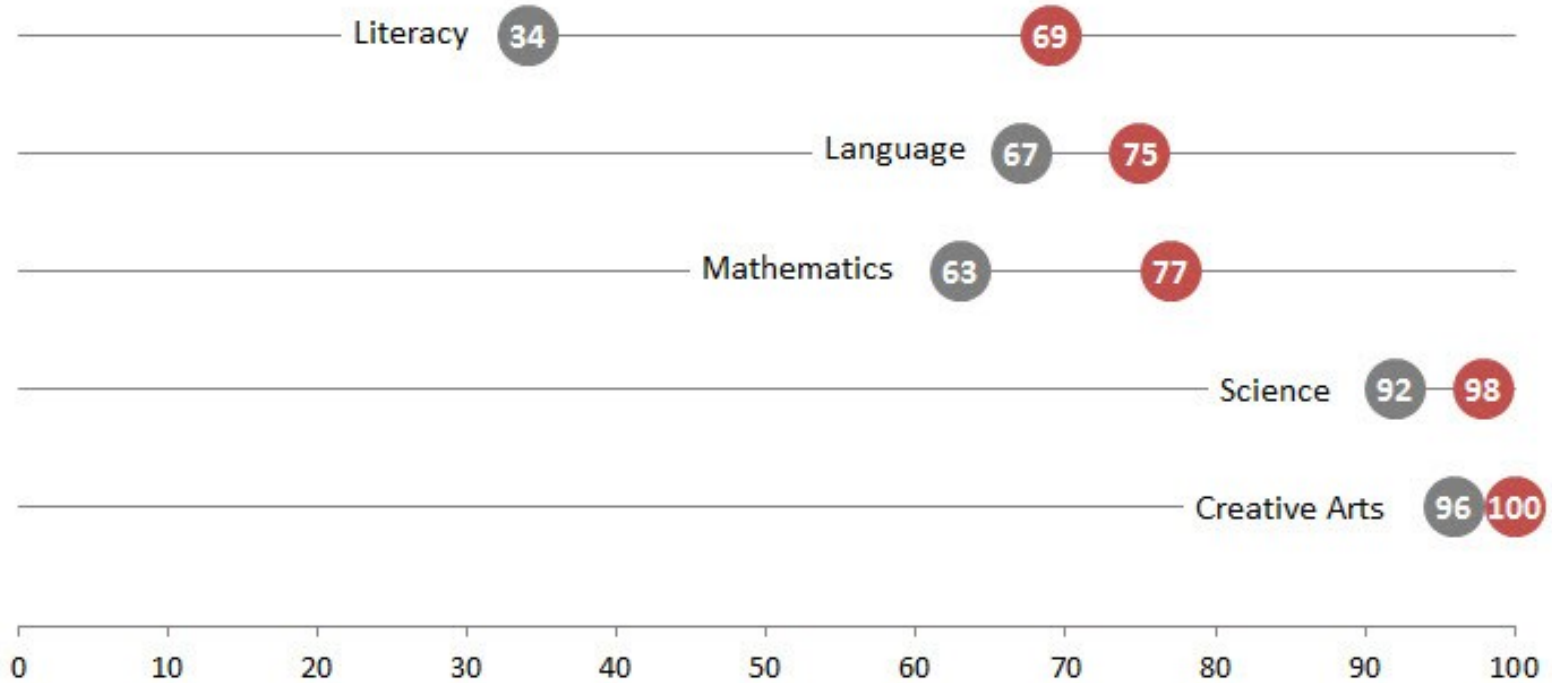
What is data?

Lead Candy Data Selection ☆ 📁

🖨 ↶ ↷ ⅂ | $ % .0 .00 123▾ | Arial ▾ | 10 ▾ | **B** *I* S̶ A▾ | 🪣▾ ⊞▾ 🔲▾ | ☰▾ ⬇▾ ⟷

California Department of Public Health

	A	B	C	D	E	F	
	California Department of Public Health						
	Candy Analysis Data: 2013- 2014						
	Updated: April 30, 2014						
	Candies With ▾	▾	▾	name ▾	ppm ▾	lead ▾	pic
	FD	F13C01094	7/19/2013	Caravelle Panda Coconut Candy	0.06	yes	
	FD	F13C00551	5/17/2013	Cerrilos Spicy and Sour Watermelon Lollypop Car	0.08	yes	
	FD	F13C00552	5/17/2013	Cerrilos Spicy and Sour Watermelon Lollypop Car	0.08	yes	
	FD	F13C00860	6/17/2013	China Top Brand Corn Flavor Soft Candy	0.06	yes	
	FD	F13C00084	2/15/2013	Confectious, Aussie Style Black LICORICE	0.13	yes	
	FD	F13C00083	2/15/2013	Confectious, Aussie Style Black LICORICE	0.14	yes	
	FD	F13C01084	8/2/2013	DaiJoBu Lychee Candy	0.06	yes	
	FD	F12C02129	1/10/2013	Dried Preserved Plum	1.6	yes	
	FD	F12C02130	1/10/2013	Dried Preserved Plum	1.7	yes	
	FD	F13C01360	9/24/2013	El Super Leon Burrito de Tamarindo Candy	0.05	yes	
	FD	F13C01359	9/24/2013	El Super Leon Burrito de Tamarindo Candy	0.06	yes	

Quantitative

numbers give a sense of scope

Average = total/# of people

Mode = most common #

Median = # in the middle

Range = the lowest/highest #?

