Storytelling With Data Considering presentations

Scott Spencer | Columbia University

#### **Conceptual project timeline**



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thoughts on presentations

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**Tufte claims:** PowerPoint, compared to other common presentation tools, reduces the analytical quality of serious presentations of evidence.

> This is especially the case for the PowerPoint ready-made templates, which corrupt statistical reasoning, and often weaken verbal and spatial thinking.

## Is he recommending we avoid presentation slides?



Tufte, Edward

Hicrosoft

# Microsoft Machine Learning & Data Science Summit



Tufte, Edward



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#### We want to show comparisons adjacent in space:

# Thing 1



Tufte, Edward

#### Thing 2

#### but...

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## Powerpoint can have low resolution and it



Tufte, Edward



## Powerpoint can have low resolution and it



Tufte, Edward

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#### encourages

## Powerpoint can have low resolution and it



Tufte, Edward

#### sequenced

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## Powerpoint can have low resolution and it



Tufte, Edward

not

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## Powerpoint can have low resolution and it



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#### spatial

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## Powerpoint can have low resolution and it



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#### review.

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Tufte, Edward

Information stacked in time makes it difficult to understand context and evaluate relationships.

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#### on presentations *addressing limitations*

#### show comparisons adjacent in space

#### increase data-ink on slides too, within reason



Tufte, Edward

use the right tool for the information

alternate approaches: technical report + guided discussion



on presentations | designing your presentation

## Start by posing, and answering, questions



Schwabish, Jonathan

What type of presentation are you giving?
Who is your audience?
What is the headline message?
What do you want your audience to do with your conclusions?
What is your opening statement? Focus on conclusions
What is your closing statement (call to action)?
What are the sections of your presentation?
What stories can you tell?
What graphs and images can you use?



#### on presentations designing your presentation



Collect, create, and record as many ideas as possible.

ideas that support your big idea.

charged messages in the form of a sentence.

order that creates the most impact.



Duarte, Nancy

#### ADD SUPPORTING POINTS -> -->

-->

-->

->









Each message needs supporting evidence in the form of slides.

Get your acts together! Ensure you have a clear beginning, middle, and end with strong turning points.

Validate the content contour, emotional contrast, and delivery contrast.

structure are final, turn the words into pictures.



on presentations | designing your presentation

## Purpose of design: unify elements, focus attention

Employing good design techniques is about unifying the various elements on the screen and focusing your audience's attention on your important points so that they can decide whether or not to buy into your ideas.



Schwabish, Jonathan

# Use color and type to unify and focus

Use color just as we've discussed —purposefully—for **linking** together text and graphics.

Size of minimum **type** for main content (c.f., footnotes, etc.) for readability from the back of the presentation room. Choose differences in size to reflect hierarchy of information. Use **white space** to organize and focus ideas.

d 1



#### on presentations *building your presentation*

**Comprehension of** text depends on amount and clarity

The difficulty for an audience to get the intended message depends on both amount of text and clarity of the words, phrases, and sentences chosen.



Schwabish, Jonathan

## Best practices in graphs hold true in presentations, too

Consider what specific message you want your graph to show. This will let you choose each attribute (gridline, tick mark, data maker, data label, color, and other objects) to help the audience understand your message.

on presentations | building your presentation

## Slides as guides and transitions:

Title Agenda Header Breaker Ending The purpose of scaffolding slides is to **guide and focus** your audience's attention as you **transition from one section to another**, and to drive home important points.

They act as scaffolding because they ... support the delivery of your messages.



Schwabish, Jonathan



on presentations *giving your presentation* 

**Preparing means** practicing, and

practicing means speaking aloud Practicing—or perhaps, better put, rehearsing—involves standing up, holding your presentation clicker, and speaking aloud.

It is not sitting at your desk and silently thinking about what you plan to say for each slide.

Speaking also allows you clarify your messages. Use your practice to adjust what reads awkward and remove or revise what doesn't make sense.



Schwabish, Jonathan

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#### on presentations | giving your presentation

#### First, develop interest and need

Need — motivates the audience by telling (or by reminding) them why something had to be done; closes in on a specific problem.

Task — identifies "who did what" in an effort to address the need; situates the speaker with respect to the audience and to the topic.

Main message — states the main conclusion upfront; also known as thesis or take-home message.

Preview — announces the body's content, suggesting how it helps support or develop the message just stated; also known as outline.



Doumont, Jean-Luc

#### Attention getter — strives to draw everyone's attention to the topic as rapidly as possible by relating the topic to audience concerns.

#### on presentations *giving your presentation*

**Reveal your** structure upfront, after getting interest

A presentation must do more than simply be well structured: it must make the structure and the underlying logic of this structure readily apparent to the audience.



Doumont, Jean-Luc

## Slides are for conveying messages, generally need text

Visual codings being in essence ambiguous, effective slides almost always include some text: the message itself, stated as a short but complete sentence. Besides the text statement, this message should be developed as visually as possible: this development should include only whatever words are necessary for the slide to stand on its own.







