Community Awareness and Visualization

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What is Visualization?

- Newsmap – reflects changes of the Google News aggregator - Check http://marumushi.com
- Musicovery – browse music based on its tempo and genre – Check http://www.musicovery.com

Why visualization?

- Capture Social Intelligence
  - organize vast amount of information
  - pattern discovery
- Promote participation
  - make as incentive
  - easy to understand and use
- Support social interaction
  - graphic interface
  - creative interaction by users

Social Intelligence

- Groups of people manage to produce coherent behavior directed towards individual or collective ends
- Group produce solution faster, better and preferable
- Visualization makes the coherent behavior clearly visible

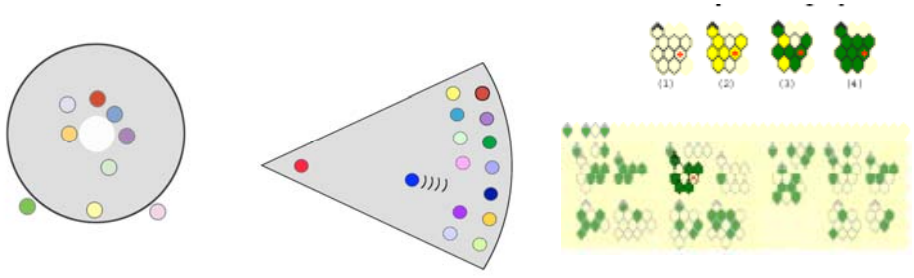
Cues are Needed in Social Interaction

- Social Coordination and Cooperation
  - anywhere, anytime (cross street, open door)
  - people observe and respond to other's behaviour
- Social Norms for Coordination
  - social norms emerge in the physical world, e.g. when to talk, when to walk (lights, cars)
  - In virtual world, without visible cues, harder to follow social norms

Example of Visualization: Babble: a Social Proxy

- minimalist graphical representation that portrays socially salient aspects of an online interaction
- visible to all users
- dynamically updated

Chat proxy Lecture proxy Task proxy



Tom Erickson and Wendy Kellog, 2001
http://socialcomp.com/projects/babble/

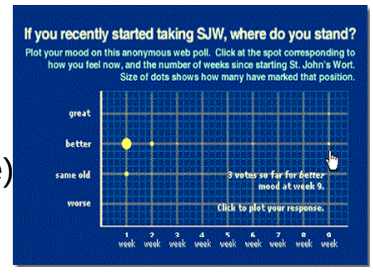
Other examples

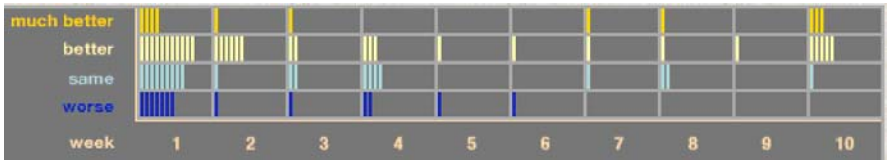
- Collaborative Knowledge Visualization
  - Plot-poll design
  - improve the creation of knowledge among people
  - individual knowledge in online discussions
  - members easy to interact and contribute
- History Flow Visualization
  - Discover patter of cooperation and conflict
  - Make revision immediately visible

Collaborative Knowledge Visualization

Objective of the online discussion: when will the effects of the herb start to kick in? (Herbal antidepressant St. John's Wort)

Plot-poll
- 10 weeks period
- Plot mood for each week
- Pilot design (bubbles increase size)
- Stack design
- Stack bar design