Qualitative Data
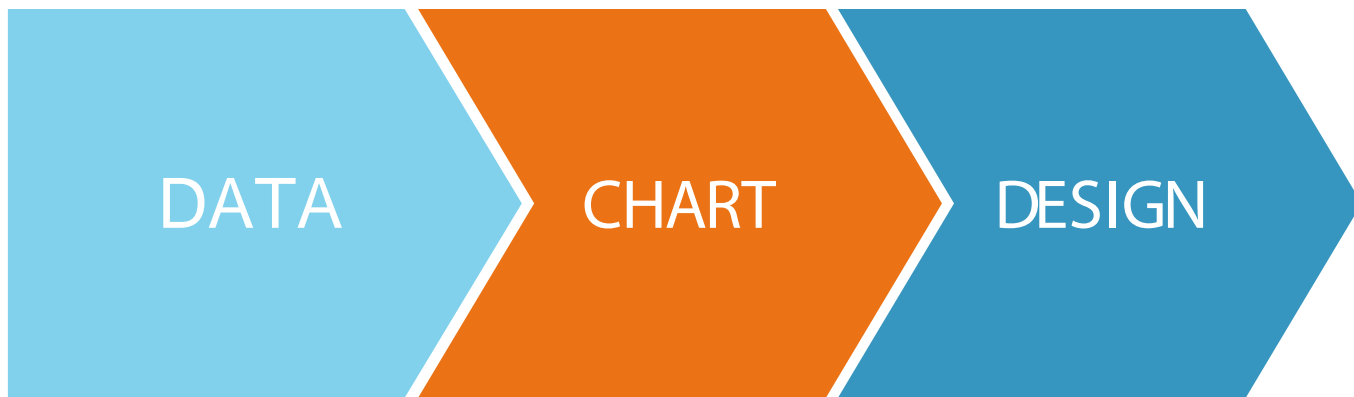
narrative provides flavor

Examples = what's the narrative?

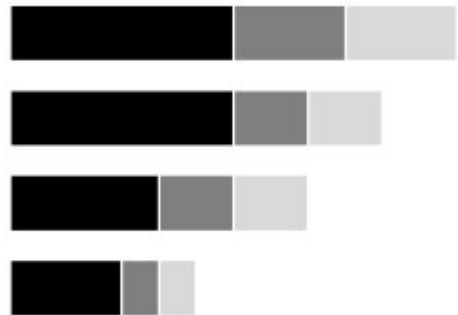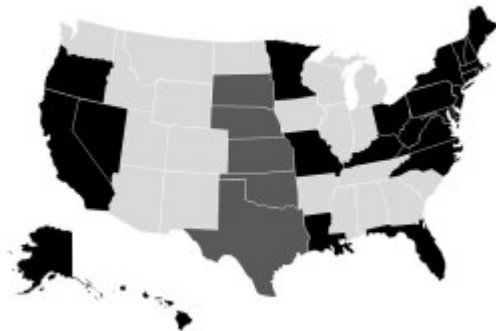**Rationale** = what are the reasons?

Background = what's the history/context?

Emotions = what are the stakes?

___

HOW DO WE GET THERE?

DATA → CHART → DESIGN

LINE
HEAT MAP
DUMBELL DOT
PIE CHART
STACKED BAR

via AnnKemery.com/essentials
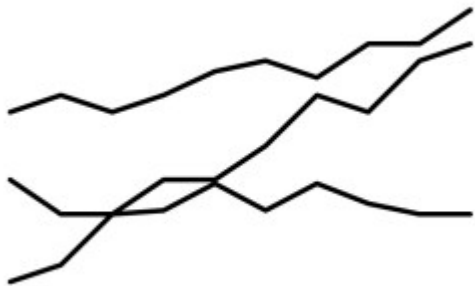
STAND UP!

