ELECTRONIC PUBLISHING
AND DIGITAL STORYTELLING
Lesson 8

DIGITAL STORYTELLING

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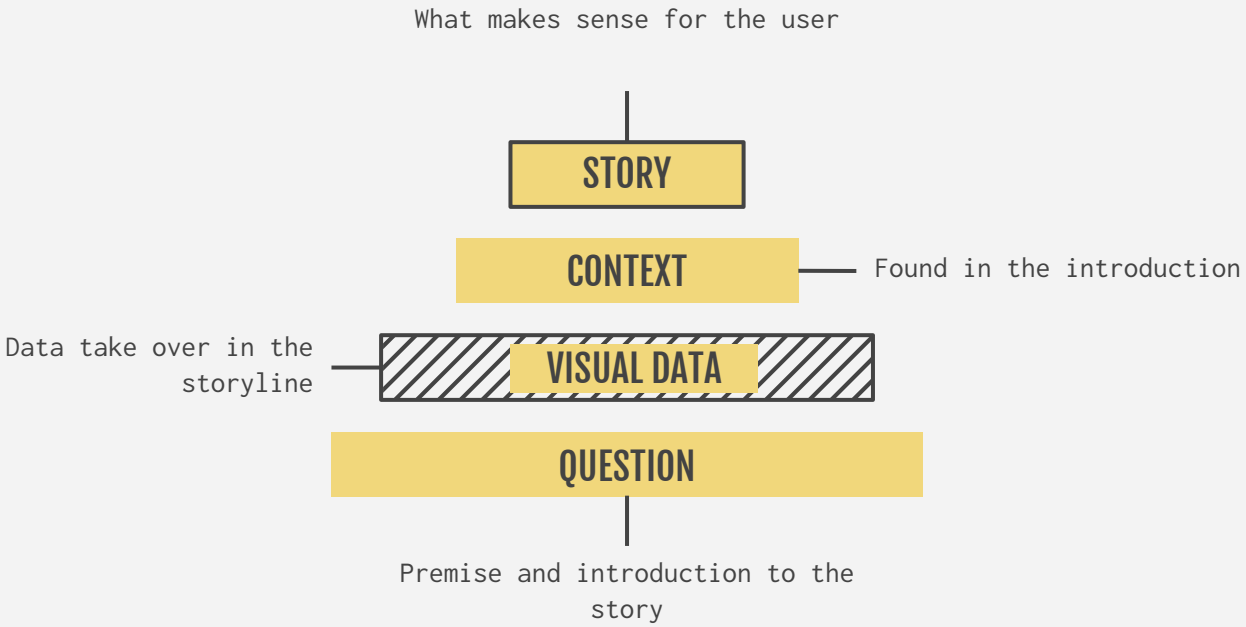
STORYTELLING ASPECTS



THE QUESTION

Preliminary question(s) are useful at the beginning when acquiring and filtering data.

The **final question** is often the result of several attempts, and might not be clear at the beginning.

THE QUESTION

A question must be **data-centric**, meaning it should start with terms like **where**, **when, how much, how often**.

N.B. It is very difficult that visualisations alone can answer questions that start with **why** (which is domain of data analysis).

THE QUESTION

REMEMBER!

Data are abstractions of real-world entities.

When creating, selecting, manipulating data that are relevant to the question we are making choices, hence **the answer is never an objective description of the world**.

THE QUESTION

REMEMBER!

Data analysis is **instrumental**, it’s not the final objective. You analyse data to highlight information and let users **make actions** on the basis of results.

THE STARTER KIT: THE CONTEXT

Identify the type of analysis, whether you are trying to understand something (**exploratory**) or you are presenting something (**explanatory**).

DISCLAIMER

While you have to perform some exploratory analyses in your Jupyter notebook, in your web project you are focusing on **explanatory visualizations**.

THE STARTER KIT: AUDIENCE

Identify the audience:

WHO is the audience?
What do they care about?

Narrow the audience for the purpose of communicating effectively.

THE STARTER KIT: IDEA

HOW data you show will help you to make your point and will encourage users to make the action?

Identify in your data what is the **evidence** for proving your point.

Identify the **“so what?”** of your project. Summarise in a sentence your point of view + the message.

