

Voyagers and Voyeurs: Supporting Asynchronous Collaborative Information Visualization

Roshanak Zilouchian

Visual sensemaking can be a social process.

- ▶ In the process of consensus building people learn from their peers.
- ▶ Some data sets are so large that thorough exploration by a single person is not possible.



Experiences with Deployment of Visualizations

vizster



community >>

Enable

search >>

Amanda

User ID 324522

Friends 266

Age ??

Gender Female

Status Single

Location San Francisco, CA

Hometown Lancaster, PA

Occupation researcher: social networks, identity, context

Interests apopenhia, observing people, culture, questioning power, reading, buddhism, ipseity, computer-mediated communication, social networks, technology, anthropology, stomping

Music psytrance/goa/trance [Infected Mushroom, Son Kite... Iboga/Digital Structures], Ani Difranco, downtempo, Thievery Corporation, Beth Orton, Morcheeba, Ween, White Stripes

Books Authors: Erving Goffman, Stanley Milgram, Jeanette Winterson, Eric Schlosser, Leslie Feinberg, Dorothy Allison, Italo Calvino, Hermann Hesse

TV Shows ??

Movies Koyaanisqatsi, Amelie, Waking Life, Tank Girl, The Matrix, Clockwork Orange, American Beauty, Fight Club, Boys Don't Cry

Member Since ??

Last Login 2003-10-21

Last Updated 2003-10-21

About I'm a geek, an activist and an academic, fascinated by people and society. I see life as a very large playground and enjoy exploring its intricacies. I revel in life's chaos, while simultaneously providing my own insane element.

Want to Meet Someone who makes life's complexities seem simply elegant. A partner in crime with an intellectual bent and a passion for creating change

Observations

- ▶ Groups spent more time in front of the visualization than individuals.
- ▶ Friends encouraged each other to unearth relationships, tell stories about their shared memories, and challenge reported information.

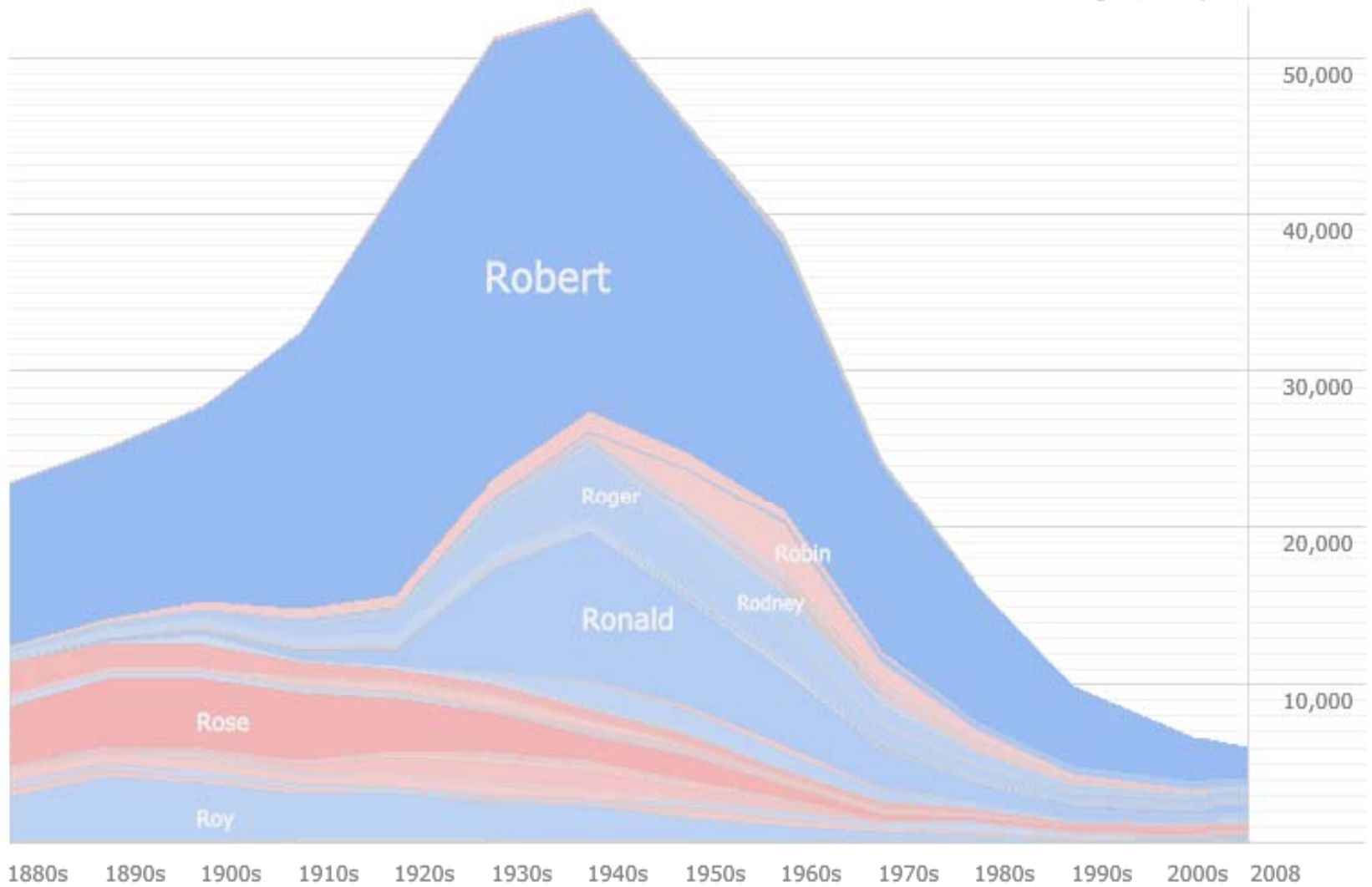


Baby Name >

● Both ○ Boys ○ Girls

2008 rank: boys	1000	500	100	25	1
girls	1000	500	100	25	1

Names starting with 'RO' per million babies



Visualizations can be social spaces as well as analytic tools.