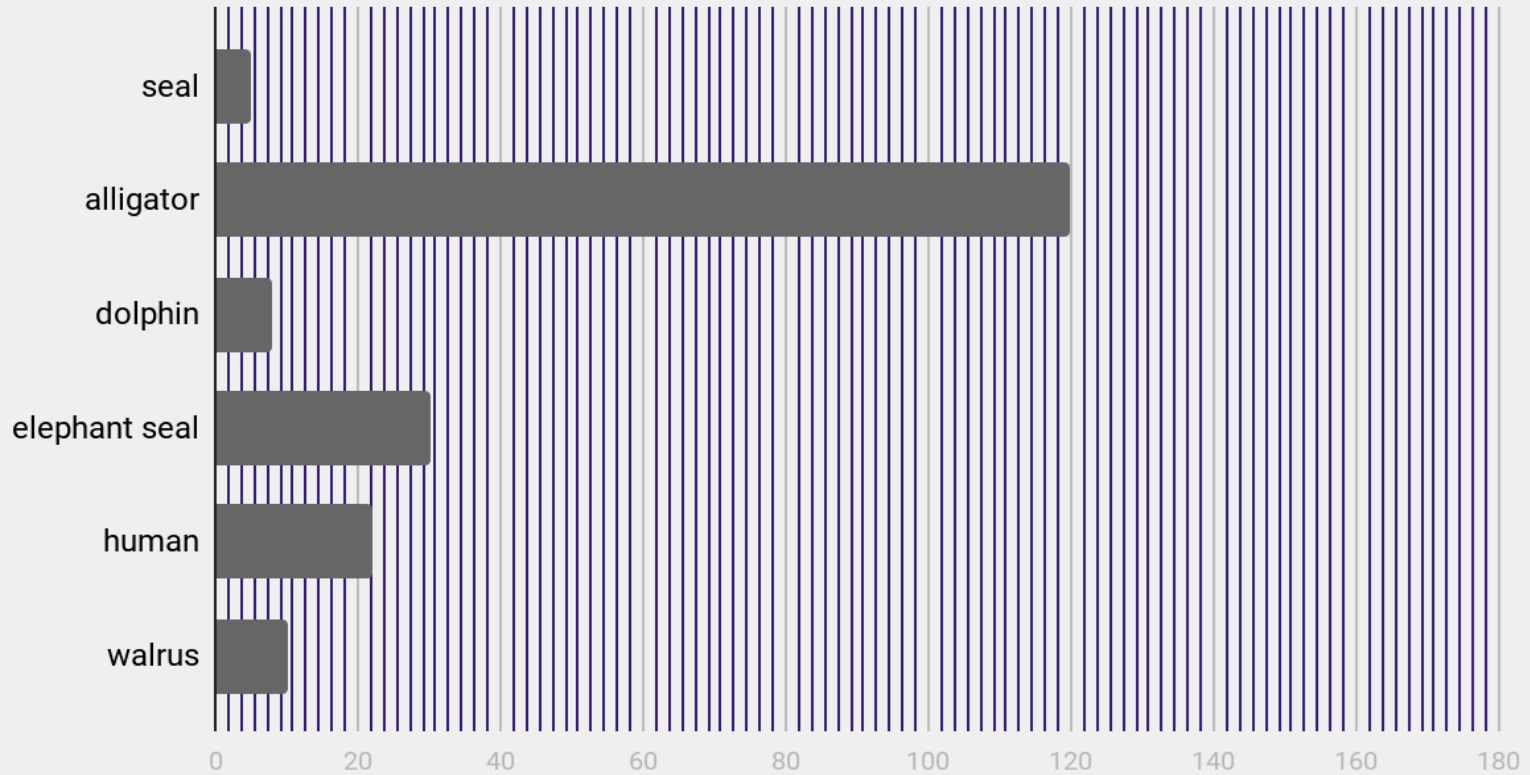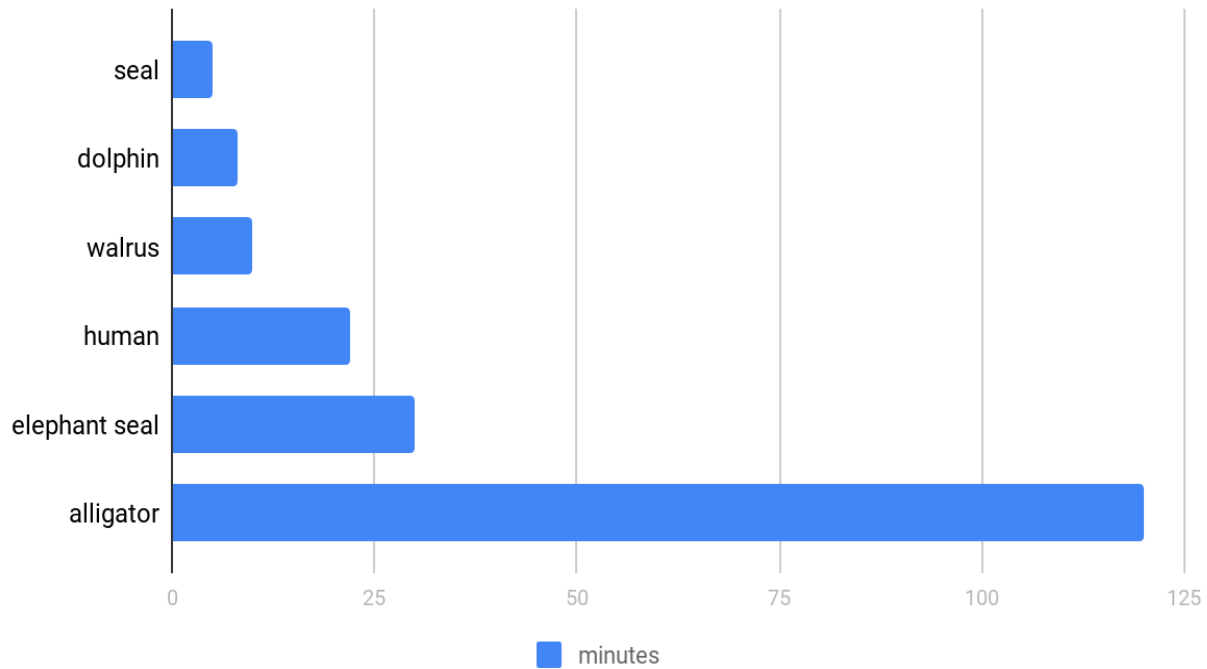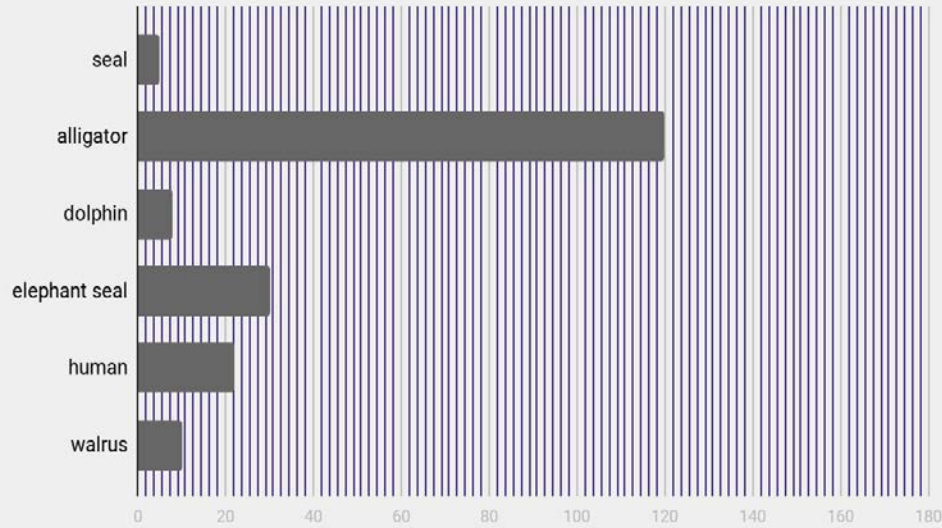# YOU DID IT!
You visualized data!