Write a **three minute story.**

THE STARTER KIT: ACTION

Outline possible actions:

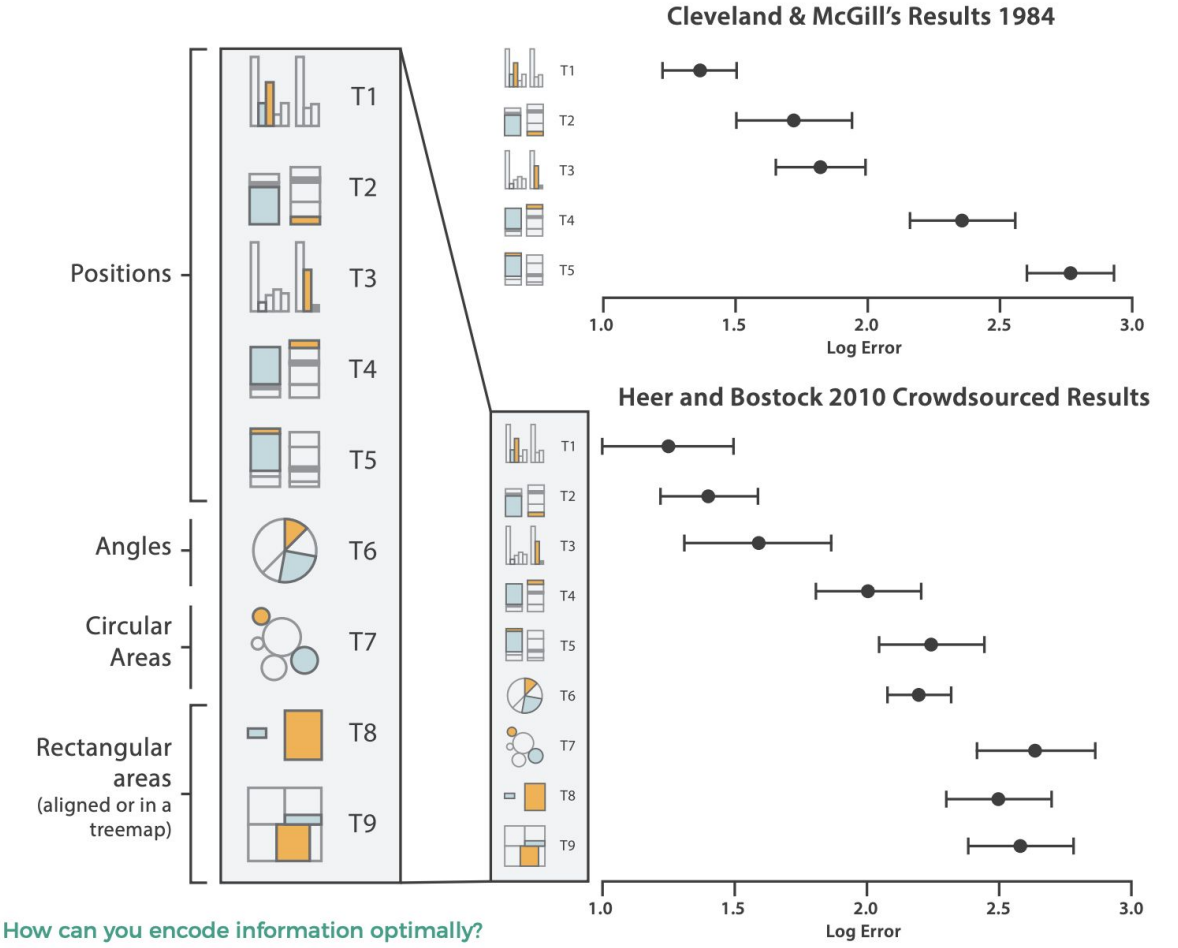
WHAT do you want users to do with the information you provide?

