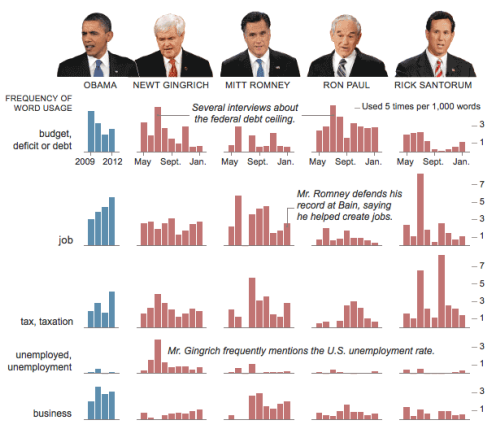


Visualization in a Liberal Education

Holly Rushmeier

Visualization and the Citizen



An alternative to sequential sound bites.

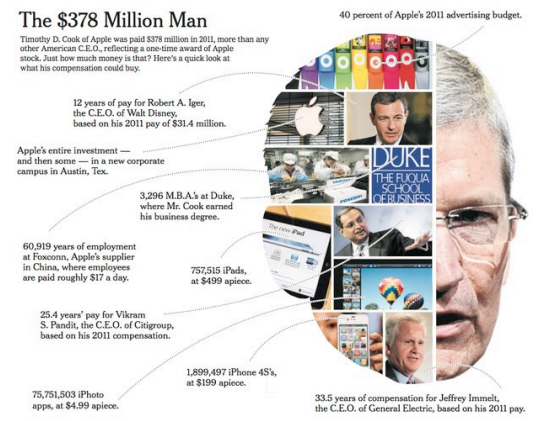
@ The New York Times

What is a "Liberal Education"

"...a philosophy of education that empowers individuals with broad knowledge and transferable skills, and a strong sense of value, ethics, and civic engagement. Characterized by challenging encounters with important issues, and more a way of studying than a specific course or field of study..."

Association of American Colleges and Universities
<http://www.aacu.org/resources/liberaleducation/index.cfm>

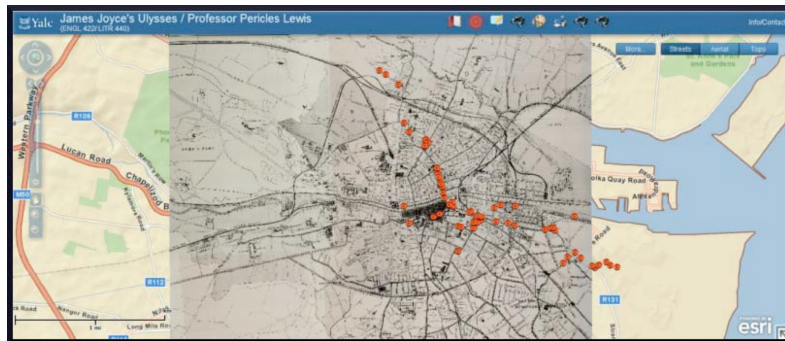
Visualization and the Citizen



Looks like a visualization, but size and layout unrelated to data

@The New York Times

Visualization and the Humanities



Students in Pericles Lewis's *Ulysses* seminar mapped major events in the novel using the addresses in Google, cross-referenced with a map of Dublin in the time of Joyce.

5

Visualization and the Humanities



<http://www.classicaltimeline.org/timeline.html>

6

My original "new" course:

Assumptions:

- **No programming**
- **No advanced math required**

7

Reasons to take this course:



