Do Internet Librarians Need Maps of Cyberspace?

Martin Dodge - www.cybergeography.org
Centre for Advanced Spatial Analysis, University College London

/ Internet Librarian International 2003, Birmingham, 27th March 2003 /
The talk in a nutshell

• do internet librarians need maps of cyberspace?
  • yes!
  • but, only where appropriate
  • supplement, not substitute
  • however, there is no complete map you can go and buy today
  • but, I’ll give a tour of some of best examples
How do we navigate cyberspace?
how we really navigate the online worlds..
Internet library interfaces I use

<table>
<thead>
<tr>
<th>#</th>
<th>Title</th>
<th>Year</th>
<th>Site(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Comprehensive plan: the physical development plan for the city of Philadelphia 1960.</td>
<td>1960</td>
<td>Stores(1/9)</td>
</tr>
<tr>
<td>2</td>
<td>Changing countryside project: a report / prepared by the Countryside Commission.</td>
<td>1971</td>
<td>Stores(1/9)</td>
</tr>
<tr>
<td>3</td>
<td>Budapest in detail / [editor, Lőrincz Zsuzsa; foreword, Demszky Gabor; authors, Gerde Janos ... et al.] Budapest épületi náztatkozás / [szerkesztõ, Lőrincz Zsuzsa; az eI0151sziZsztta, Demszky Gabor; a fejezetek szerzô151, Gerde Janos ... et al.]</td>
<td>1999</td>
<td>SFEES(1/9)</td>
</tr>
<tr>
<td>5</td>
<td>Imago Poloniae : dawna rzeczpospolita na mapach, dokumentach i standbakach w zbiorach Tomasz Niewiadomskiego = das polnisch-deutsche Reich in Karten, Dokumenten und alten Drucken in der Sammlung von Tomasz Niewiadomskiego = [autorzy katalogu: Karol Marek Kozioł, Jacek Pendar].</td>
<td>2002</td>
<td>SFEES(2/9)</td>
</tr>
</tbody>
</table>
Internet library interfaces I use

Records 1 - 20 of 3229 for Words~ ('maps'); not sorted

3. Budapest in detail: [editor, Lőrincz Zsuzsa, foreword, Domsicky Gabor; authors, Gerle Janos ... et al.] = Budapest épületi megjelölések. [Szerkesztő, Lőrincz Zsuzsa, az e19151 szel áta, Domsicky Gabor; a fejezet szerz10151, Gerle Janos ... et al.]
5. Imago Poloniae: dawna rzeczpospolita na mapach, dokumentach i stanach w zbiorach Tomasza Niedzwieckiego = das polnische Kaiserreich in Karten, Dokumenten und alten Drucken in der Sammlung von Tomasz Niedzwiecki [autore katalogu: Karin Kniep, Janusz Pandzio].
Internet library interfaces I use
Internet library interfaces I use
Mapping cyberspace?

- there are many ways to describe and understand cyberspace
- economics, legal, mathematics, art, sociology, etc..
- I’m a geographer, so I believe maps enjoy a privileged position
- maps have been powerful visual tools for understanding the world for 1000s of years
- maps have been key in framing our understanding places, their size, shape and the relations between them
- navigation - ‘what is where’ and ‘how to get there’
- revealing what is hidden. making the invisible visible
- maps vital in war, commerce and government
Defining ‘cyberspace mapping’?

- **cyberspace**
  - the conceptual spaces of information and communications flows within the digital infrastructure of computing hardware, software code and high-speed telecommunications networks
  - it is not the technology or infrastructure itself, but the virtual spaces that this enables

- **map and mapping**
  - maps are graphic representations that facilitate a spatial understanding of things, concepts, conditions, processes, or events in the human world

- **maps of cyberspace, not maps in cyberspace**
Librarians and cartographers

- organising large volumes of information
- helping people find what they need

- so, maybe, Internet librarians could use maps of cyberspace?

---

*The map is a help provided to the imagination through the eyes.*

Henri Abraham Chatelain, *Atlas Historique* (1705)
Navigating information - not quite Hollywood

• improving ways to navigate online content
• is there a middle ground between current textual / list type interfaces versus the immersive 3d (cool) interfaces of Hollywood?
• from feedback received, it seems like many people are seeking better navigation tools and interfaces
• experience from cartography can help
• examine the nature of information mapping
Navigational activities

• much information seeking is haphazard, ill-defined. may not know exactly what you are looking for. Iterative and fluid. exploration

  Scanning - covering a large area quickly and without depth
  Browsing - following an undirected path by associations until you find something of interest
  Searching - looking for an explicit target
  Exploring - finding out the full extent and diversity of what is available
  Wandering - random and unstructured movement without purpose
Information maps - the ‘classics’

John Snow’s ‘Cholera’ Map, 1854

Charles Minard’s ‘Napoleon’ map, from 1861

London Tube map, based on the design Of Harry Beck in 1930s
Information maps

- information maps for content navigation
- wide variety of ‘experiments’, some products
  - visual metaphors
  - dimension (2D, 2.5D, 3D)
  - static - dynamic
  - levels of user interactivity

- scales of the maps
  - individual site maps
  - dynamic surf maps / trail maps / history visualization
  - large chunks of information space

- focus on interactive 2d space-filling information maps
The power of information maps

- the missing ‘up button’ on the browser
- intelligent summarisation and generalisation

- 3 key advantages:
  - a sense of the whole (the birds eye view / big picture)
    What is there around here?
  - revealing hidden connections / structure
  - support interactive browsing

Where is the wisdom we have lost in knowledge?
Where is the knowledge that we have lost in information.