VISUAL DATA

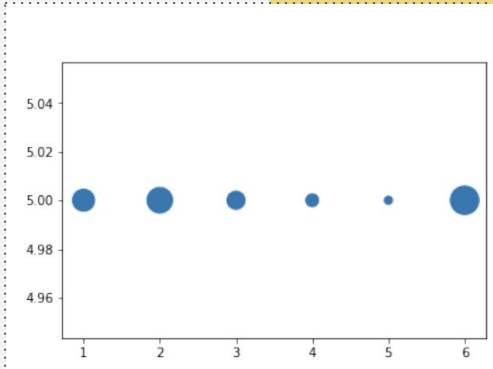
WHAT is the most effective way to convey the idea to your audience, given a certain context?

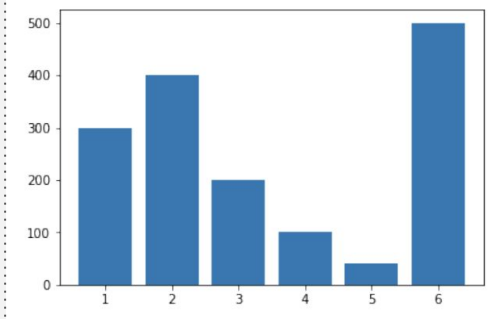
Start from data in a table and make it better