▶ **Visualization**

Focus on visualized data

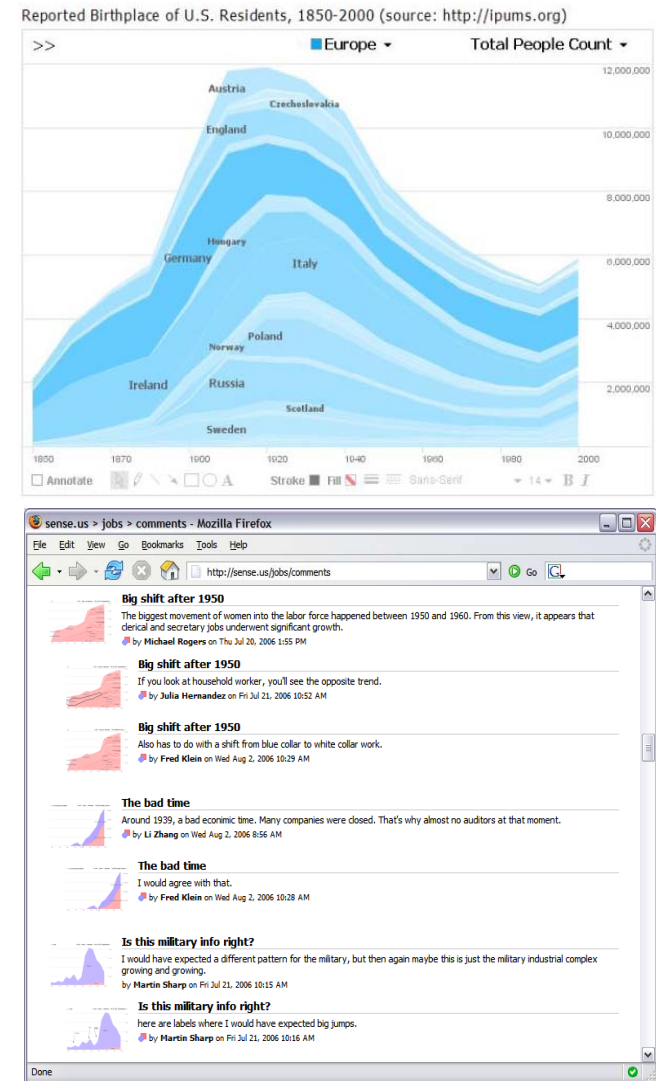
Active engagement with the data

▶ **Social Space**

Focus on comment listings

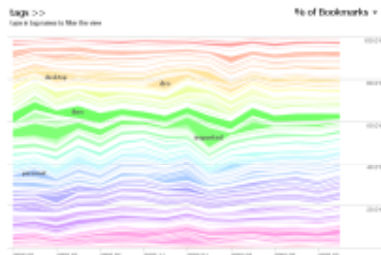
Investigate others' explorations

Find people and topics of interest

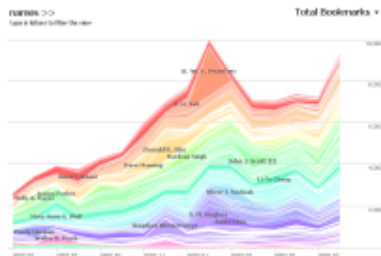


sense.us

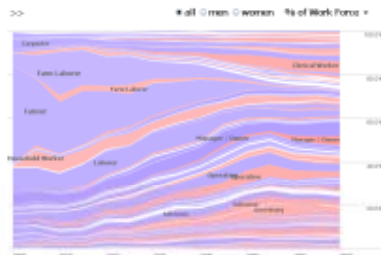
A Web Application for Collaborative
Visualization of Demographic Data



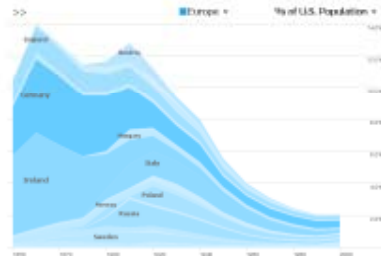
Dogear Tags
 Dogear Tag Usage, May 2005 to August 2006
 source: IBM Dogear
10 comments



Dogear People
 Dogear Bookmarking by Person, May 2005 to August 2006
 source: IBM Dogear
1 comment



Job Voyager
 Reported Occupations of U.S. Labor Force, 1850-2000
 source: <http://ipums.org>
139 comments



Birthplace Voyager
 Reported Birthplace of U.S. Residents, 1850-2000
 source: <http://ipums.org>
10 comments

sense.us - social data visualization

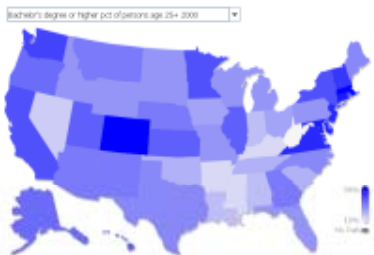
sense.us is a prototype system for collaborative visualization.

- See the data. See what people have to say about it.
- Dive into the data and share your explorations.

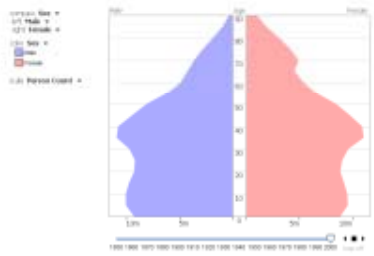
The site requires **Java 1.5+** and either **Firefox** or **Internet Explorer**. Use your **IBM W3/BluePages e-mail and password** to login. Use at least **1024x768** resolution for the best experience.

Check out the **user's guide** and **privacy policy** before getting started.

Having problems using Firefox with Java 1.4? Some users using Firefox and Java 1.4 have found that comments aren't loading properly. If you run into this problem, consider upgrading to Java 1.5 (**Windows, Linux**) or using Internet Explorer (on Windows systems). Sorry for any inconvenience!



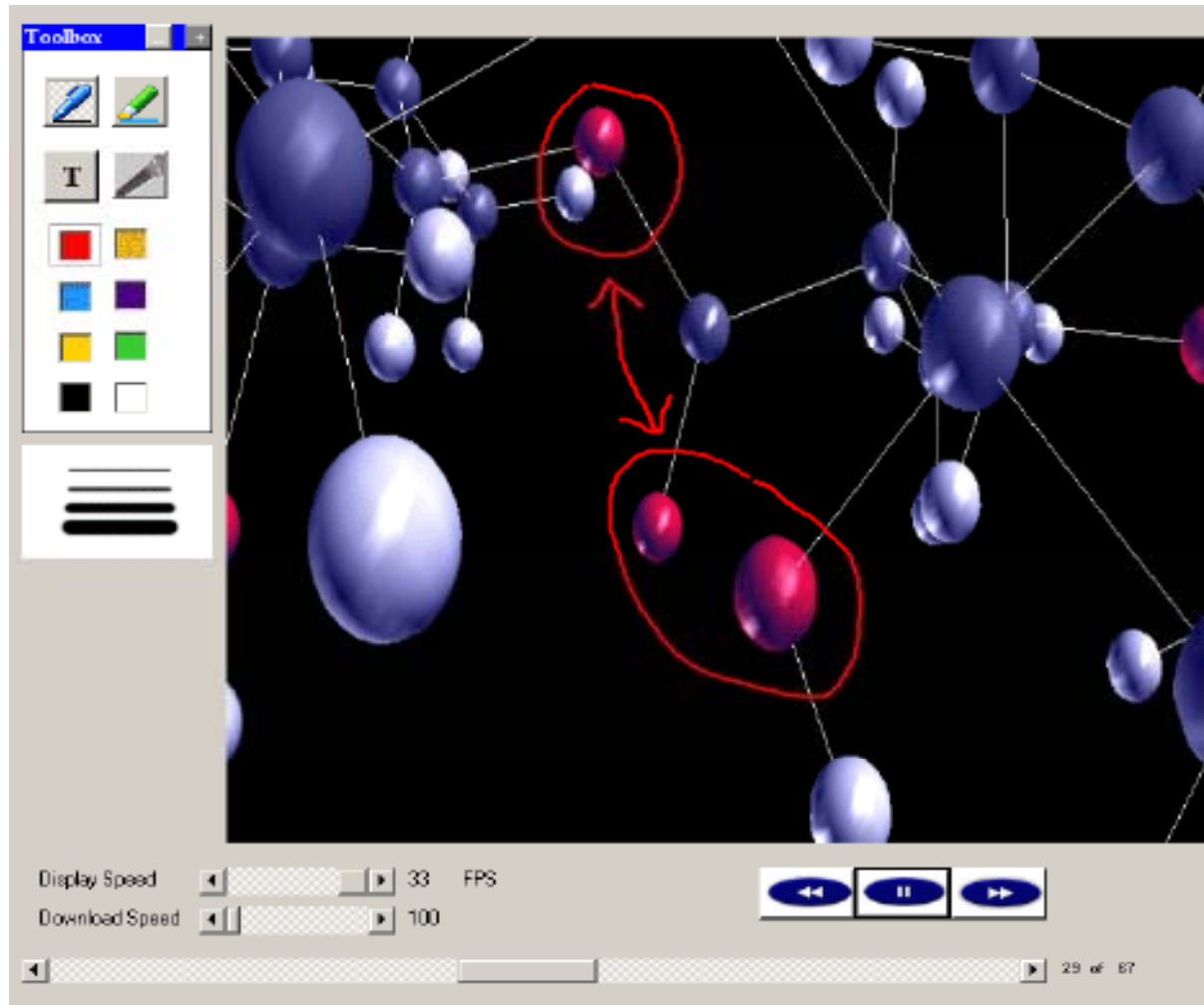
U.S. Census State Map
 State Map of 2000-2005 Census Data
 source: U.S. Census Bureau
16 comments