Doumont, Jean-Luc



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on presentations | example — Jonathan Corum, NY Times Graphics Editor

#### Audience?

#### Purpose?



In your review, consider the interplay between what he says and what he shows — and what he does not show — on his visuals. How does his approach compare with our discussions about the interplay of words, images and data graphics in narrative, and with storyboards?

# See, Think, Design, Produce

#stdp3





#### on presentations

### Audience and purpose of our persuasive presentation

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on presentations | audience and purpose of our persuasive presentation

**Audience** | chief executive officer

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#### **Purpose** | persuade CEO to further invest in analytics

#### **Constraints** | 4 to 5 minutes; 5 to 10 *substantive* visuals



#### on presentations

student example visuals

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#### on presentations | student example visuals

Keep in mind you do not have access to this students' verbal narrative...

He began by asking the CEO to consider the value of analytics through an example, his data analytics project, and the value of information learned.

# **ANALYSIS SUGGESTS:** SGNAL UPGRADES

Minjian Hu · Persuasive Presentation · DEC 3



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Keep in mind you do not have access to this students' verbal narrative...

He then discussed the potential of what may be learned by analyzing subway delays in the context of the subway system of his project.



# 1.68828ANNUAL RIDERSHIPLINES4726655stationsTRACK MILES

One of the world's oldest public transit systems, one of the most-used, and the one with the most stations.

MTA: How to Ride the Subway. Web. http://web.mta.info/nyct/subway/howto\_sub.htm



Keep in mind you do not have access to this students' verbal narrative...

The focus of his project involved narrowing down potential causes of delay and whether action may be taken to reduce delays.

An information gap! Were delays due to weather, outdated signal systems?







Keep in mind you do not have access to this students' verbal narrative...

He then explained how he chose to analyze these potential causes.



# 1234566777JZLS ACEBDFMNQRWG DELAYS $\leftarrow \rightarrow$ BAD WEATHER DELAYS ← → SIGNAL MALFUNCTION

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Keep in mind you do not have access to this students' verbal narrative...

Within the whole system, he explained why he chose data from three subway lines.



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Keep in mind you do not have access to this students' verbal narrative...

Before delving into the results of his analysis, he discussed more precisely the variable under consideration.



# HOW WE DEFINE "DELAY"

"... the actual intervals between trains are more than the scheduled interval plus 2 minutes during peak hours, plus 4 minutes during offpeak hours..."

# – Metropolitan Transit Authority

ITA Performance Indicators by Agency. Web. http://web.mta.info/developers/Performance\_Indicators\_by



Keep in mind you do not have access to this students' verbal narrative...

Then, he stepped through the results of his analysis, and focused his audience on change, where that change occurred, and what it provides as insights for action.



# **DELAYS: MONTHLY ON-TIME RATE**



2009/06 2010/01 2010/08 2011/05 2011/12 2012/07 2013/02 2013/09 2014/04 2014/11 2015/06 2016/01 2016/08 2017/03 2017/1





Keep in mind you do not have access to this students' verbal narrative...

He continued discussing results from his analysis. Here he considered how correlated weather was with delays on each subway line analyzed.





Keep in mind you do not have access to this students' verbal narrative...

Finally, he concluded by asking the CEO to invest further in analytics so this time of value can be uncovered in other aspects of the subway system.

# CONCLUSION INCREASE ANALYTICS BUDGET FOR NEXT FISCAL YEAR



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Keep in mind you do not have access to this students' verbal narrative...

What is the structure of his presentation? How does this structure compare with our earlier discussions of narrative in the context of memos, proposals, storyboards, and infographics?

What choices in information design, such as hierarchy of information, use of color, and use of white space do you notice?

Consider thanking him for kindly sharing his visuals with you!

ANALYSIS SUGGESTS: SIGNAL UPGRADES WILL IMPROVE RELIABILITY

MTA

Minjian Hu · Persuasive Presentation · DEC 3

#### 123456677JZLS ACEBDFMNQRWG DELAYS $\leftarrow \rightarrow BAD WEATHER$

NIUIIION:

DELAYS  $\leftarrow \rightarrow$  BAD WEATHER DELAYS  $\leftarrow \rightarrow$  SIGNAL MALFUNCTION











#### HOW WE DEFINE "DELAY"

"... the actual intervals between trains are more than the scheduled interval plus 2 minutes during peak hours, plus 4 minutes during offpeak hours..."

— Metropolitan Transit Authority



## CONCLUSION INCREASE ANALYTICS BUDGET FOR NEXT FISCAL YEAR







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#### additional material for discussion

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on presentations | example — Lisa-Charlotte Rost, Data Wrapper

#### Audience?

#### Purpose?

Lisa Charlotte Rost

Complexity for the experts, simplicity for everyone else?