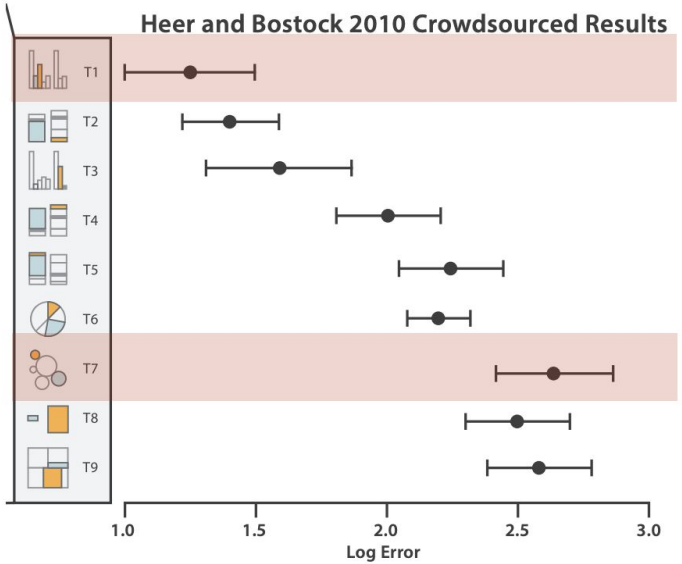
PICK THE OPTIMAL VISUALISATION



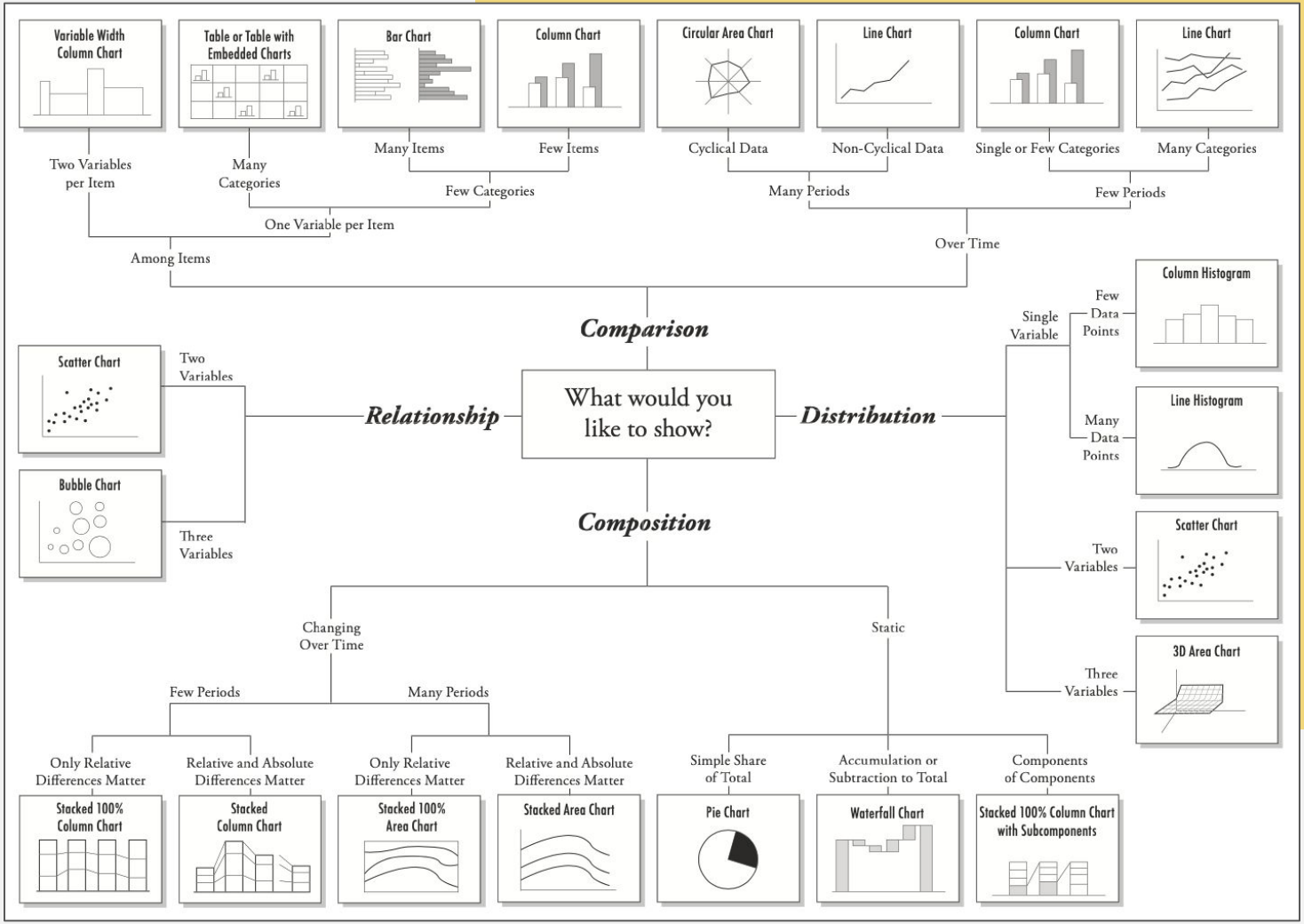
REDUCE THE ERROR IN INTERPRETATION







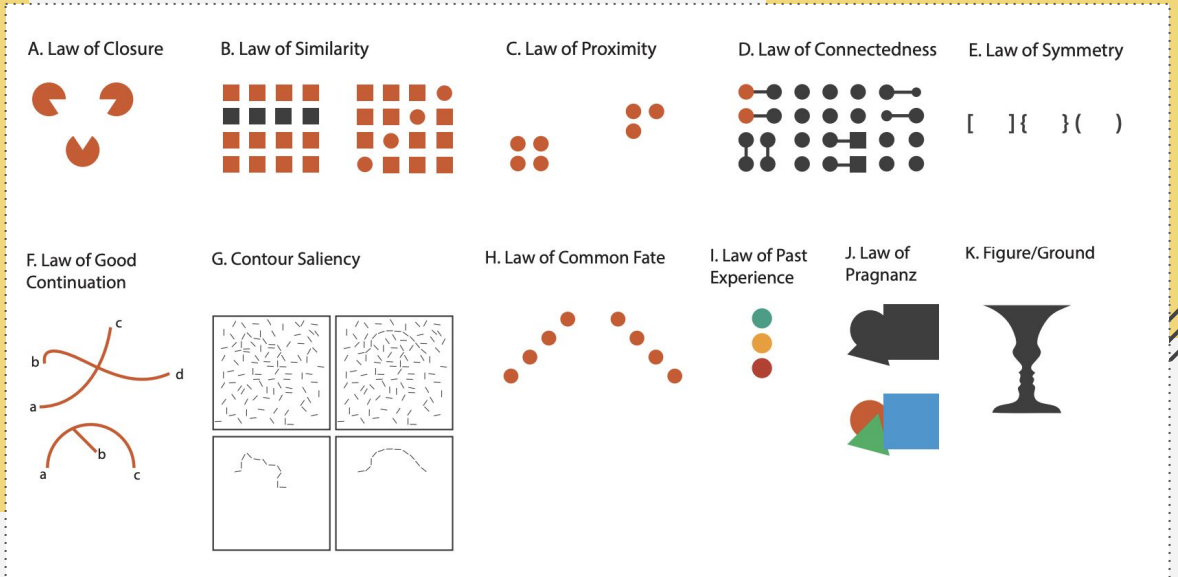
REMEMBER THE DECISION TABLE?



