

A PRESENTATION FROM
DATA DOZEN
a visual analytics studio

ERIN WALDRON FROM DATA DOZEN · OCTOBER 4, 2022 · WIZARDS OF THE COAST · WORKSHOP #1

COMMUNICATION TOOLKIT

HOW DATA VISUALIZATION CAN MAKE US BETTER COMMUNICATORS & COLLABORATORS



COMMUNICATION TOOLKIT

We've got four communication exercises from data visualization.

PURPOSE

MADLIB

Define the intention of your work.



COLLABORATION

MOOD BOARD

Create a shared language.



COGNITIVE LOAD

SPECTRUMS

Calibrate your work's cognitive load.



TESTING

WORKSHOP

Watch your work in real time.



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FILL IN THE BLANK

____ **WHO** ____ (audience) will use this visualization about
____ **WHAT** ____ (content) to ____ **WHY** ____ (purpose).
They will interact with this visualization
on a ____ **WHERE** ____ (platform)
for ____ **WHEN** ____ (minutes) on a ____ **WHEN** ____ (frequency) basis.

FILL IN THE BLANK

_____ (audience) will use this visualization about
_____ (content) to _____ (purpose).

They will interact with this visualization
on a _____ (platform)
for _____ (minutes) on a _____ (frequency) basis.

FILL IN THE BLANK

The school board (audience) will use this visualization about
class enrollment (content) to allocate funds (purpose).
They will interact with this visualization
on a paper report (platform)
for 120 (minutes) on a annual (frequency) basis.

FILL IN THE BLANK

The cafeteria staff (audience) will use this visualization about
class enrollment (content) to prepare each day's lunch (purpose).
They will interact with this visualization
on a web portal (platform)
for 5 (minutes) on a daily (frequency) basis.

PURPOSE

Every data visualization is like a **bridge** that connects the audience on one side to the data on the other. To be successful, your work has to respect the pre-existing **contours** on either side.





WHO AUDIENCE



WHAT CONTENT



WHEN TIME



WHERE PLATFORM



WHY PURPOSE

MADLIB

► SPECIFICITY

Describe your audience. Get specific. Who are they? What are their primary concerns? What do you know about them? What don't you know about them?

► SIZE

How many folks are you trying to reach? If you could reach just one person, who would they be?

► INVESTMENT

Does your audience actively care about this data? This project? This visualization?

► DATA

What's their relationship to the data? Did they help create it? Are they in it?

► PRIMING

Are they primed to support or reject this data? (Folks are rarely completely neutral.) How could this project potentially offend, frustrate, or alienate them?

► TRUST

Describe your relationship with the audience. Is there skepticism? Camaraderie? Depth? Do they even know you? Fundamentally, do they trust you? Why or why not?



WHO
AUDIENCE



WHAT
CONTENT



WHEN
TIME



WHERE
PLATFORM



WHY
PURPOSE

MADLIB

- ▶ **VARIABLES**

Describe your data set. In particular, which variables do you want your audience to understand most? (i.e., if you could only take five variables to a desert island, which would they be?)

- ▶ **QUANTITY**

Is there enough data to actually work with in a meaningful way?

- ▶ **QUALITY**

At the end of the day, do you trust the data set? Do you understand the underlying methodology?

- ▶ **ASSUMPTIONS**

What assumptions or decisions are baked into your data set make? How can you communicate those to your audience? (“Raw data is an oxymoron” --Lisa Gitelman)

- ▶ **EXPERTISE**

How well do you know the content? Do you need a domain expert in order to make the analysis meaningful? (Remember, there’s no shame in that!)



WHO
AUDIENCE



WHAT
CONTENT



WHEN
TIME



WHERE
PLATFORM



WHY
PURPOSE

MADLIB

- ▶ **DURATION**

How long will you have your audience's attention? How long do you wish you could have your audience's attention? How big is the chasm between those two answers?

- ▶ **FREQUENCY**

Describe the intended frequency with which your audience will interact with your visualization? Is this something they'll see once in a presentation or report? Or is this something that you expect them to interact with routinely? Daily? Monthly? Quarterly?

- ▶ **HABIT**

Will they see it frequently enough to remember how it works or will they need a refresher each time?



WHO
AUDIENCE



WHAT
CONTENT



WHEN
TIME



WHERE
PLATFORM



WHY
PURPOSE

MADLIB

- ▶ **PUBLICATION**

Where will the final visualization live? (ex: in a slide deck, on a blog, in a password protected online portal, etc.) What are those layout dimensions?

- ▶ **TECHNOLOGY**

Will the audience consume the visualization on their phones or on a computer?

- ▶ **INTERACTIVITY**

Is the final visualization interactive? How will the audience know what they can do?



WHO
AUDIENCE



WHAT
CONTENT



WHEN
TIME



WHERE
PLATFORM



WHY
PURPOSE

MADLIB

► JUSTIFICATION

Set aside the buzz word justification for your work. Go deeper here than just “Data-driven decision making” and “real-time insights”. Why does this specific visualization need to exist for this specific audience?

► CURRENT NEED

Does your visualization fill a current need or is just a formality, an organizational habit justified “because we’ve always done it this way”?

► MOTIVATION

Broadly speaking, what’s your motivation? What’s your organization’s motivation? What’s the audience’s motivation? How do these differ?

► PURPOSE

Describe the visualization’s purpose. Is the visualization proactive work, reactive postmortem analysis, real-time monitoring? Is the work meant to incentivize, penalize, or or simply serve as self-analysis (carrot, stick, mirror paradigms)?

► SUCCESS

What does a successful outcome look like for your project? How will you measure that?

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COLLABORATION

It's impossible to edit a **blank** page.