Population Pyramid
 U.S. Population Demographics, 1850-2000
 source: <http://ipums.org>
7 comments

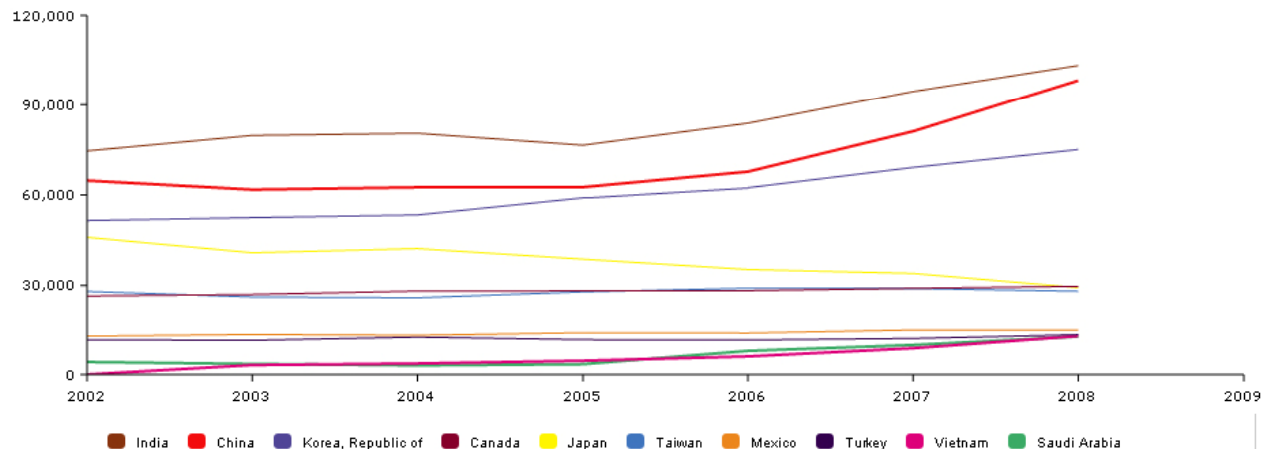
Existing Systems

Collaborative Annotations on Visualizations



Max 5y 1y YTD 6m 3m 1m 7d 1d 01/01/2002 to 01/01/2009 Series % change

International Students Enrolled in US Higher Education Institutions



Last updated Mar 30, 2010 2:43PM

Chart data

Summary for 2002 to 2009

Series	First	Last	Change	Low	High	Total	Average	Median	Std Dev
India	74,603	103,260	↑ 28,657 (38.41%)	74,603 on 2002	103,260 on 2008	592,964	84,709.1	80,466	10,441.00
China	64,757	98,235	↑ 33,478 (51.70%)	61,765 on 2003	98,235 on 2008	498,712	71,244.6	64,757	13,672.38
Korea, Republic of	51,519	75,065	↑ 23,546 (45.70%)	51,519 on 2002	75,065 on 2008	422,964	60,423.4	59,022	9,019.96
Canada	26,513	29,697	↑ 3,184 (12.01%)	26,513 on 2002	29,697 on 2008	196,900	28,128.6	28,202	1,094.30
Japan	45,960	29,264	↓ -16,696 (-36.33%)	29,264 on 2008	45,960 on 2002	266,242	38,034.6	38,712	5,621.05
Taiwan	28,017	28,065	↑ 48 (0.17%)	25,914 on 2004	29,094 on 2006	194,145	27,735.0	28,017	1,251.55
Mexico	12,801	14,850	↑ 2,049 (16.01%)	12,801 on 2002	14,850 on 2008	96,637	13,805.3	13,826	812.25
Turkey	11,601	13,263	↑ 1,662 (14.33%)	11,398 on 2003	13,263 on 2008	83,894	11,984.9	11,622	674.25
Vietnam	2	12,823	↑ 12,821 (641050.00%)	2 on 2002	12,823 on 2008	39,062	5,580.3	4,597	4,171.32
Saudi Arabia	4,175	12,661	↑ 8,486 (203.26%)	3,035 on 2004	12,661 on 2008	44,569	6,367.0	4,175	3,797.63

Created by Ariel Tilson Public

This chart compares international student enrollment nationwide over a seven year spread, arranged by the top 10 countries of origin.

Source Institute of International Education <http://opendoors.iienetwork.org/?p=150860>

CC BY Ok to share with attribution

Comments (0) Order: Chronological | Most Recent

Add your comment below

Add comment Cancel

Spotfire DecisionSite Posters - Microsoft Internet Explorer

Address <http://preview.spotfire.com/spotfire/library?guid=b92745b0-5c2e-11d9-b49e-0010c0a0214>

Spotfire DecisionSite Posters

Menu Help

Sales overview- December

larsb@spotfire.com 2004-12-29
Sales result overview for December. Positive change in WE, while poor performance in the other regions.

Decision Status: Open
[Open in DecisionSite Client](#)

Annotations

larsb@spotfire.com 2004-12-29 View
Original bookmark

larsb@spotfire.com 2004-12-29 View
The only territory outside of the WE with any real gain is territory 21.

[Add Annotation...](#)

Share change over regions and territories

Class change vs share change

MyShare change from Q3 to Q4

Query Devices

4999/4999 selected

Sales quadrant

1
 2
 3
 4
 Include empty values

New DecisionSite Poster 'Sales overview- December' added - Message (HTML)

From: larsb@spotfire.com Sent: Wed 12/29/2004 3:54 PM
To: Lars Bauerle
Cc:
Subject: New DecisionSite Poster 'Sales overview- December' added

A new DecisionSite Poster, Sales overview- December, has been published to the DecisionSite Library.
(Click [here](#) to login to the full Spotfire DecisionSite Poster) [Login information](#)

Spotfire DecisionSite Poster

Sales overview- December

larsb@spotfire.com, 2004-12-29

Sales result overview for December. Positive change in WE, while poor performance in the other regions.

Clippings

Share change over regions and territories

Class change vs share change

MyShare change from Q3 to Q4



Social Data Analysis in Action

sense.us > jobs - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://sense.us/jobs#scale=1&gender=all&query=military&comment=154 (f)

sense.us / jobs hello, Michael profile comments trails help logout

Reported Occupations of U.S. Labor Force, 1850-2000 (source: http://ipums.org)

>> military all men women % of Work Force (a)

Civil war
WWI
Depression
WWII
Cold War
Fall of Soviet Union
Recession

Military

1850 1870 1900 1920 1940 1960 1980 2000

(b) Annotate Stroke Fill Sans-Serif 14 B I

ibm visual communication lab privacy feedback help See something interesting? Add a comment, it's easy!

Done

comments (5) New Comment | View All (139) (e)

here are labels where I would have expected big jumps.

by Martin Sharp on Fri Jul 21, 2006 10:16 AM

well, there was also the cold war right after ww2, which might be part of the reason why there's such a huge jump after the 40s. It is also interesting that there is such a drop between the 70s and the 80s.

by Julia Hernandez on Fri Jul 21, 2006 11:01 AM

I guess a lot of it has turned to robots, and the industrial complex, as martin suggested, though it would be interesting to see the comparison of the fall in military personal next to the rise in DOD funding for robots and industry.

by Jesse O'Brien on Fri Jul 21, 2006 11:51 AM

I think the jumps have more to do with the economy at large rather than any particular military conflict. Lots of money in conflict has already been spent before the conflict starts.

by Fred Klein on Wed Aug 2, 2006 10:24 AM

reply

Is this military info right?

B I U AN ☺

I would agree with that... also see this: [link](#) (d)

Submit Cancel

bookmarks (3) Add View | Save | Load | View All (c)

ibm visual communication lab

“sense.us” supports social navigation through comment listings.