USE GESTALT PRINCIPLE TO REDUCE THE COGNITIVE LOAD

When creating a story, we first need to understand what are **similarities and differences between visual aspects** that we are going use.

When two objects are placed next to each other, a user perceives those as part of the same group. When they are far from each other, those are perceived as different types of information.

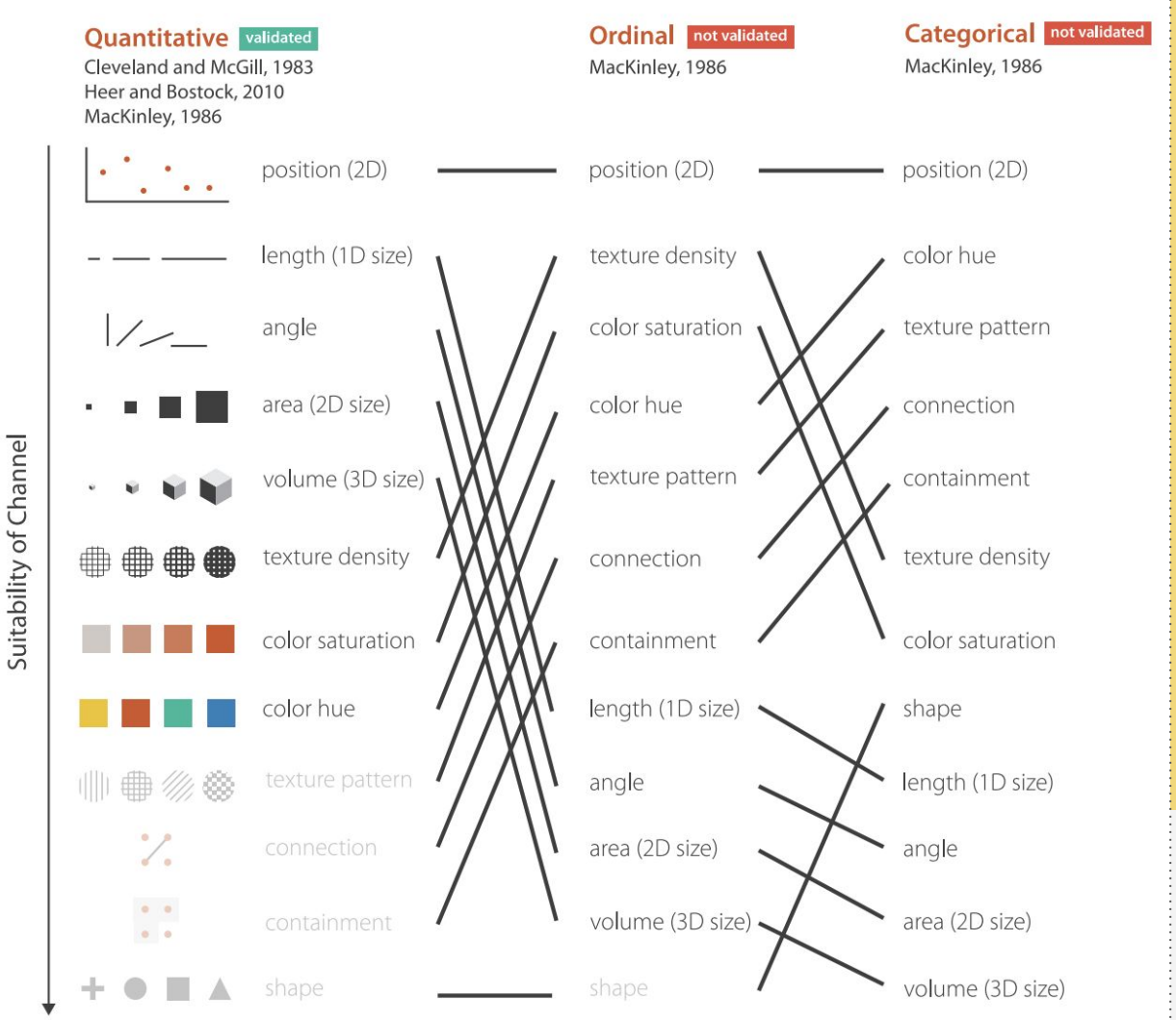


MAPPING SHAPES TO SEMANTICS

Graphical Code		Semantics
Small shapes defined by closed contour, texture, color.		Object, idea, entity, node.
Spatially ordered graphical objects.		Related information or a sequence. In a sequence the left-to-right ordering convention is borrowed from written language (English, French, etc.).
Graphical objects in proximity		Similar concepts
Graphical objects having the same shape color, or texture.		Similar concepts
Size, position or height of graphical object		Size, quantity, importance, 2D location
Shapes connected by contour		Related entities, path between entities.
Thickness of connecting contour		Strength of relationship.
Color and texture of connecting contour		Type of relationship.
Shapes enclosed by a contour, a common texture or color		Contained/related entities.
Nested/partitioned regions		Hierarchical concepts.
Attached shapes		Parts of a conceptual structure.