Super Swimmers

Super Swimmers

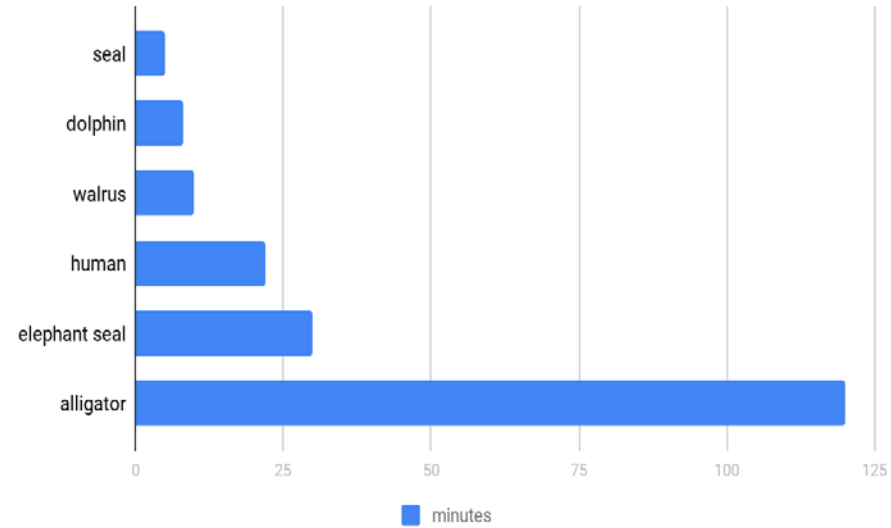# How do we get from here...   To here?

Super Swimmers

	minutes
seal	
alligator	
dolphin	
elephant seal	
human	
walrus	

(x-axis: 0, 20, 40, 60, 80, 100, 120, 140, 160, 180)

Super Swimmers

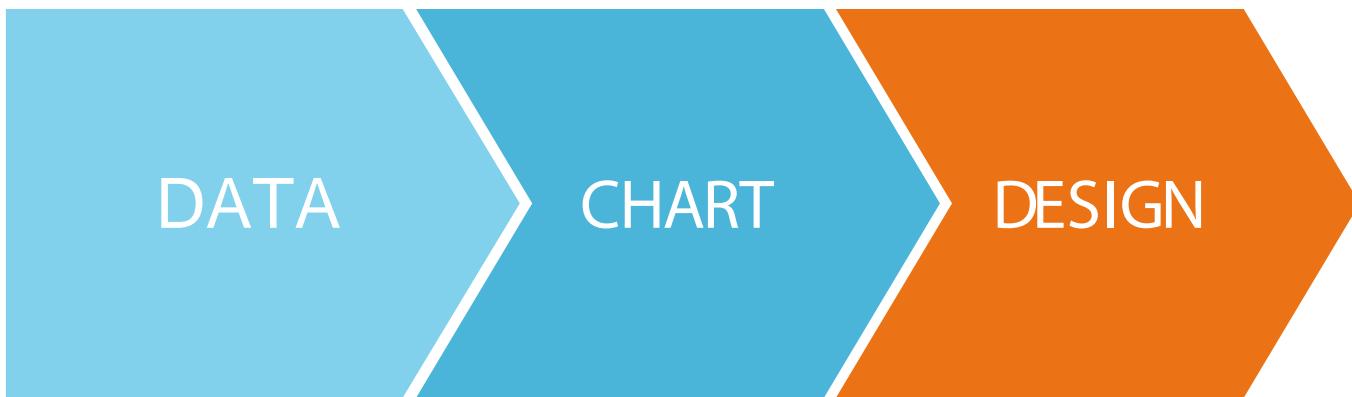|	minutes
seal	
dolphin	
walrus	
human	
elephant seal	
alligator	

(x-axis: 0, 25, 50, 75, 100, 125)

SHOW! DON'T TELL

Use visuals to make numbers, states, processes understandable.

Give **scale**, **scope**, or **story**.

BASIC PRINCIPLES OF DESIGN!