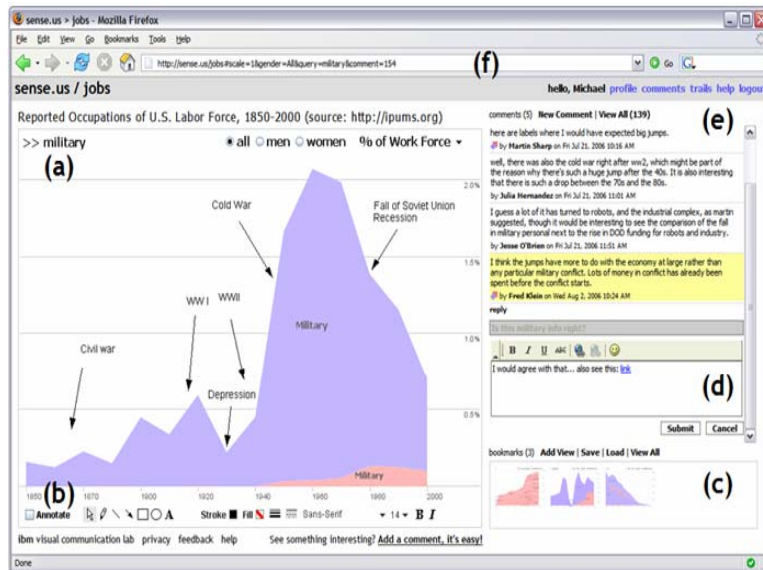
They Conducted a User Study to Understand Usage Patterns of sense.us.

- ▶ The studies were ran in two parts: ***a pair of controlled lab studies*** and ***a 3-week live deployment.***



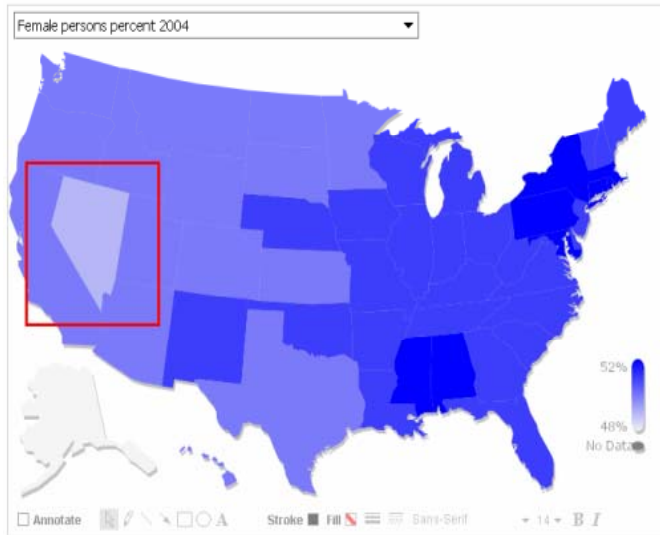
In the lab study users conducted a 25 minute usage session of sense.us.

- ▶ They first ran a pilot study with 6 subjects.
- ▶ They ran a study with 12 subjects from their research lab.
- ▶ They replicated the study in a university environment with an additional 12 subjects.

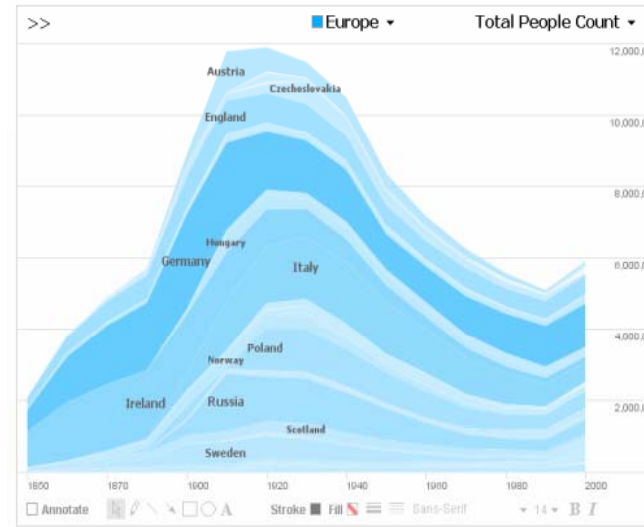


Live deployment was conducted on the IBM corporate intranet for 3 weeks.

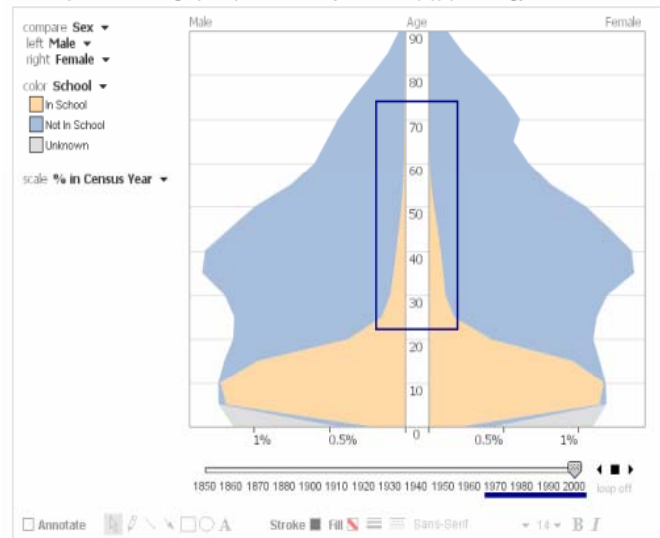
State Map of 2000-2005 Census Data (source: U.S. Census Bureau)



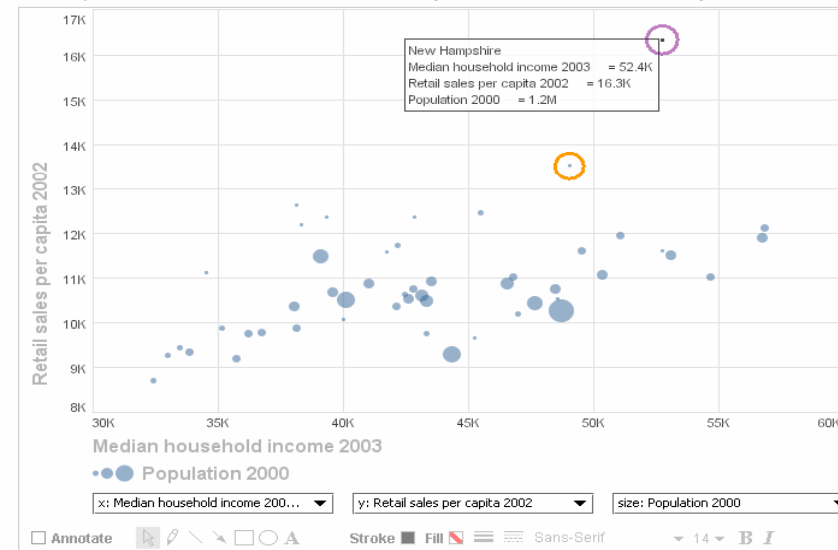
Reported Birthplace of U.S. Residents, 1850-2000 (source: <http://ipums.org>)



U.S. Population Demographics, 1850-2000 (source: <http://ipums.org>)