Munzner T. Visualization Analysis & Design. 2014

REHEARSE: VISUAL ASPECTS PRIORITY



CHOOSE IN AN INFORMED WAY!

Look what is suggested in chart catalogues

Data visualisation catalogue
https://datavizcatalogue.com/index.html

Visme
https://visme.co/blog/types-of-graphs/

Chart maker matrix
https://chartmaker.visualisingdata.com/

PolicyViz
https://policyviz.com/books/better-data-visualizations/policyviz-data-visualization-catalog/

GET INSPIRED!

Learn from the best

Information is beautiful awards
https://informationisbeautiful.net/

Reddit data is beautiful thread
https://www.reddit.com/r/dataisbeautiful/

Tableau gallery
https://public.tableau.com/it-it/gallery/?tab=viz-of-the-day&type=viz-of-the-day

GET INSPIRED!

Learn from successful projects

Women will
https://dataexplorer.womenwill.com/intl/en/the-divide/

Where is Poland?
https://whereispoland.com/en/where-is-poland/2

Lemonade
https://www.lemonade.com/giveback-2019

Google and NASA
https://showcase.withgoogle.com/nasa-fdl/

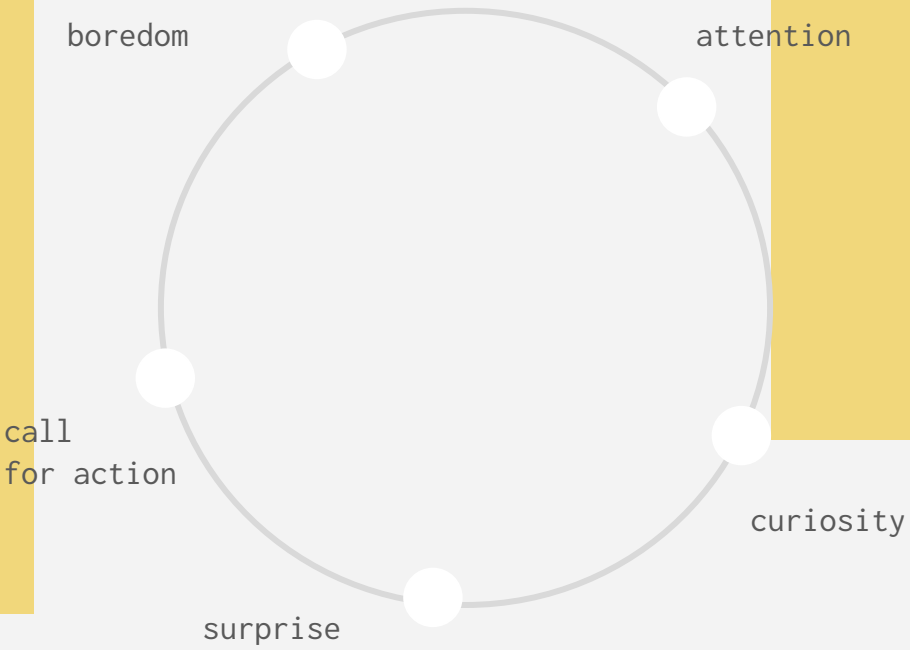
Atlassian - time wasting at work
https://www.atlassian.com/time-wasting-at-work-infographic

This side of rice
http://rice.jennytypes.com/

THE STORY

Facts are forgotten. Stories are memorable. That’s why we use them to convey messages effectively.