CRAP

Contrast

CONTRAST

The arrangement of opposite elements (light vs. dark colors, rough vs. smooth textures, large vs. small shapes, etc.) in a piece to create visual interest, excitement and drama.

20 dead
(empty accounts)

only 5
with more than 100 followers

50 lazy
not tweeted in the last week

5 loud mouths
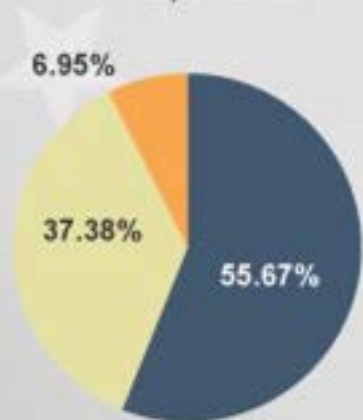creating 75% of the tweets

Repetition

REPETITION

The **repeating** of visual elements such as line, color, shape, texture, value or image, which tends to **unify** the total effect of a work of art as well as create rhythm.
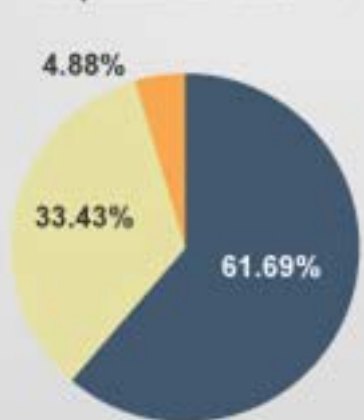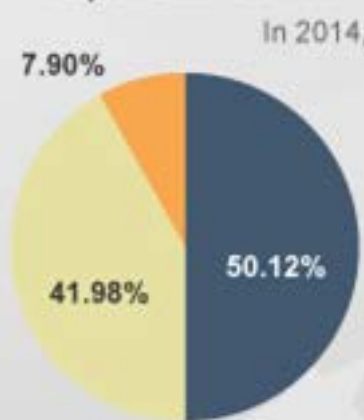
Alignme
nt

ALIGNMENT

Line it up! The organization or grouping information or elements to create order and balance, or to call attention to a focal point of the design.

SUPER SWIMMERS

SAVE YOUR BREATH

Some animals that live in the water don't have gills, so they have to hold their breath as they swim. But who can last the longest underwater?

*This is the longest time ever recorded for a human being. The average time a human can hold their breath is only around 1 minute.

Harbour seal
5 minutes

Dolphin
8 minutes

Walrus
10 minutes

Human
22 minutes*

Northern elephant seal
30 minutes

Alligator
2 hours

PACKED LIKE SARDINES

The **sardine** run is one of the biggest coordinated shoaling movements of fish. They spawn near the African coast. The shoals can be up to 4.5 miles/7 kilometres long, 1 mile/1.6 kilometres wide and are visible from space.

The shoaling fish respond to the position of their neighbours, trying not to get too close to some and keeping far enough away from others.

At 12.5 metres/41 feet, the **whale shark** is the longest fish in the world.

THE SQUID AND THE WHALE SHARK

A **giant squid** reaches up to 18 metres/59 feet long.

When threatened, sardines (and other foraging fish) group together to create huge bait balls of up to 20 metres/65.6 feet in diameter to confuse the predators.

Thousands of dolphins feed on the sardines by herding groups of the fish together like sheepdogs.
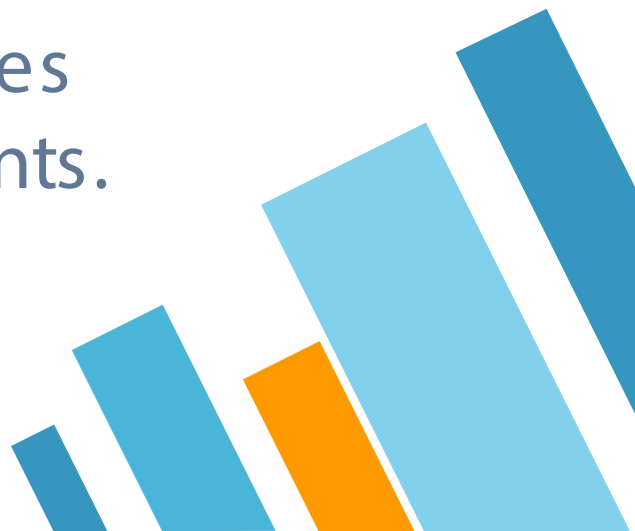
Proximity

PROXIMITY

The **closeness of groups** that produces a bond or emphasizes a relationship between elements.