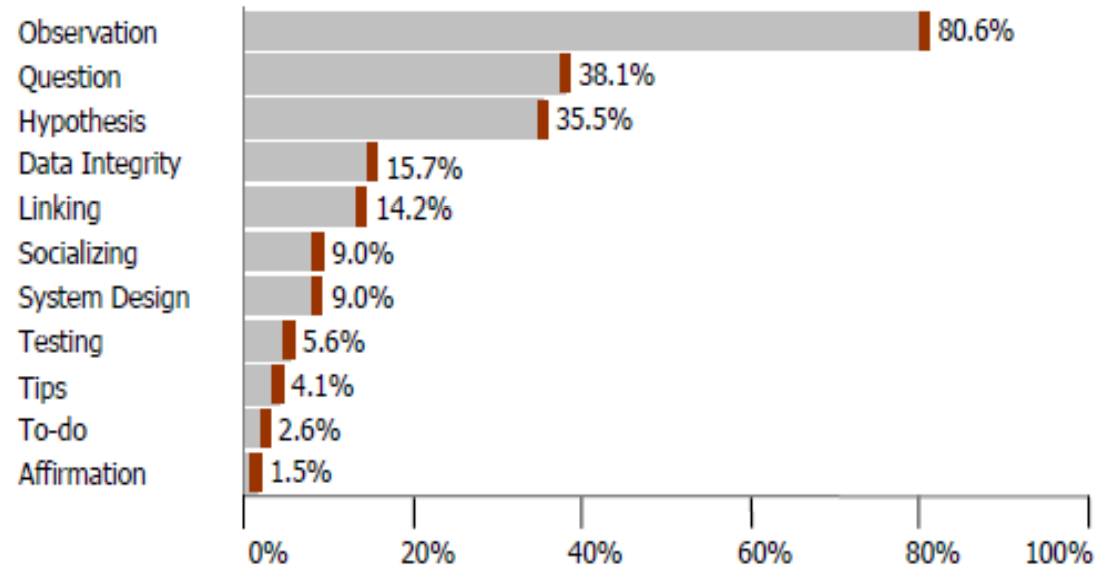


Scatterplot of 2000-2005 U.S. Census Data (source: U.S. Census Bureau)



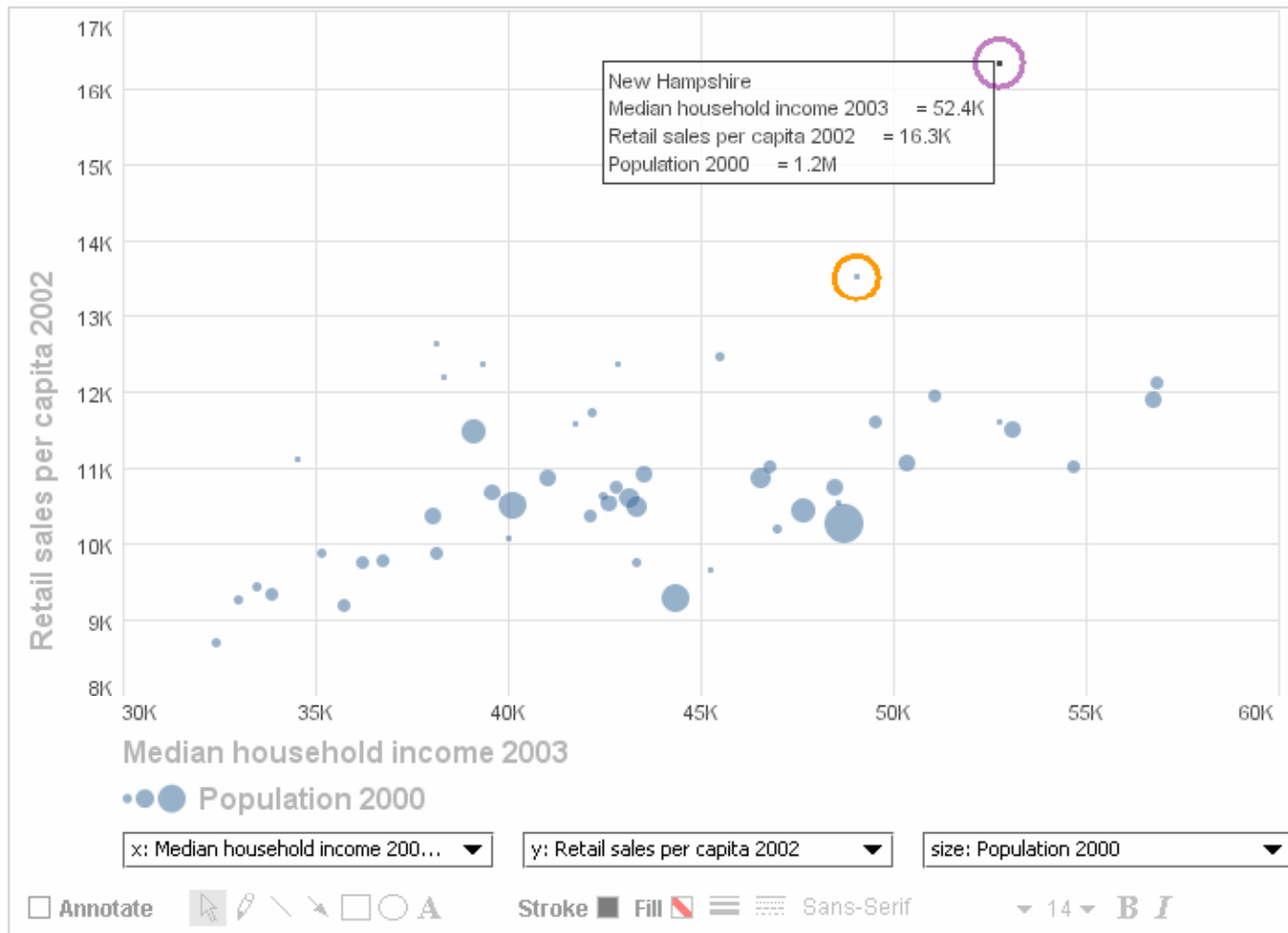
Findings from the Studies

They performed a formal content analysis on the collected comments.

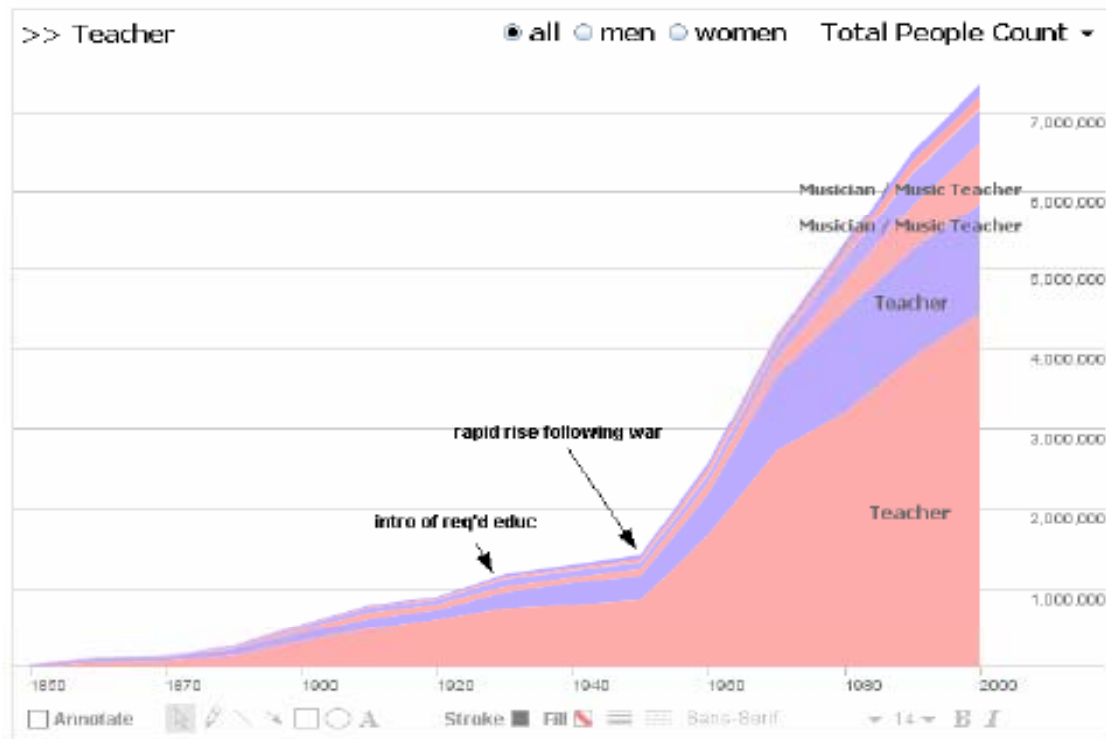


Most comments involved data analysis.