ENGAGEMENT CIRCLE



Entertainment usually triggered by boredom (e.g. in waiting room, cafèteria)

Draw attention attract the user (e.g. give her a screen)

Stimulate curiosity provide introductory information

Discovery by visual storytelling to learn something unexpected (the *so what*)

Recommendation call for action (read a book or article, listen to music, watch a movie)

THE NARRATIVE STRUCTURE

BEGINNING

Introduce the **plot**
Build the context and introduce the tension
Explain the motivation (why should you care?)

MIDDLE

Illustrate with examples the problem (your evidence)
Articulate what would happen if no actions are taken (build the **rising action** and the **climax**)

END

Call to **action** (what to do to solve the problem)

*Go back to the original idea (what is at stake?) and find the tension, to create a **climax** towards the evidence.*

Some examples:
***Tension**: the data show an inconsistency*
Action: devote resources to fix it, or to develop something new
***Tension**: given the trend, there is an expectation*
Action: discuss and make strategic changes
***Tension**: given two or more competing phenomena, which one is more important (e.g. quality or efficiency)?*
Action: collaborate with domain experts to define targets and balance the competing phenomena

THE NARRATIVE FLOWS

Example chronological:
[plot] Study of problem x is strategic for user y's activity z.
[rising action] We surveyed / analysed data. Show examples.
[climax] Results show Z is doing well while Y is doing worse in X key area.
[falling action] It will keep going worse if nobody does anything. We looked into some solutions.
[ending] let's do this and that to improve the situation.

Chronological
Problem
Analyse data
Show findings
Recommend action

Lead with ending
Call for action
Show multiple supporting points

WEB COMMUNICATION STRATEGIES

Focus the audience’s attention and let them do as less effort as possible in interpreting charts.

WORK ON TYPES OF MEMORY

ICONIC
Very short-term memory that works on pre-attentive attributes

SHORT-TERM
Focus on 4 variables at most - these move to the long term memory, the rest disappears.

LONG TERM
The message understood. It is affected by the way the message is conveyed (e.g. a story)

FOCUS THE EYE ATTENTION

Close your eyes and then look back at this slide. Where does the eye go?

That’s where you should put the attractive information. Again, remember the Gestalt principles!

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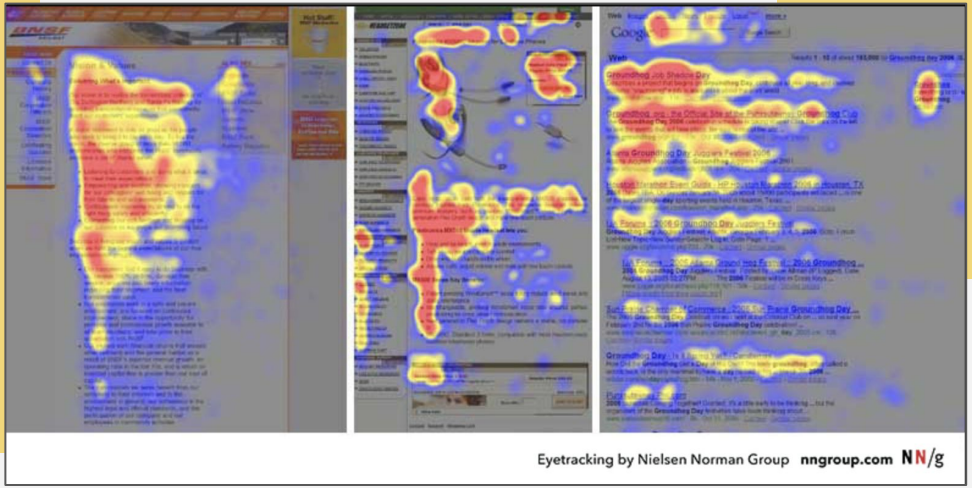


Consider the F pattern (Nielsen).
Break the F Pattern (use short paragraphs)

Consider readability patterns
Do not show text lines > 40 characters.