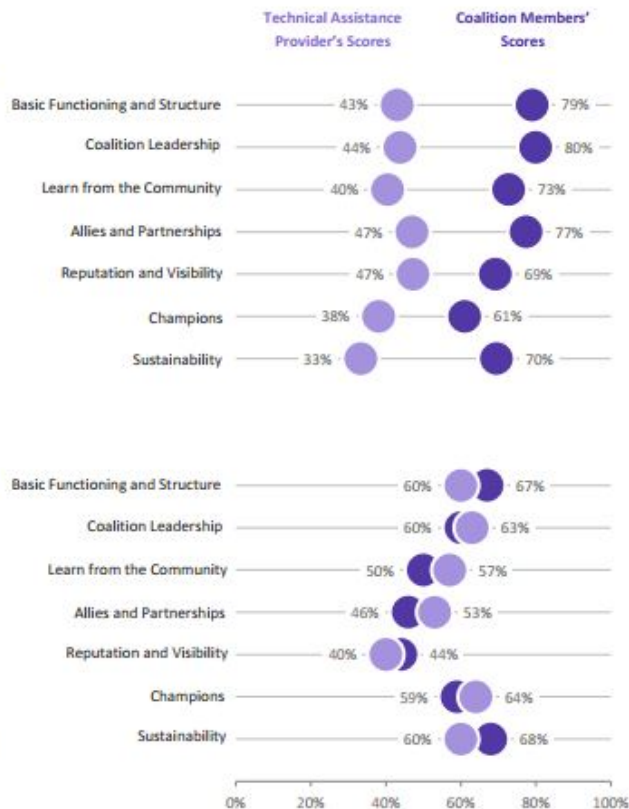## Who should provide a perspective on the coalition?

Coalition assessments are strongest when multiple perspectives are included, both internal and external to the coalition. We see value in including an array of voices from within the coalition: leaders, general members, senior participants, junior participants, and representation from a range of skill areas. In our example, an outsider perspective was also included; one technical assistance provider per coalition was included as a respondent to further ground the results and enhance the overall meaning of the data. The technical assistance provider's perspective allows us to triangulate the information, as shown in the dot plots below.

Coalition members might be more optimistic in how they perceive themselves compared to external raters.

In slightly more than half of the coalitions in our example, the coalition members rated themselves higher than technical assistance providers.

	Technical Assistance Provider's Scores	Coalition Members' Scores
Basic Functioning and Structure	43%	79%
Coalition Leadership	44%	80%
Learn from the Community	40%	73%
Allies and Partnerships	47%	77%
Reputation and Visibility	47%	69%
Champions	38%	61%
Sustainability	33%	70%

Sometimes, few differences exist between coalition members and technical assistance providers.

For the remaining coalitions, the results are typically mixed— sometimes the coalition members view themselves in the capacity areas than the technical assistance providers; other times, the technical assistance providers give higher ratings.

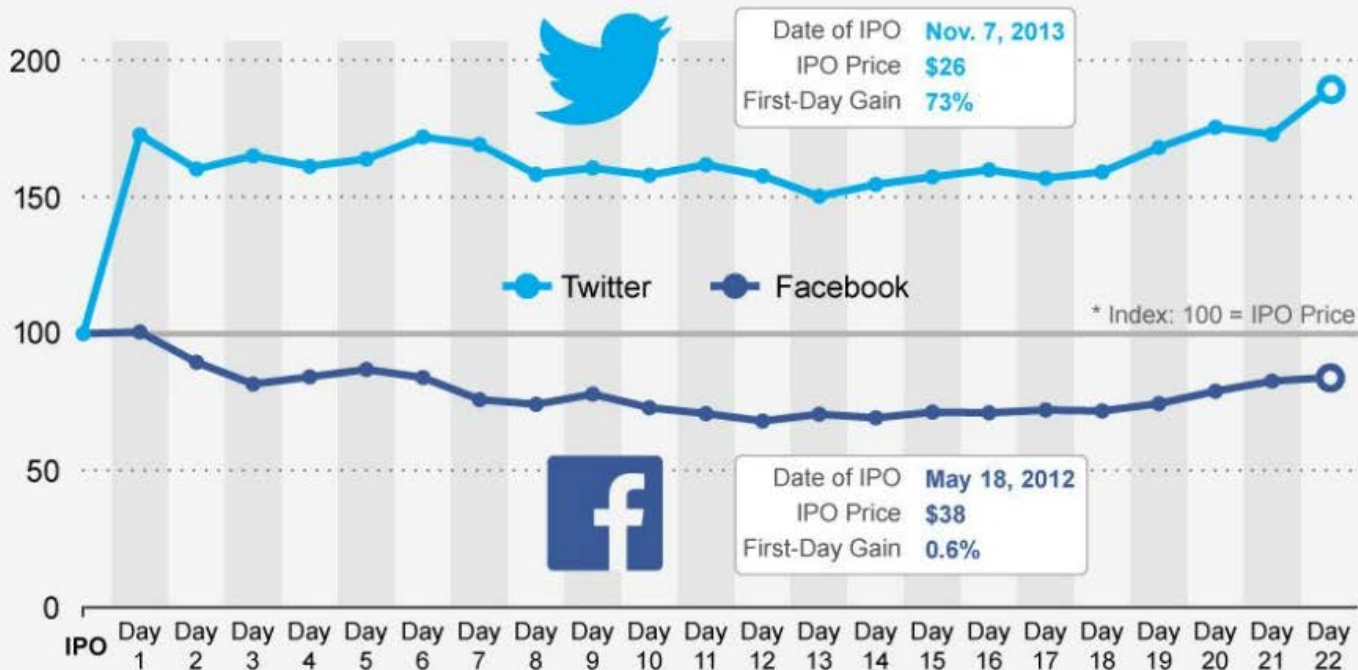| Basic Functioning and Structure	60%	67%
Coalition Leadership	60%	63%
Learn from the Community	50%	57%
Allies and Partnerships	46%	53%
Reputation and Visibility	40%	44%
Champions	59%	64%
Sustainability	60%	68%

What's CRAP about this?