- Colors
- Fonts
- Branding
- Words
- Sample Vizzes
- Sample Dashboards

Inspiring mood board examples

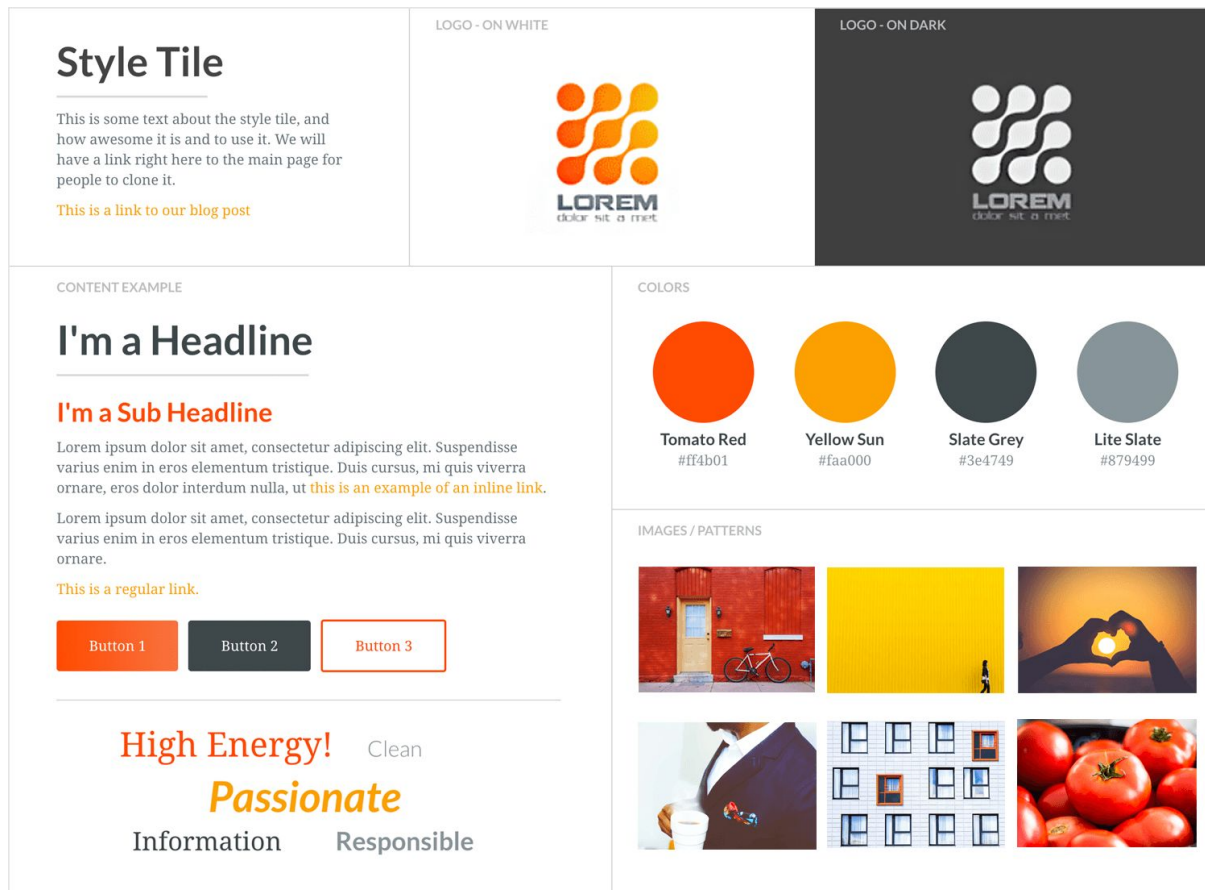
DESIGN | April 08, 2020



Create a shared visual language

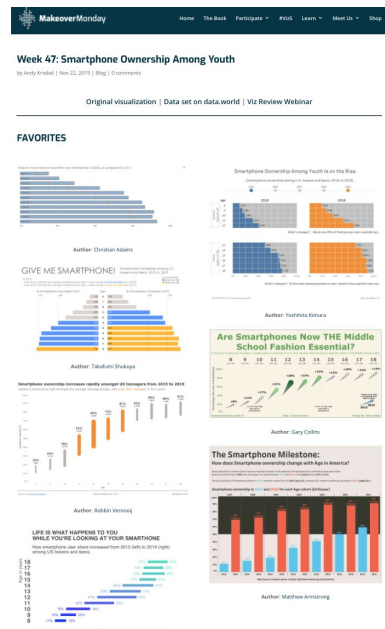
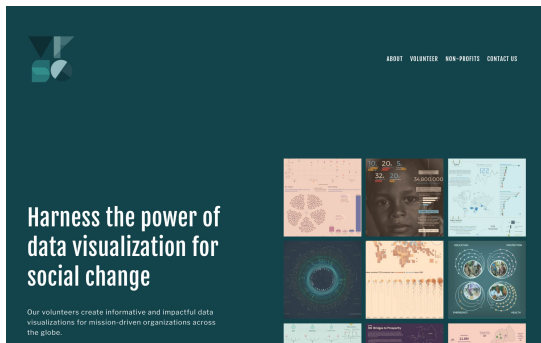
MOOD BOARD







- Draft lightly in multiple directions
- Timebox and share draft workbook
- Sharing unfinished work takes guts
- Management v. Leadership
- Viz for Social Good
- Makeover Monday