T.S. Elliot, The Rock (1934)
Making information maps

• spatialisation - turning text into maps
• various algorithms
• key spatial properties:
  - area
  - position
  - proximity
  - scale

+ the graphic properties of colour, shape, labeling, etc
The top-level map shows forty odd broad entertainment 'subject regions' represented by regularly shaped tiles. Each tile is a visual summary of a group of Web pages with similar content.

When a user selects the 'MUSIC' subject region, a second-level map with numerous different music categories is then presented to the user.

Delving deeper, the user wants to learn more about jazz music, so clicking on the 'JAZZ' tile leads to a third-level map, a fine-grained map of jazz-related Web pages.

Finally, selecting the 'MILES DAVIS' subject region leads to more a conventional looking ranking of pages from which the user selects one to download.
ODP - typical hierarchical directory of websites

Top: Regional: Middle East: Iraq (158)

- Localities (32)
  - Arts and Entertainment (13)
  - Business and Economy (8)
  - Education (10)
  - Government (7)
  - Guides and Directories (11)
  - Health (3)
  - Maps and Views (8)

- News and Media (9)
- Recreation and Sports (1)
- Science and Environment (1)
- Society and Culture (80)
- Travel and Tourism (13)
- Weather (3)

See also:
- Regional: Asia (52,536)
- World: Arabic (673)

This category in other languages:
- Arabic (2)
- Danish (3)
- French (8)
- German (10)
- Greek (9)
- Italian (3)
- Polish (6)
- Russian (2)
- Spanish (2)
- Swedish (7)
- Turkish (2)
Zooming into the Middle East
Welcome to Cyber-Geography Research (1)

Exploring the geographies of the Internet, the Web and other emerging Cyberspaces.

About Cyber-Geography...
http://www.cyber-geography.org
Ambrotype of "Smutty Bear"
One of the earliest images of Native Americans
Click for more options.
Social maps - what are people talking about?

Netscan project by Marc Smith, Microsoft Research

http://netscan.research.microsoft.com/
<table>
<thead>
<tr>
<th>Newsgroup Name</th>
<th>Date</th>
<th>Total Groups</th>
<th>Total Messages</th>
<th>Total Posters</th>
<th>Deep red means - 300% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>alt.music</td>
<td>01/01/2001</td>
<td>807</td>
<td>197736</td>
<td>43757</td>
<td></td>
</tr>
</tbody>
</table>

Diagram showing various music-related topics such as napster, mp3, oasis, rush, dj, ween, and many others.
And of course Sex (the alt.sex newsgroups)
Network maps of information spaces

Kartoo search engine

http://www.kartoo.com
The power of maps

• who makes the maps? and what do they want to show and choose not show?
• all maps are authored
• all maps are subjective
• easy to assume that the map is an objective representation of reality
• maps and interfaces to cyberspace are very powerful

So much has already been written about everything that you can’t find out anything about it.

James Thurber (1961)
Distortion and deception
“how to lie with maps”

- most obvious being through
  - data selection/omission
  - projections
- how are maps of information content deceiving?
- many ways to project content onto a flat map

Mark Monmonier, *How to lie with maps*
(Chicago University Press, 1996)
Maps as frames of space
Maps as frames of space
Maps as frames of space
Interfaces as frames of virtual space
Interfaces as frames of virtual space
Interfaces as frames of virtual space
Interfaces as frames of virtual space
Interfaces as frames of virtual space
Potential developments

- surf maps integrated into the browser
- maps of search engine results (Google map)
- using geographic location as a classification key. automatic geocoding of content (location aware devices). mid air messaging
- beyond text search - multimedia
- leverage information from earlier searchers (annotations, digital dog ears, virtual footprints)

http://vw.indiana.edu/sackler03/
Conclusions

- can we make information maps?
  - yes

- can we make **really useful** information maps?
  - probably (hopefully), but maybe not yet

- how helpful are the current maps in navigating online content?
- are the maps just eye candy?
- the ‘killer map’ is yet to be drawn
- I want the London Tube map for the Web
Conclusions

- major usability issues, need evaluation
- many people have trouble reading maps
- need very clear metaphors
- easy modes of interaction and support
- concern for privacy issues. maps are often used to monitor, track and control
- many maps funded by military and marketing
- map usage reveals much about you
- no such thing as a true map of cyberspace
Further reading

• questions ?? I would welcome feedback, email me at m.dodge@ucl.ac.uk

• the slides of this presentation are available at www.casa.ucl.ac.uk/martin/internetlibrarian.pdf

• want to know more on cyberspace mapping, see www.cybergeography.org/atlas