Twitter Avoids Facebook's IPO Mistake by Making Another

Stock performance of Twitter and Facebook in the first 22 trading days after their respective IPOs*

Date of IPO	Nov. 7, 2013
IPO Price	$26
First-Day Gain	73%

● Twitter ● Facebook

* Index: 100 = IPO Price

Date of IPO	May 18, 2012
IPO Price	$38
First-Day Gain	0.6%

IPO, Day 1, Day 2, Day 3, Day 4, Day 5, Day 6, Day 7, Day 8, Day 9, Day 10, Day 11, Day 12, Day 13, Day 14, Day 15, Day 16, Day 17, Day 18, Day 19, Day 20, Day 21, Day 22

Source: Yahoo! Finance

But… what about qualitative data?

Can you make that beautiful?

"I'M GOING TO BED AT 10 P.M. NO MATTER WHAT. I'LL NEED ENERGY TO DEAL WITH ALL THE PEOPLE TALKING ABOUT POLITICS IN CLASS TOMORROW."

The East Coast, Unaffiliated "Meh" Voter

Sayre Quevedo, 23, College student in Brooklyn, New York

Mood: I feel pretty ambivalent about the whole thing. I want to be informed, so I'm paying attention, but I'm not feeling particularly engaged. In the evening, I'll be at the boxing gym trying to distract myself from the election as long as possible. Still, I'll be checking in on Twitter. My roommates are both socialists who didn't watch the debates, so I figure I'll do what I did then: watch on my laptop in my room alone. My bed is my comfort object. I'm going to bed at 10 p.m. no matter what. I'll need energy to deal with all the people talking about politics in class tomorrow.

Music: No clue. I think silence would be nice.

Participants gave five main reasons for enrolling in the course.

Nice quote from reason 5 responses, lalalalalalalalalalalalalalalalalalalalalala lalalalalalalalal........

Reason 5, 9%

Nice quote from reason 4 responses, lalalalalalalalalalalalalalalalalalalalalala lalalalalalalalal........

Reason 4, 10%

Nice quote from reason 3 responses, lalalalalalalalallalalalalalalalalalal........

And a second one, lalalalalalalalalalalallalalalalalalalalalal a

Reason 3, 22%

Nice quote from reason 2 responses, lalalalalalalalalalalalalalalalalalalalalala lalalalalalalalal........

Another nice quote from reason 2 responses, lalalalalalalalalalalalalalala lalalalalalalalalalalalal........

Reason 2, 27%

Nice quote from reason 1 responses, lalalalalalalalalalalalalalalalalalalalalala lalalalalalalalal........

Another nice quote from reason 1 responses, lalalalalalalalalalalalalalala lalalalalalalalalalalalal........