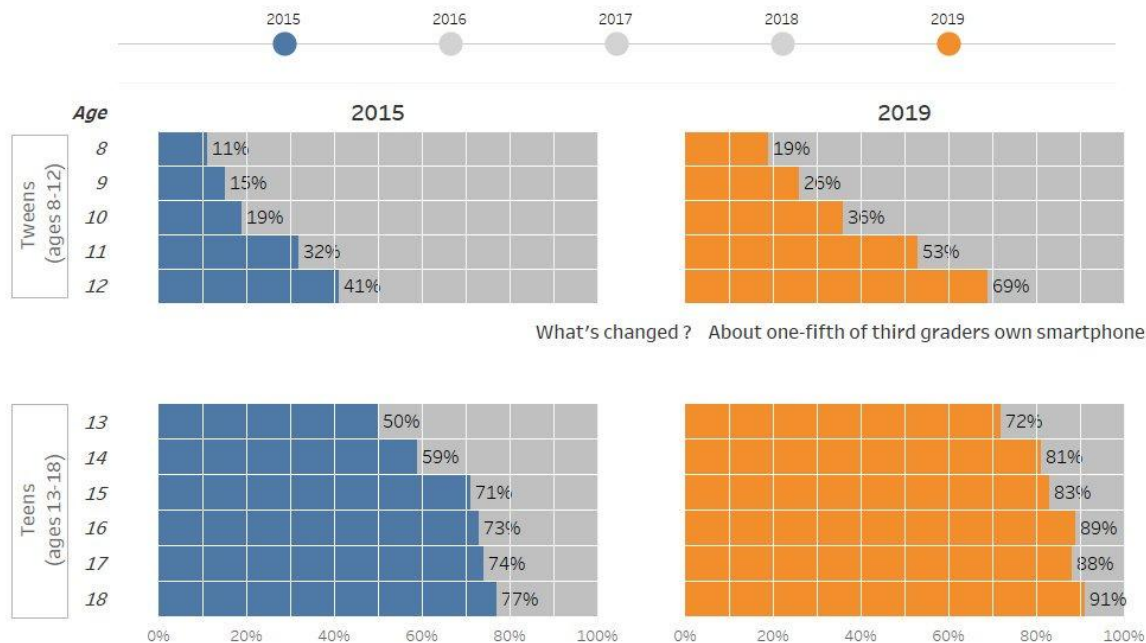


Create a shared visual language

SAMPLER PLATTER

Smartphone Ownership Among Youth Is on the Rise.

(Smartphone ownership among U.S. tweens and teens, 2015 vs.2019)



What's changed ? About one-fifth of third graders own smartphones .

What's changed ? By the time tweens graduate to teen, nearly three-quarters have one.

DATA SOURCE: Common Sense (page 27)

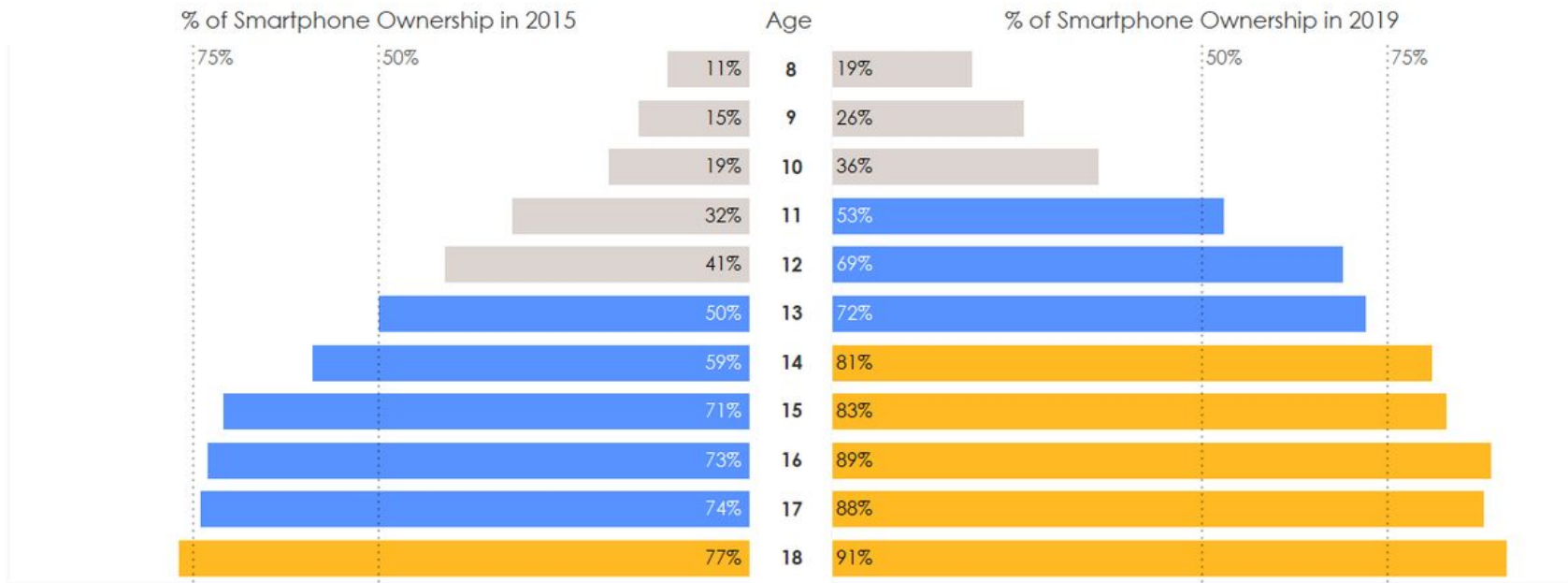
@SimpliVizBest_YK

GIVE ME SMARTPHONE!