Scatterplot of 2000-2005 U.S. Census Data (source: U.S. Census Bureau)

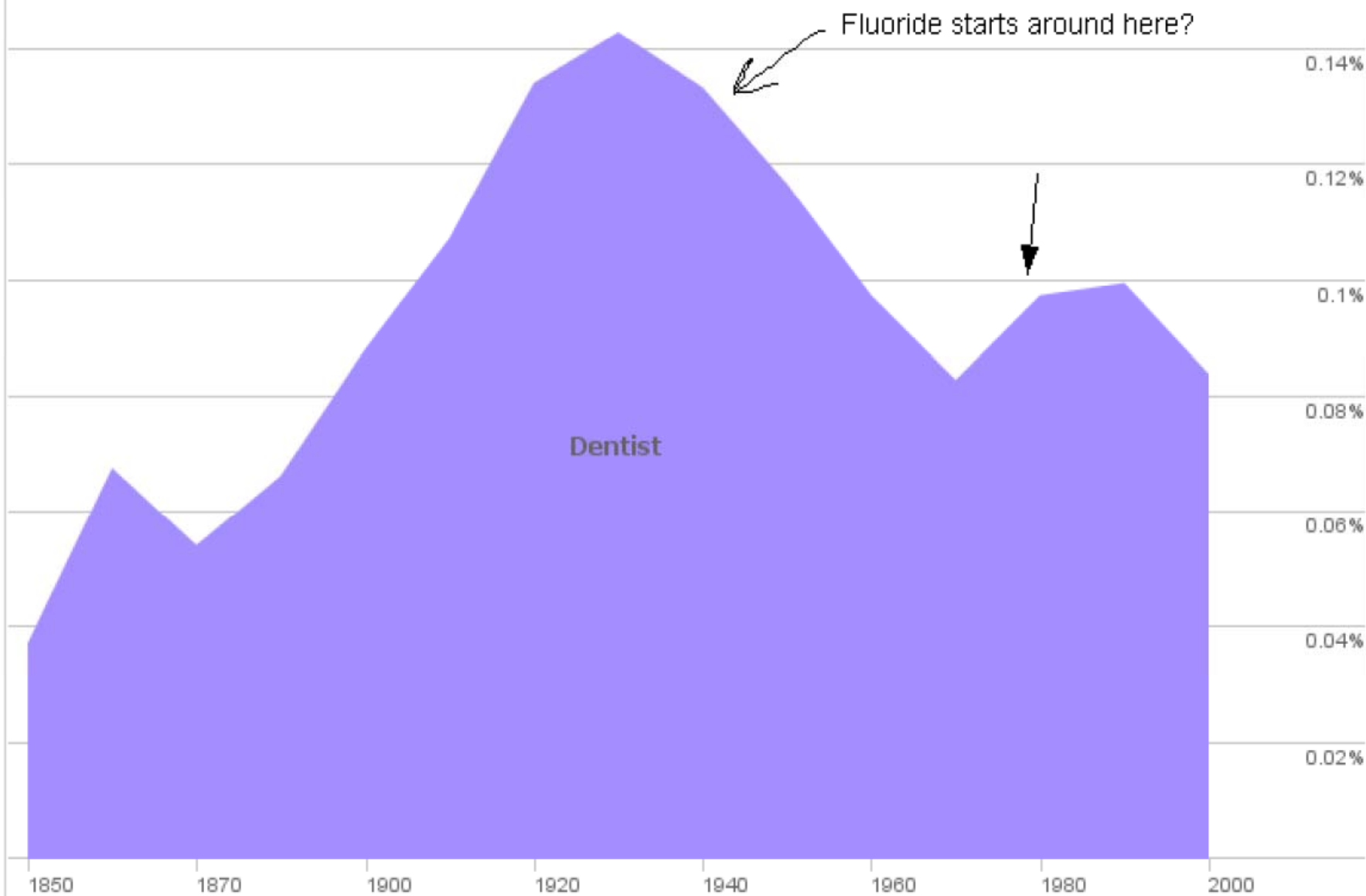


Comments include an observed trend, coupled with questions, and hypotheses.



>> dentist

● all ● men ● women % of Work Force ▼

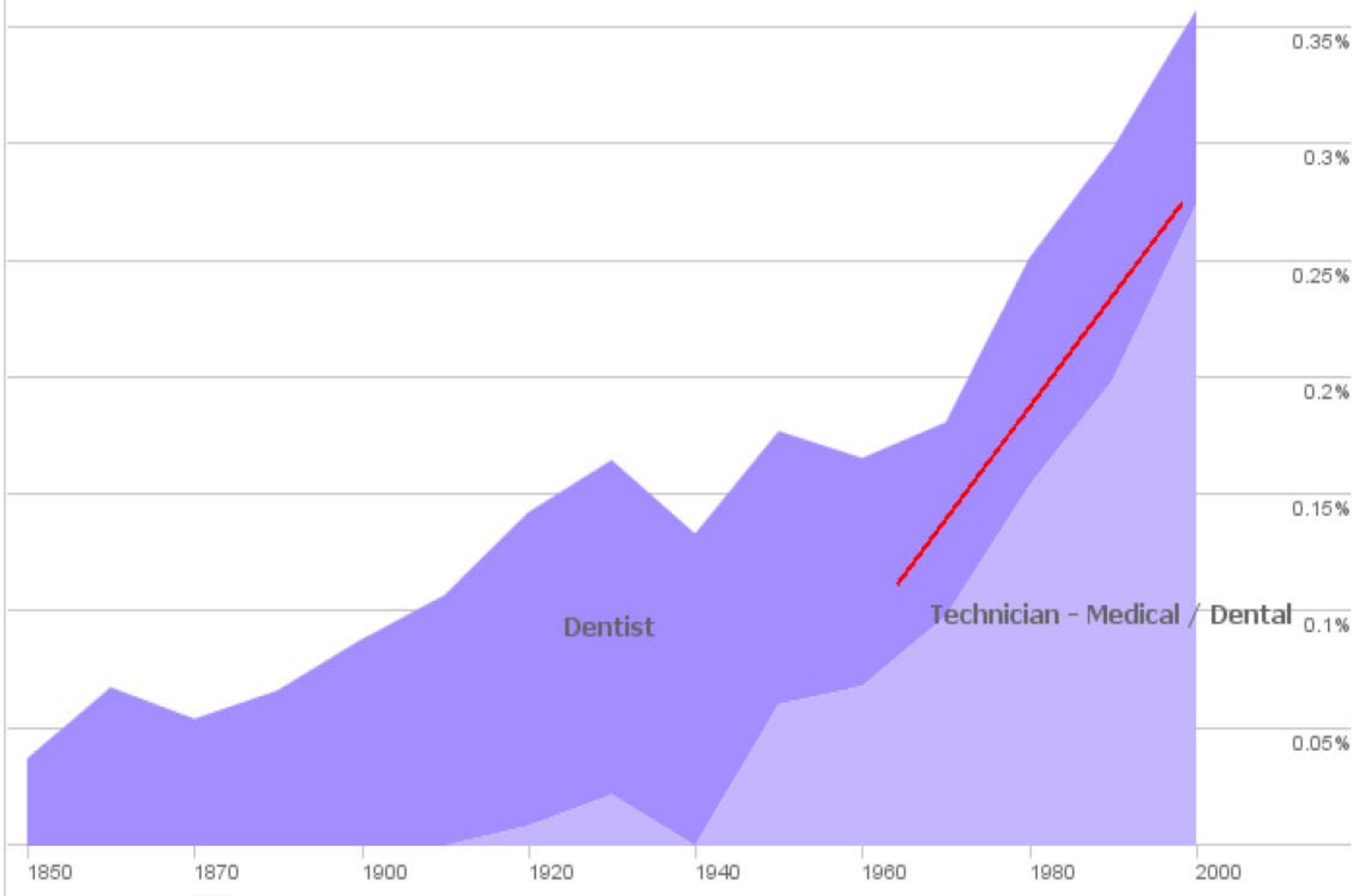


Fluoride starts around here?