Final quote from really good reason 1 response, lalalalala

Reason 1, 32%

Workshop content, especially the hands-on activities, was the most effective component of the professional development.
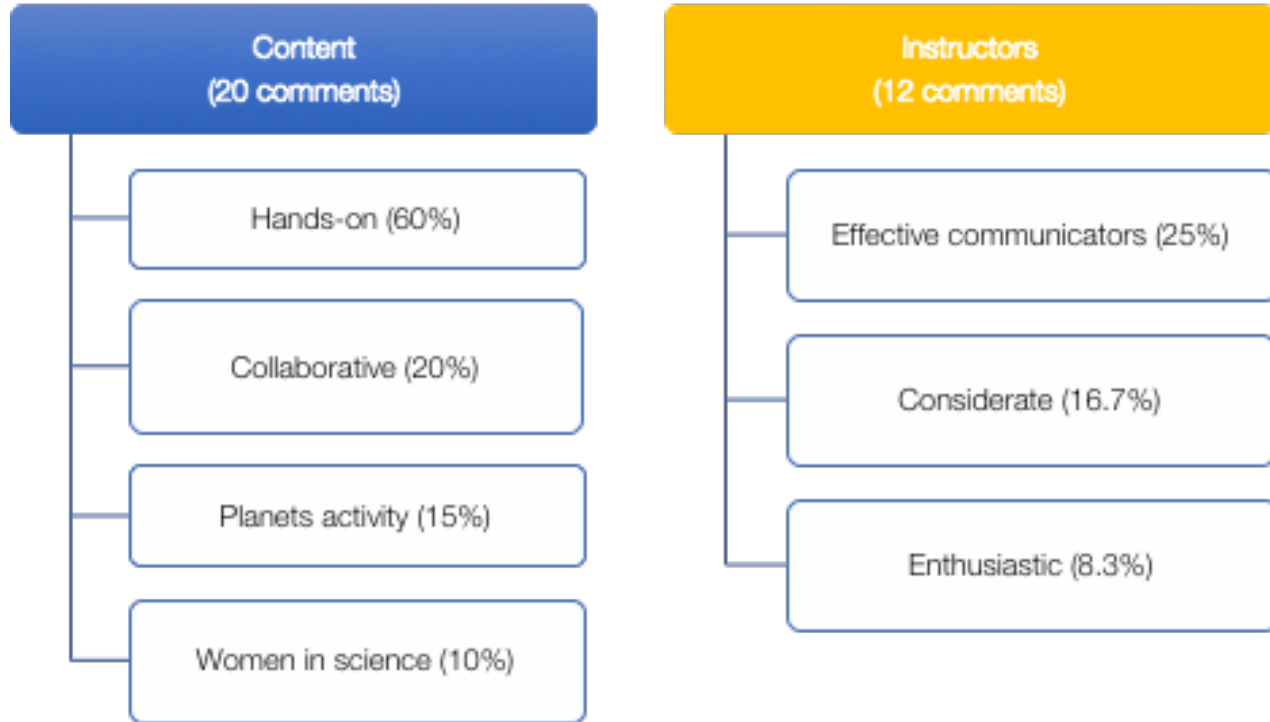
Before
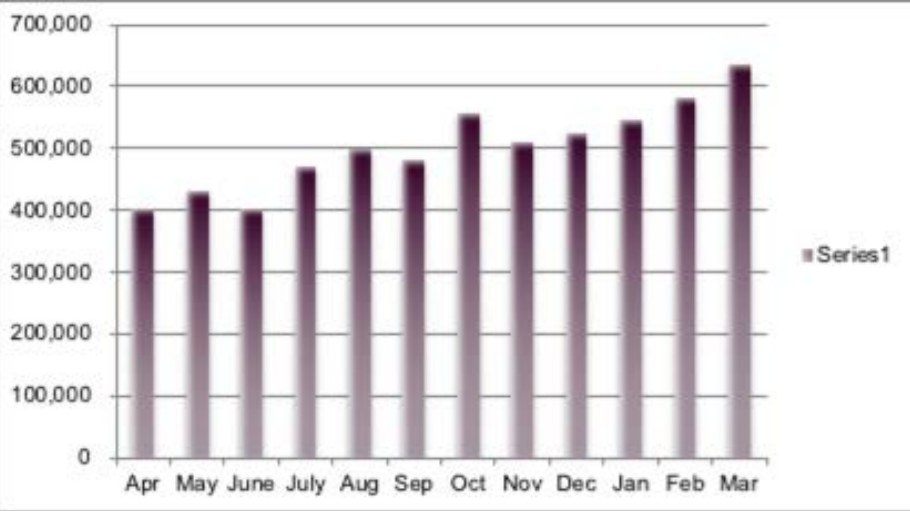
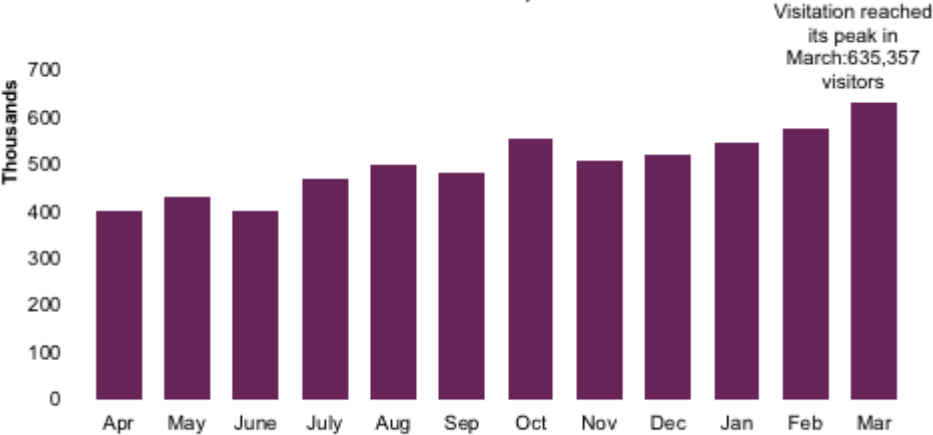**After**

Source: Allen & Quimby (2015)

Chart Checklist

1 Select your story

2 Reduce the clutter

3 Directly label

4 Emphasize key findings with color

5 Summarize your story in the headline

Make your data BEAUTIFUL!

How does this enhance your story?

15 minutes

Make your data BEAUTIFUL!

1. What data will you use?
2. Quantitative? Qualitative?
3. What story are you telling?
4. What type of chart are you using? Why?
5. Is it CRAP?
6. *What data is missing? What info would you want?*

Let's see how you did!

RESOURCES + QUESTIONS

Teach Youth Radio Curriculum

Telling Stories With Data

Data is a key part of the way we make stories, fun, relevant and accurate. In this unit, you'll learn how to turn data into engaging transmedia stories about the world we live in. **youthradio.org/teach-youth-radio/diy-toolkit-telling-stories-with-data/**

How to Make an Infographic

In this lesson, we'll walk you through the basics of making your own infographic depending on the data at hand. **youthradio.org/journalism/science/diy-how-to-make-an-infographic/**

Data Viz for Evaluators!

- Ann Emery: http://annkemery.com
- Stephanie Evergreen: http://stephanieevergreen.com
- AEA resources (slide and presentations): http://www.eval.org/page/p2i-tools
- Qualitative chart chooser: http://stephanieevergreen.com/wp-content/uploads/2017/11/Qualitative-Chooser-3.pdf
- Data visualization checklist: http://annkemery.com/checklist/

Resources to make your designs POP for free!!

- **Coolors.co** - An awesome color scheme generator. Super fun to use! **coolors.co**
- **Google Fonts** - A huge database of downloadable, web-safe fonts. **fonts.google.com**
- **Pixabay** - A collection of royalty-free photos, illustrations, vector images, and even videos. **pixabay.com**
- **The Noun Project** - Tons of royalty-free icons from a variety of designers. **thenounproject.com**
- **Canva** - Online graphic design tool. Very intuitive & no download necessary. **www.canva.com**