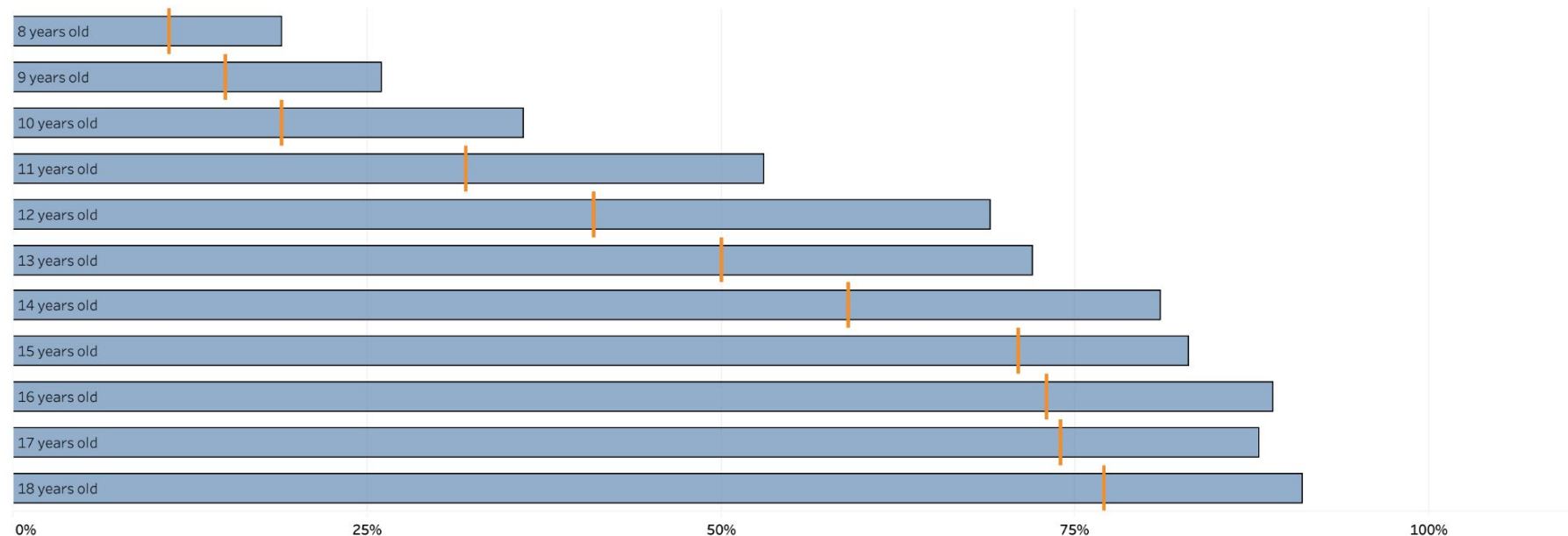
Smartphone Ownership among U.S. tweens and teens, 2015 vs. 2019

In 2019,
more than half kids are owning smartphone by age 11 (becoming **2 years younger** from 2015)
more than 75% kids are owning smartphone by age 14 (becoming **4 years younger** from 2015).

■ Less than 50%
■ More than 50%
■ More than 75%

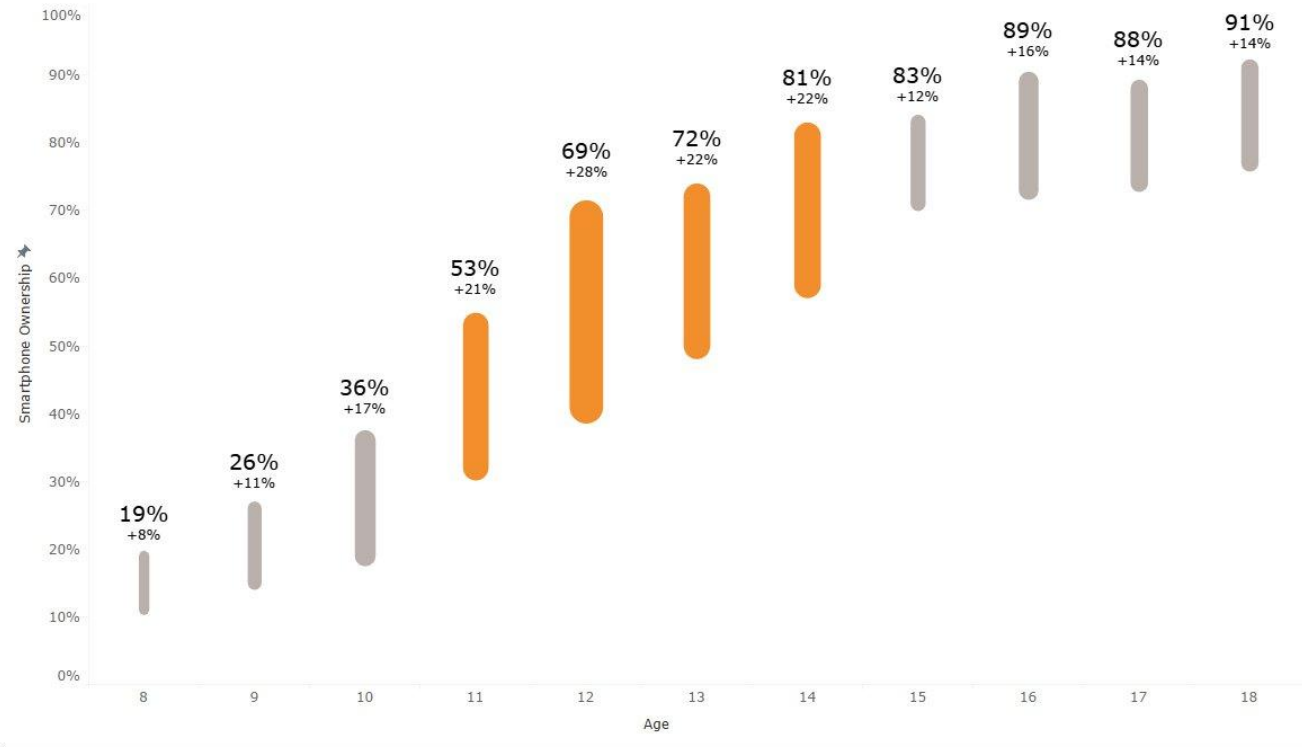


Kids are more likely to have their own smartphone in 2019, as compared to 2015



Smartphone ownership increases rapidly amongst US teenagers from 2015 to 2019

Uptake is particularly high amongst the younger teenage groups, with **over 20% increases** in four years



Source: [Common Sense \(page 27\)](#)

MakeoverMonday W47 2019

@RobbinVernooij

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VISUALIZATION REVISIONS

When we ask ourselves, “How can we make our data visualizations better?”, the answer is usually some derivative of, “Well, **it depends** on the visualization.”