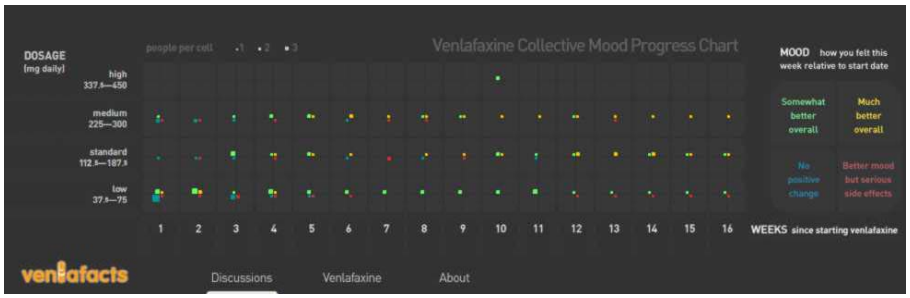




Alex Ivanov and Tom Erickson, 2005, 2006

Plot-poll design

- Final version: www.venlafacts.org



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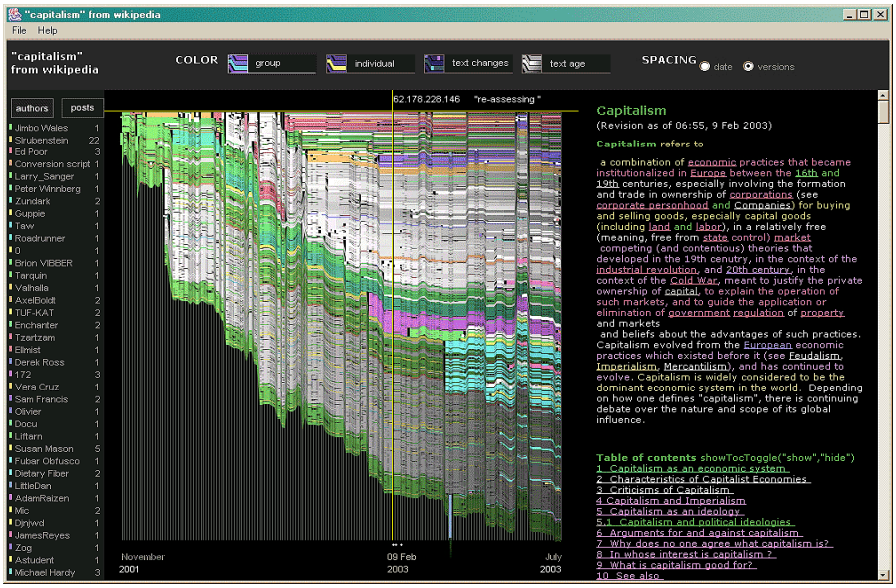
History Flow Visualization



Fernanda Viegas, 2002, Wikipedia history visualization

Visualization Design Principles

- Everyone sees the same thing; no customization
  - Shared knowledge
  - Everyone is held socially accountable for their actions
  - Leads to useful social phenomena (obligation, peer pressure)
- Example:
  - Microsoft, Skype Message – cues about what other party does
  - Tags in Del.icio.us – everyone sees who tagged what and how

Tom Erickson, **Designing Visualizations of Social Activity: Six Claims** Proc. CHI'03: http://www.visi.com/~snowfall/CHI03_Six_Claims.pdf

Visualization Design Principles

- Portray actions, not interpretation
  - system can be used in unexpected ways
  - minimizing designer's interpretation, encourage user creativities
  - users understand the system better

Example:

Actions bring dots to the center

Visualization Design Principles

- Social visualizations should allow deception
  - like face to face interaction, some deception is important (politeness, protection of privacy)
  - E.g. “feign interest”, “pretend to not be there”,…

Examples:
- Pretend to be offline on Skype
- Pretend to be active in discussion by clicking incessantly to get to the center in the Chat proxy

Visualization Design Principles

- Support micro/macro readings
  - Small persistent components
  - Different levels of abstraction
  - Large scale pattern and fine structure

Example: The News Map visualization

Visualization Design Principles

- Ambiguity is useful: suggest rather than inform
  - Provide grist for inference (do not just present information)
  - Inference can be incorrect or incomplete
  - Users are comfortable with making best guesses from incomplete information.
  - It is OK to distort activity, to magnify small amounts of activity, and to dampen large amounts of activity;
- For example, it is much more important for users to be able to tell whether there are 3 or 7 people present, than whether there are 103 and or 107 present.

Visualization Design Principles

- Use a third-person point of view
  - Show users' own activity as others would see it
  - Over time user learn how to interpret the visualization and how their own behaviour is reflected in it;
  - As response, they modify their behavior

Example:
Visualizations used as motivation tool

Visualization Practice

Visualization of history of personal social interaction
- Who did you meet today?
- At what location?
- How long is the conversation?

Assume information can be gathered by mobiles

Capture the interaction patterns
- Time spent on conversations
- Closest friend
- Overall friend relationship