Dentist

>> dent

all men women % of Work Force ▾



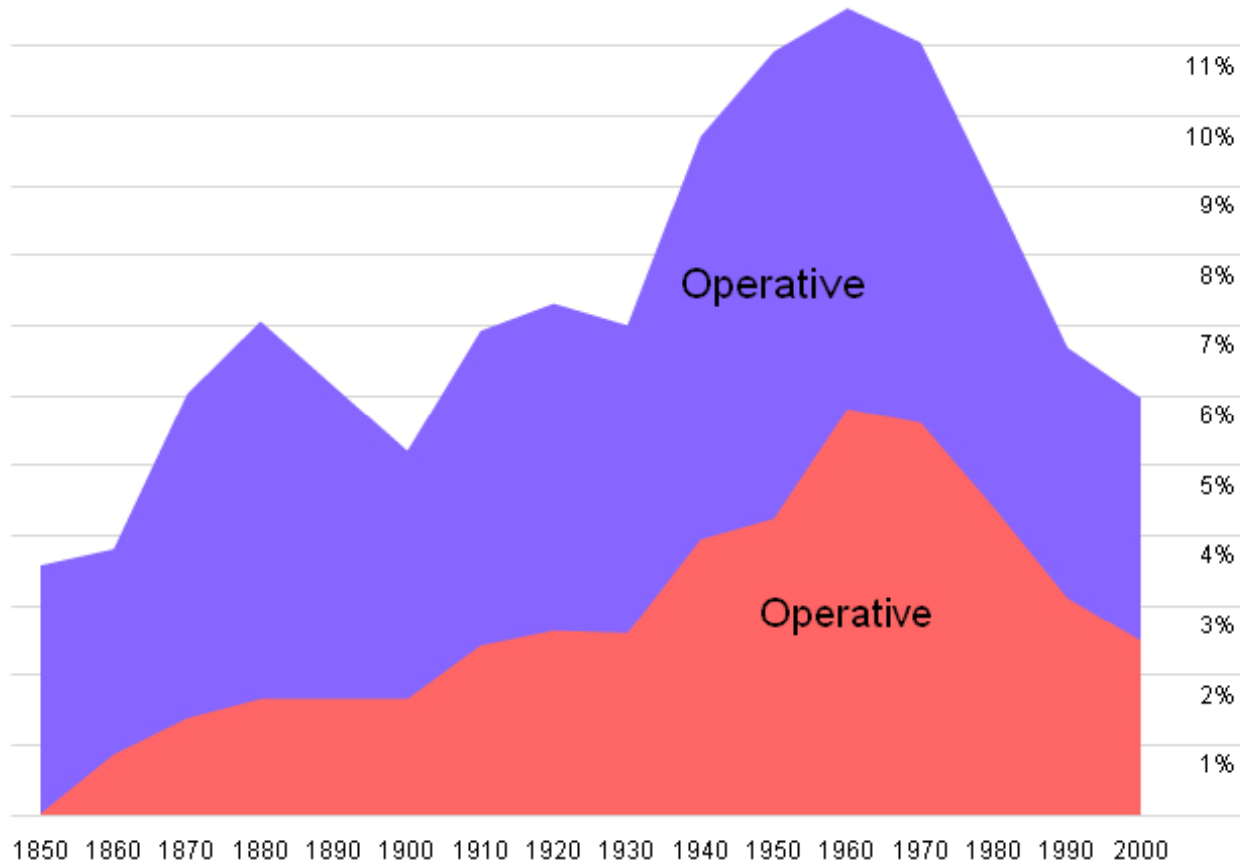
Another role of comments was to aid data interpretation.

Reported Occupations - U.S. Labor Force, 1850 - 2000 (source: <http://ipums.org>)