COGNITIVE LOAD

How easy or hard is it to make sense of something new?

DATA

INTRINSIC LOAD

the new information's inherent complexity



AUDIENCE

GERMANE LOAD

the audience's familiarity (or lack thereof)



VISUALIZATION

EXTRANEIOUS LOAD

how the new information is presented



COGNITIVE LOAD

simpler information + knowledgeable audience + pared-down delivery = lighter cognitive load

complex information + novice audience + detailed delivery = heavier cognitive load



COGNITIVE LOAD

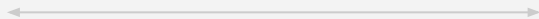
No visualization should have a
heavy cognitive load because it's poorly made.
But plenty of well-made visualizations carry
a heavier cognitive load.



DATA

How simple or complex is your data?

MEASUREMENT



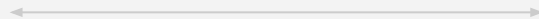
QUANTITATIVE

quarterly earnings
patient's heart rate
country's coastline

QUALITATIVE

company culture
patient's pain level
country's democratic health

KNOWABILITY



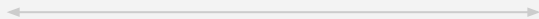
CERTAIN

NBA win-loss records
flu vaccines administered
number of Target stores

UNCERTAIN

NBA score predictions
cases of the flu
people inside a Target now

SPECIFICITY



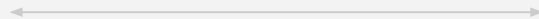
PRECISE

zip codes
blood type
standardized test scores

AMBIGUOUS

neighborhoods
gender
letter grades

RELATABILITY



CONCRETE

cost of lunch
plastic in a yogurt container
your age

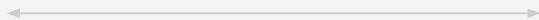
ABSTRACT

gross domestic product
all plastic ever produced
the age of the earth

AUDIENCE

How much bandwidth does your audience have?

CONNECTION



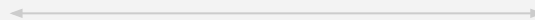
INTENTIONAL

subscriber
I have a ticket
this is my jam!

COINCIDENTAL

social media feed
conference walk-ins
hmm...this could be cool?

PACE



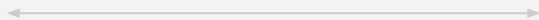
SLOW

what can I discover?
note-taking
desktop-oriented

FAST

what's the takeaway?
skimming
mobile-oriented

KNOWLEDGE



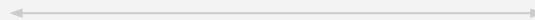
EXPERT

this is similar to that
have you considered...?
let's see the details

NOVICE

this is brand new
where do I start?
what's the big picture?

CONFIDENCE



CONFIDENT

I know the routine
this button should do this
I'm excited to see the data

ANXIOUS

what will happen next?
will I break this?
I'm frustrated/embarrassed

VISUALIZATION

What visualization best connects your audience to your data?

CHART TYPE

COMMON

bar charts, line charts, maps
familiar axes
one or two variables

RARE

treemaps, distributions, etc.
unusual axes (or none at all)
multiple variables

INTERPRETATION

ACCURATE

length, position, shape
absolute values
2-4 colors

APPROXIMATE

angles, area, volume
relational values
5+ colors

COMPOSITION

CONCISE

minimal data marks
key takeaways
context outside the graph

DETAILED

densely-encoded marks
disaggregated details
context on the graph

DELIVERY

EXPLANATORY

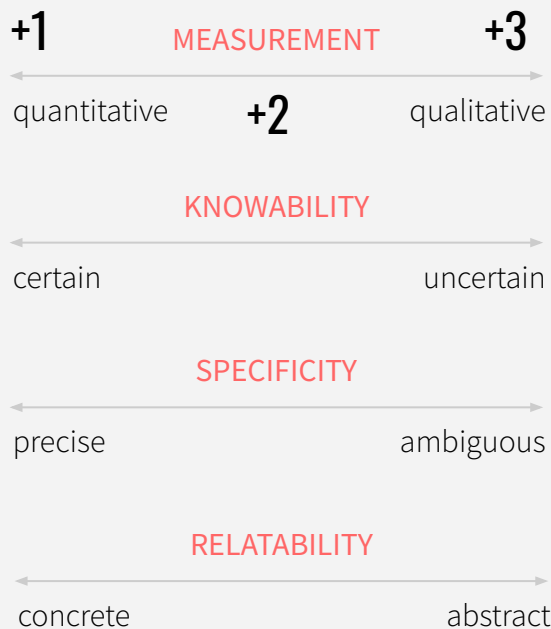
deliberate sequence
prepackaged thesis
created by domain expert

