Storytelling with InfoVis

CS 7450 - Information Visualization
September 30, 2015
John Stasko

Purpose

• Two main uses of infovis
  – Analysis – Understand your data better and act upon that understanding
  – Presentation – Communicate and inform others more effectively

• Today we look at that second one more
Telling Stories

• Data visualization can help to communicate ideas, summarize, influence, unite, explain, persuade

• Visuals can serve as evidence or support

A Famous Example

Hans Rosling
Gapminder

2006

They Had Him Back

Discuss

• Why has this had such a big impact?

InfoGraphics

- See them everywhere today
- Perhaps a good example of infovis for presentation purposes
  - Typically not interactive though

http://www.informationisbeautiful.net/visualizations/left-vs-right-us/

http://www.wired.com/2012/07/you-suck-at-infographics
A Lead Paper

- Studied storytelling: Described topics as "Narrative Visualization"
  - How does this differ from traditional forms of storytelling
  - Reviews the design space
  - Characterizes genres
  - Describes a framework

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Case Studies

755 Steroids or Not, the Pursuit Is On

NY Times 2006
Design Space Dimensions

- Genre (next slide)
- Visual Narrative Tactics
  - Visual structuring
  - Highlighting
  - Transition Guidance
- Narrative Structure (non-visual mechanisms to assist narrative)
  - Ordering
  - Interactivity
  - Messaging

Genres
Observations

- Clusters of different ordering structures
- Consistency of interaction design
- Under-utilization of narrative messaging

Approach

- Author-driven vs. reader-driven
- Common patterns
  - Martini glass
  - Interactive slideshow
  - Drill-down story
Follow-on work

http://datadrivenjournalism.net

Journalism Angle
Journalism in the Age of Data

http://datajournalism.stanford.edu/

Some Examples
News Stories

Tufte praises the work of Megan Jaegerman at NY Times

Films

An Inconvenient Truth

Gore made extensive use of data graphics
Infographics (with a message)

Controversial, see http://soquelbythecreek.blogspot.com/2010/02/what-does-obama-job-chart-really-mean.html

http://www.cnn.com/homeandaway

Tableau StoryPoints

Textual narrative, slides with titles as breadcrumbs, element highlighting, and textual annotation on the chart

Dot breadcrumbs, interaction on charts, tooltips, ...

Page scroller, text annotations, rearranging glyphs
Animated interaction, tooltips, scrolling


http://mbtaviz.github.io/

Visualizing MBTA Data
An interactive exploration of Boston's subway system

Mike Sery and Dhan Cut - June 13, 2014

Boston Massachutes Bay Tranway Authority (MBTA) operates the 2nd largest subway system in the U.S. after New York. Washington, and Chicago. If you live in or around the city you have probably ridden on it. The MBTA recently began publishing substantial amount of subway data through its Public API. This provides the full schedule to General Transit Feed Specification (GTFS) format which powers Google transit directions. You also publish an interactive map liberating the data for the Red, Orange, Blue, and Green Line. The following visualizations are data captured from these feeds for the entire month of February, 2014. Green Line data becomes available in October, data is not shown here. Also, working with the MBTA, we were able to acquire per minute entry and exit counts at each station expressed as the cumulative total by passengers.

We attempt to present this information to help people in Boston better understand the trains, how people use the trains, and how the trains and trains interact with each other.

The Trains

In a typical weekday, trains make approximately 2,500 trips on the Red, Orange, and Blue lines and 5,000 trips of trains starting at 5AM and running through D4M. For morning, the subway system makes 70K trips and an bucket!

To better understand how the trains operate on a typical day, below are all trips that trains took on the Red, Orange, and Blue lines on Monday February 11 2014. Each vertical line represents a station, and their combined lines represent a day, deeper line indicates slower trains, the visualization was first sent to

Project in WPI infovis class

Scrolling page with many visualizations, much interaction
Even the President Goes Interactive

2011 State of Union Address

Side channel data visualizations accompanied speech
Storytelling Scenarios

- Self-running presentations for a large audience
- Live presentations
- Individual or small group presentations
Research Directions

- Storytelling approaches and affordances
  - What vis affordances can help guide reader through story?
- Evaluation
  - How to measure effectiveness?
- Memory, context, & embellishments
  - What makes one memorable, and is that good?
- Interaction
  - How to allow without interfering with story?
- Annotations & highlights
  - How to balance text and visualization?
- Learning from other disciplines
  - What can we learn from journalism, choreography, directing, etc.?
- Techniques specific to storytelling
  - Which vis techniques are good matches?
- Stories & collaboration
  - How to facilitate more collaboration?

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Data Matters

David McCandless

McCandless Website

http://www.informationisbeautiful.net/

Back to Where We Started

http://www.youtube.com/watch?v=jbkSRLYSojo
Changing Trends

Questions

• How do these types of visualizations differ from “traditional” infovis?
Questions

- Would you characterize all of these as information visualizations?
  - Consider some of the different examples

My Reflections

- InfoVis for analysis and presentation are different
  - Apples & oranges (both fruit though)

- How?
Resources


HW 3

- Scores in t-square
  - Design ones handed back now
HW 4

- Commercial systems review
  - Any questions?
- Due next Weds Oct 9
  - Bring two copies

Poster Session Monday

- Not looking for fancy, professional posters
  - Show us your design ideas
  - Variety & creativity
Upcoming

- Poster session

- Casual InfoVis
  - Reading:
    Pousman et al ’07

- Fall Break

- Tufte’s Principles