Understand the basic components of visualizations



Understand computer graphics tools for producing visualizations



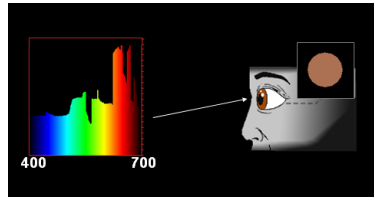
Recognize bad visualizations



Use visualization effectively in
- discovery
- communication

7

Displays and Color



Shape

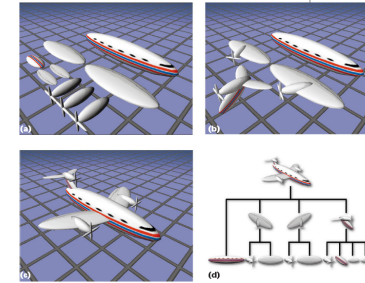
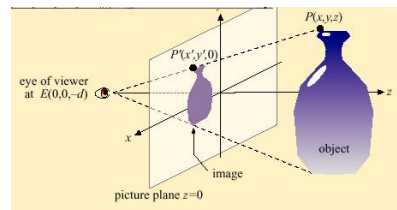
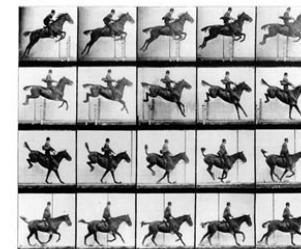
Spatial Visualization
and Projections

Figure 8. Albrecht Dürer, From "Unterweisung der Messung."
Woodcut 1525

3D-> 2D



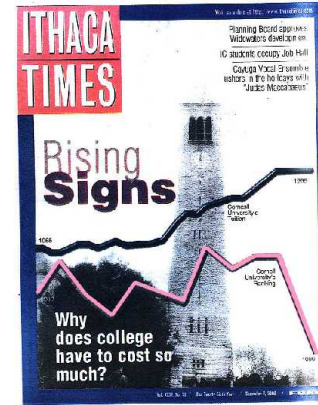
Motion



Interaction

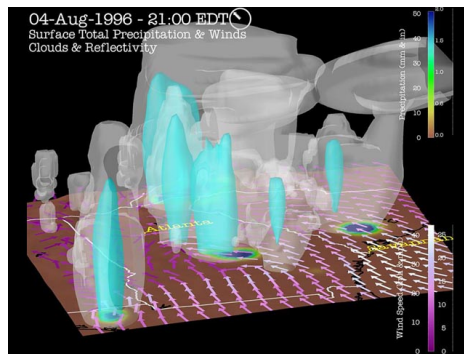


Best Practices for Communication

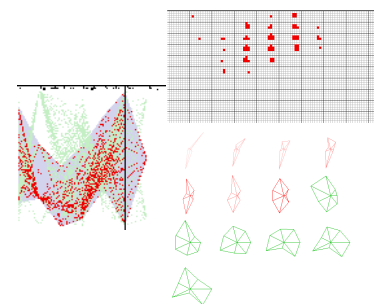


Tufte principles

Scientific Visualization



Information Visualization



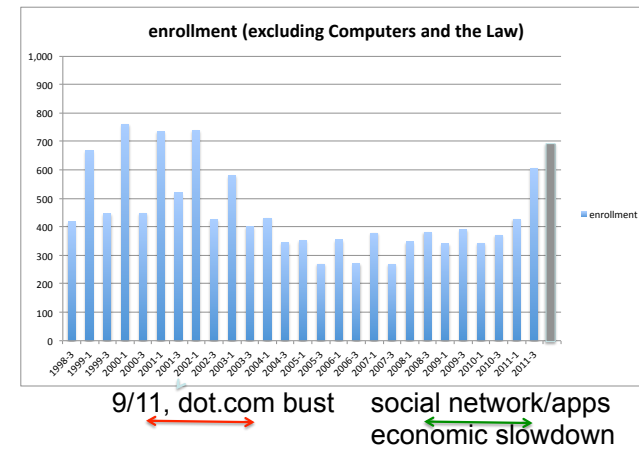
Techniques for data with many dimensions

Issues with Course

- No programming -> using lots of different programs (Excel, Matlab, VRML viewer ...)
- Difficulty finding engaging, manageable data sets
- Lack of depth in any one topic
- Gap between obvious observations and difficult concepts

17

Opportunities and Trends



Opportunities and Trends

- **HACK*** phenomena
- **Web Platforms, Smart Phone Apps**
- **Practical Skills, not Theory**
 - iOS
 - javascript
 - Ruby on Rails
 - ...

19

Questions

- **How is visualization relevant to current phenomena?**
- **How do we blend in practical systems for Web and apps?**
- **How do we integrate long term fundamentals (the original goal of liberal education!!)?**

20