EXPLORATORY

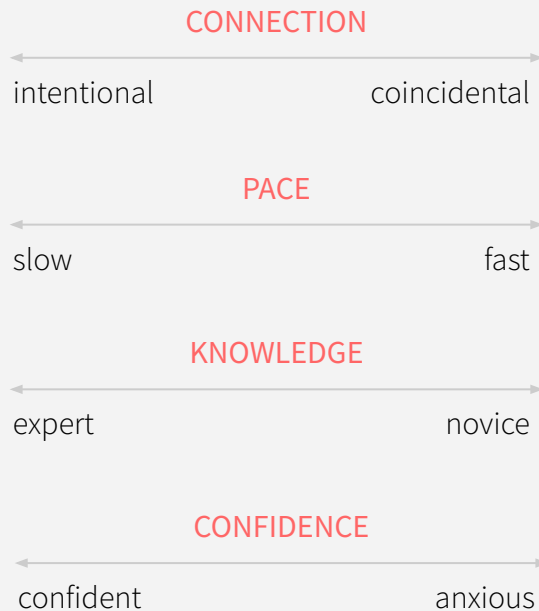
built for discovery
audience adds knowledge
created by viz expert



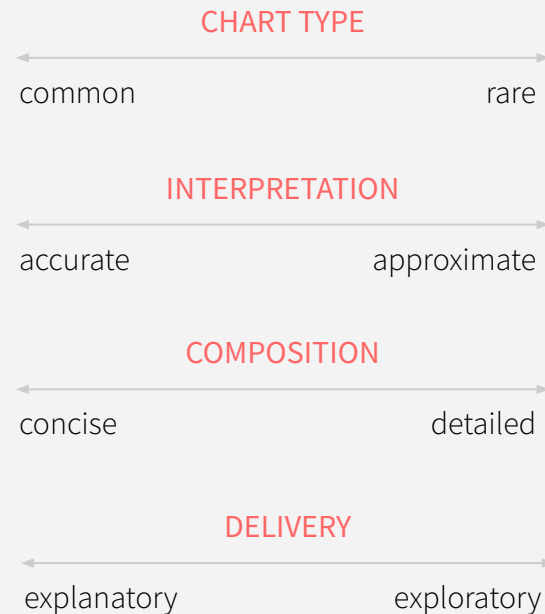
DATA

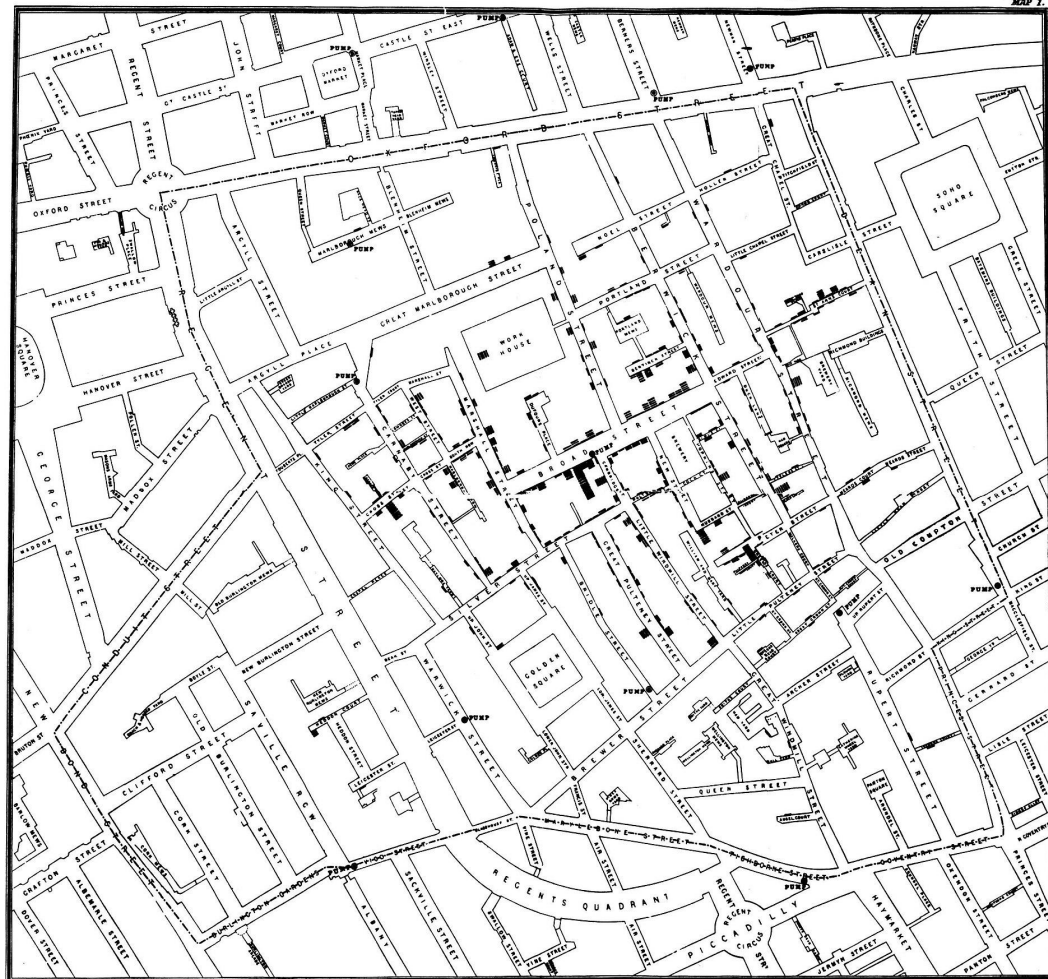


AUDIENCE



VISUALIZATION





DOT MAP

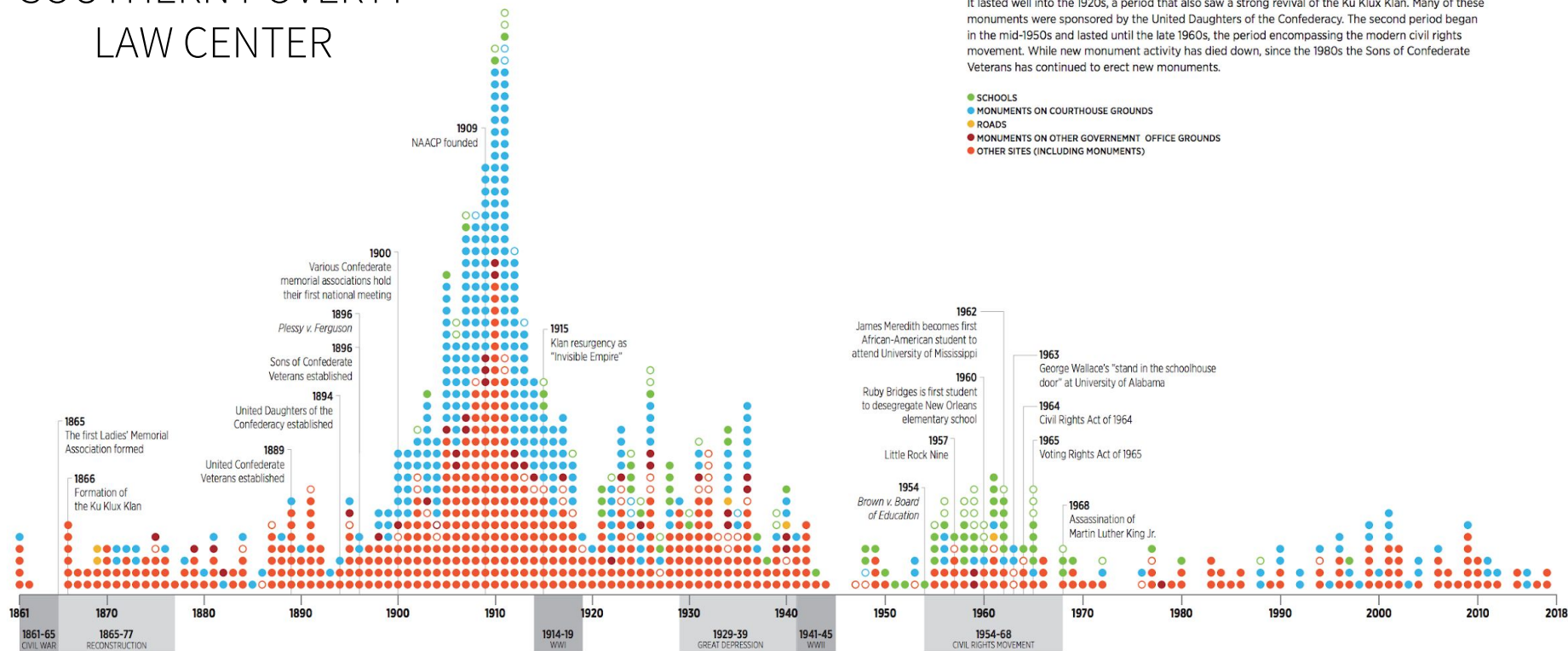
CHOLERA NEAR BROAD STREET

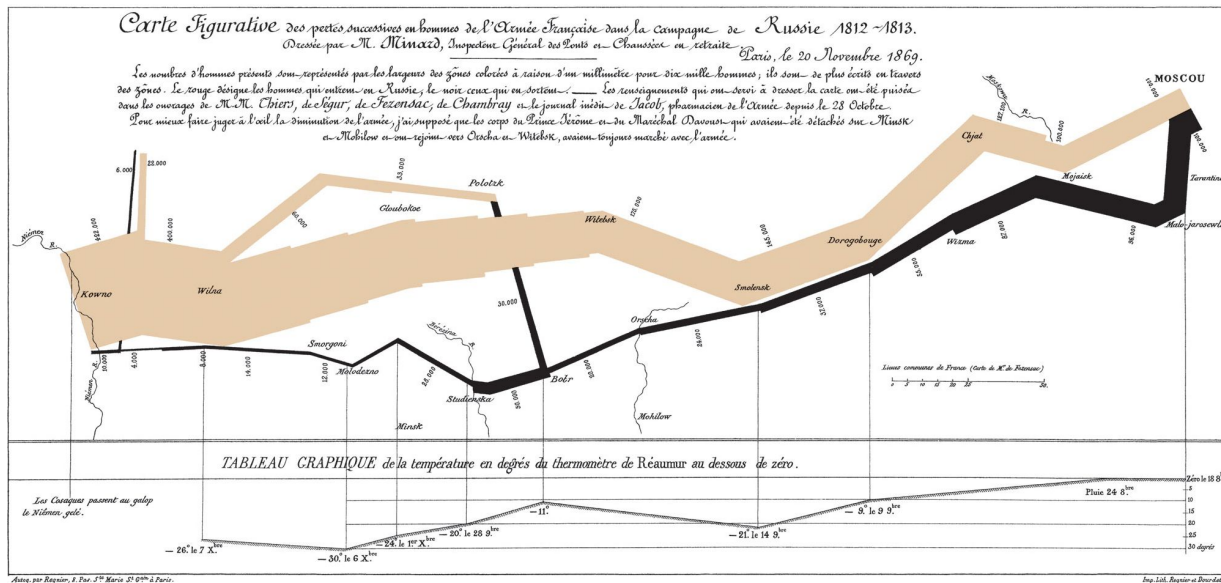
JOHN SNOW

1854

FREQUENCY CHART

WHOSE HERITAGE SOUTHERN POVERTY LAW CENTER





FLOW CHART

SUCCESSIVE LOSSES IN MEN OF THE FRENCH ARMY IN THE CAMPAIGN OF RUSSIA

CHARLES MINARD

1869

COGNITIVE LOAD

Think about the cognitive load of **this** workshop series.



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WORKSHOP

Watch your work in real time.



WORKSHOP

The best time to get feedback is **before** you feel ready.