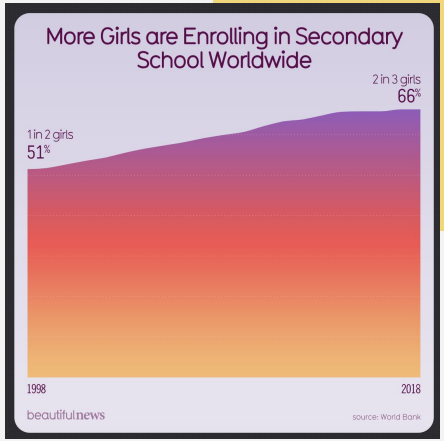
DESIGN IT PROPERLY

*Studies have proven that **titles** improve **memorability** and **recall** of information shown in graphs. Do not be descriptive, make clear in the title what the graph returns*

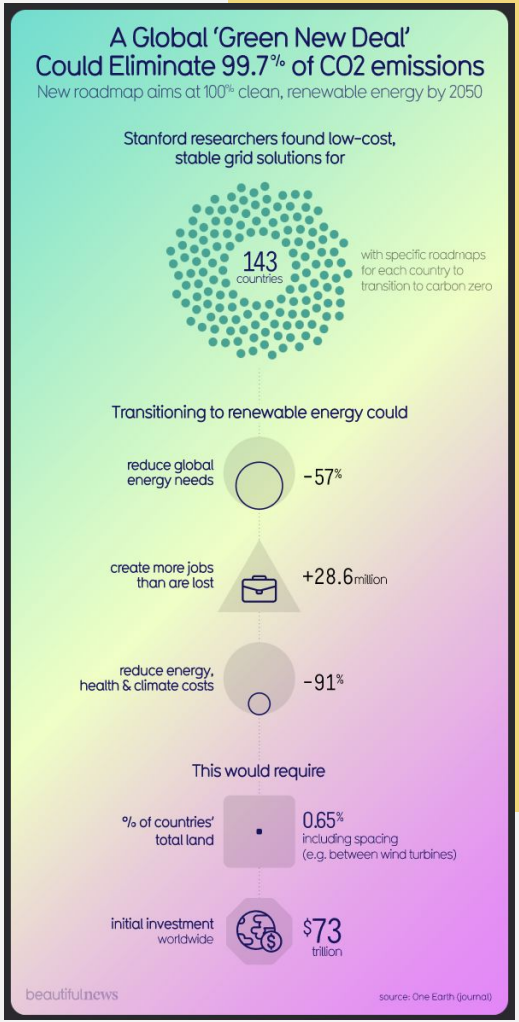
Point out (e.g. with arrows, colors, font size, circles, opacity, thickness, animation) where the viewer should look at.

Use **titles** to make explicit the takeaway message.

Label your data, do not give things for granted.



DESIGN IT PROPERLY



Be smart with **colors** (remember it's the fastest pre-attentive attribute) and images

Curate the **alignment** (texts, graphs, titles, labelling)

Leverage **white space** (avoid cluttered contents)

DESIGN IT PROPERLY

EXPLAIN

Address the assumptions needed to understand the graph.

Answer possible questions in interpretation (that are not obvious).

Draw conclusions.

Articulate the benefits.

AVOID THE “SLIDEUMENT”

When presenting live we use **slides** (less text, more catchy slogan).

When we send **documents** (e.g. via email) we include more detail.

When creating a website, avoid the imbalance between memorability and need to detail everything. You cannot satisfy both needs (attract / detail) at the same time.

NB. *That’s why we separate the analysis (jupyter) from the presentation (webpage)*

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HANDS-ON

Based on C. Knaflik, Storytelling with data Let’s practice. Wiley. 2020

OUR GUIDING EXAMPLE

TRENDS IN THE STUDY OF ARTISTIC PERIODS

Let’s brainstorm.

In every slide I’ll ask you a question related to the development of this idea and then we will see new ideas.

Answer in this google form. Watch out, for every slide I’ll set up a timer!

Solutions and winners will be announced during the last lecture :)

THANKS

Does anyone have any questions?

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github