WORKSHOP

When in your process you get feedback determines how well you listen to and act upon that feedback.



**JUST AN IDEA
FLOATING AROUND
IN YOU HEAD**

SMALLER INVESTMENT (YOU) + TANGIBLE WORK TO RESPOND TO (TEAM) =
BETTER LISTENING + EASIER ACTION

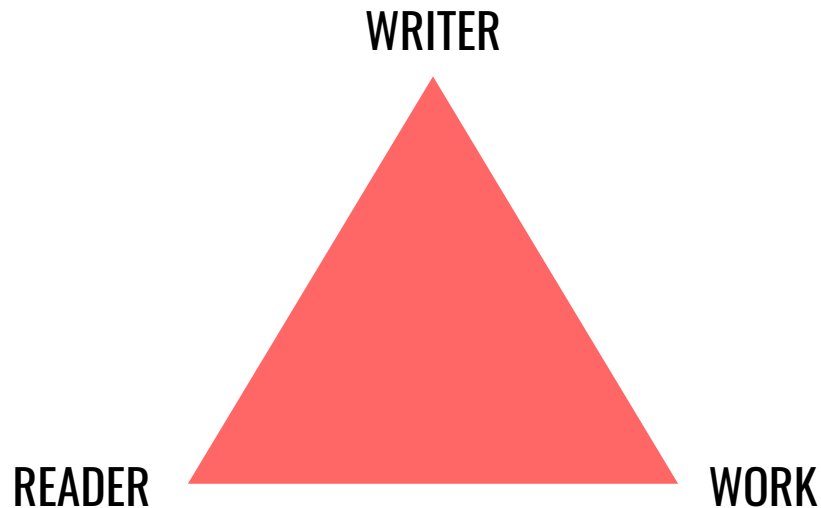


**A FINISHED PRODUCT
IN WHICH YOU'VE
INVESTED YOUR HEART**

SIGNIFICANT INVESTMENT (YOU) + SURPRISE / UNVALUED (TEAM) =
WORSE LISTENING + HARDER ACTION

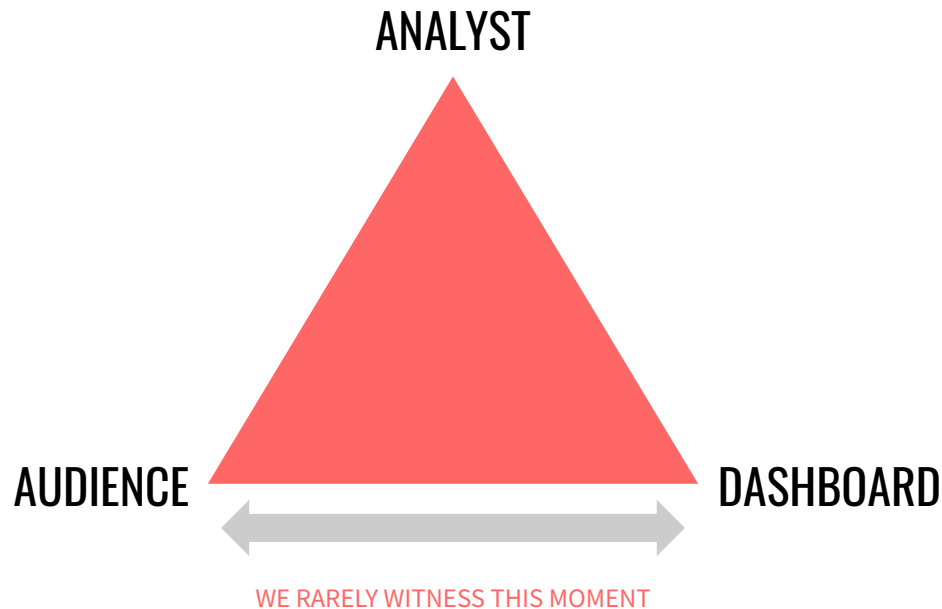
WORKSHOP

Here's where literary theory and dashboard design meet.



WORKSHOP

Here's where literary theory and dashboard design meet.



WORKSHOP

The **fastest** way to know whether or not the content is working is to watch it in action.



WORKSHOP

This also the **fastest** way to identify your own blindspots.



WORKSHOP

Here's how a typical writing workshop or architecture pin-up works.

WHAT WE LIKE

ENGAGING, PRODUCTIVE, MEMORABLE



WHAT WE DON'T LIKE

DISTRACTING, CONFUSING, OUT OF PLACE



AUTHOR DOES NOT SPEAK

LISTEN, COLLECT IDEAS, NOTE DISAGREEMENTS



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THANKS FOR THE FEEDBACK

Stone & Heen identify three distinct types of feedback.

APPRECIATION

to acknowledge and thank



COACHING

to empower personal growth



EVALUATION

to rate against standards



THANKS FOR THE FEEDBACK

Be explicit about the type of feedback you're seeking.

APPRECIATION

to acknowledge and thank



COACHING

to empower personal growth



EVALUATION

to rate against standards



ACTIVITY #4 | DESIGN A WORKSHOP

WHAT YOU NEED

- ▶ Something to write with
This last exercise just requires you, your brain, and something to take notes with.

WHAT TO DO

- ▶ 1) Pick a project you've created
This can be anything you've created for work that you'd like feedback about. A presentation, a website, even just an email you put a lot of thought into.
- ▶ 2) Design your ideal workshop
Now imagine that you get to run a workshop about it. Who would you want to attend and why? What questions would you want asked? What would you be most interested to learn as a fly on the wall? (You do not have to share this with anyone else:)

STEPHEN COVEY

“People don’t care how much you know until
they know how much you **care**.”



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THANK YOU!

WWW.DATADOZEN.COM