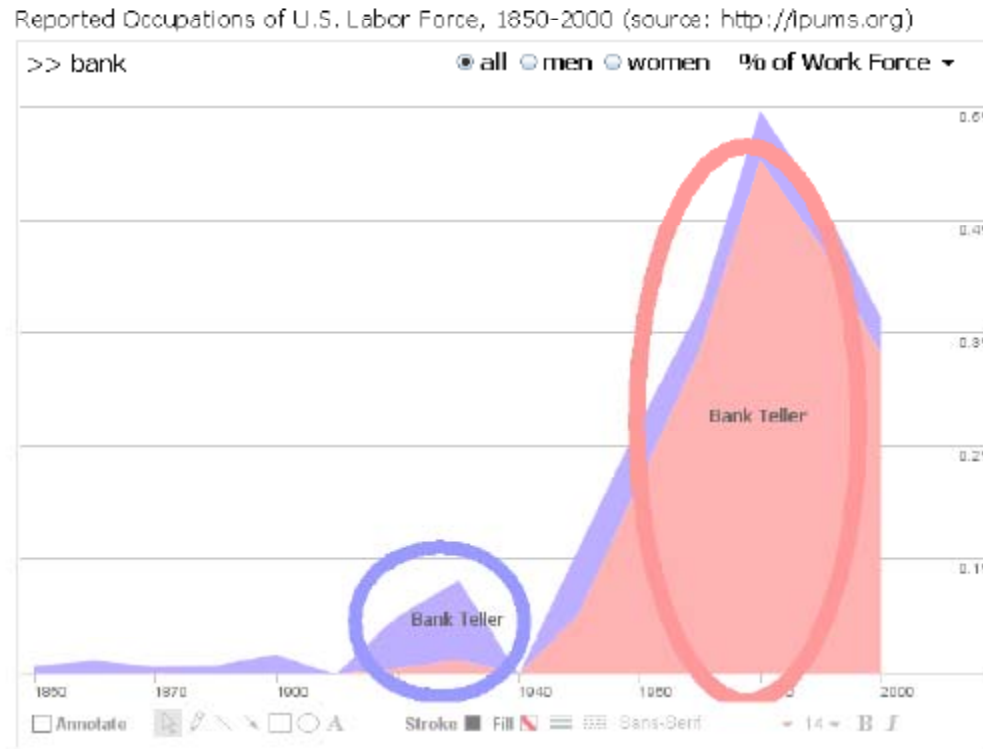
> oper



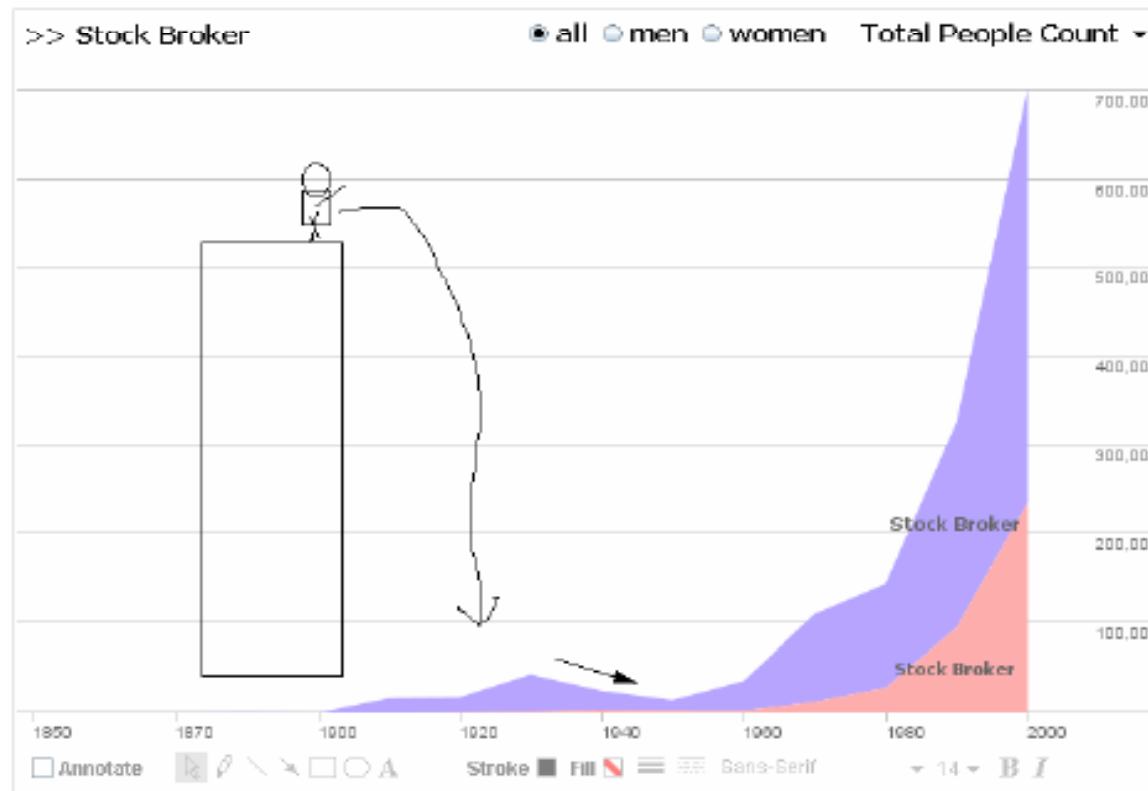
● All ● Male ● Female



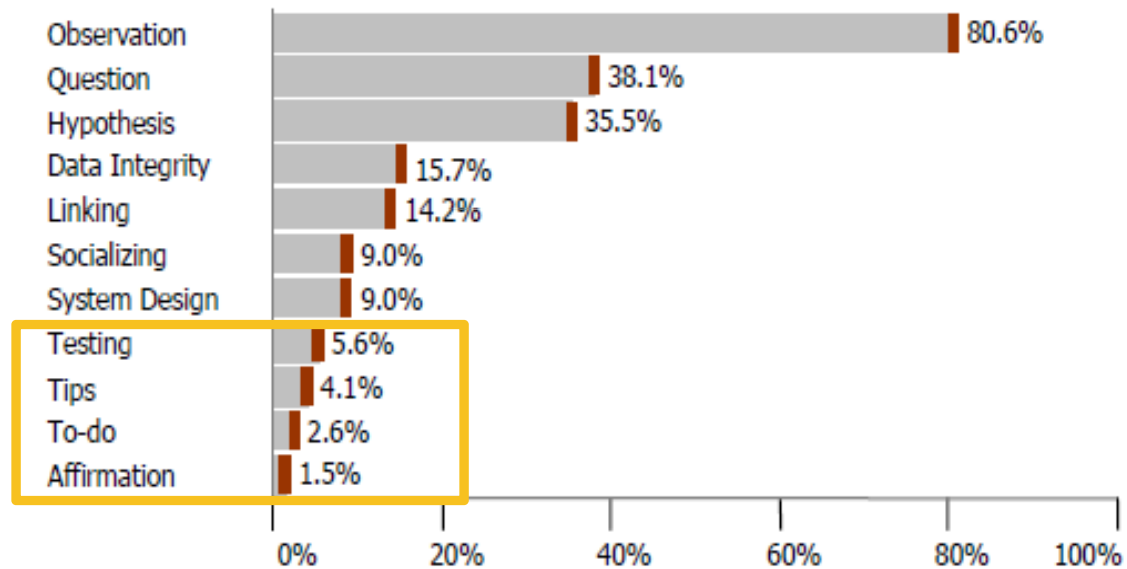
Some users were more interested in recurring patterns.



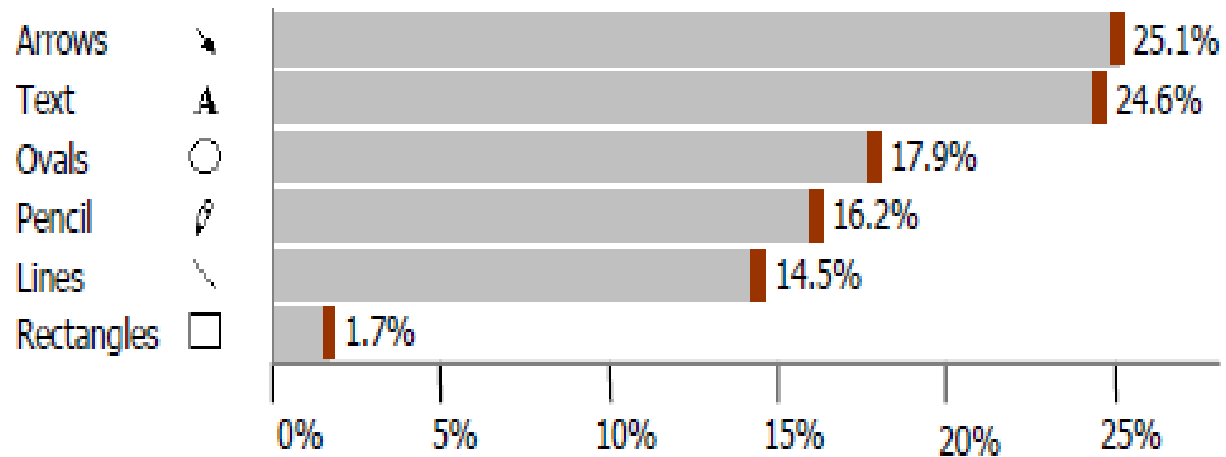
Some comments were social in nature.



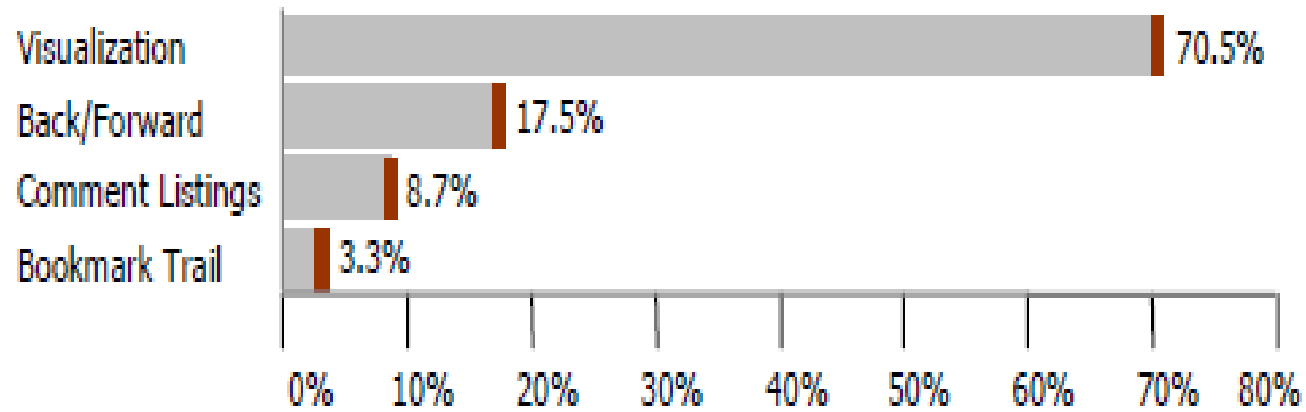
Comments served other purposes as well.



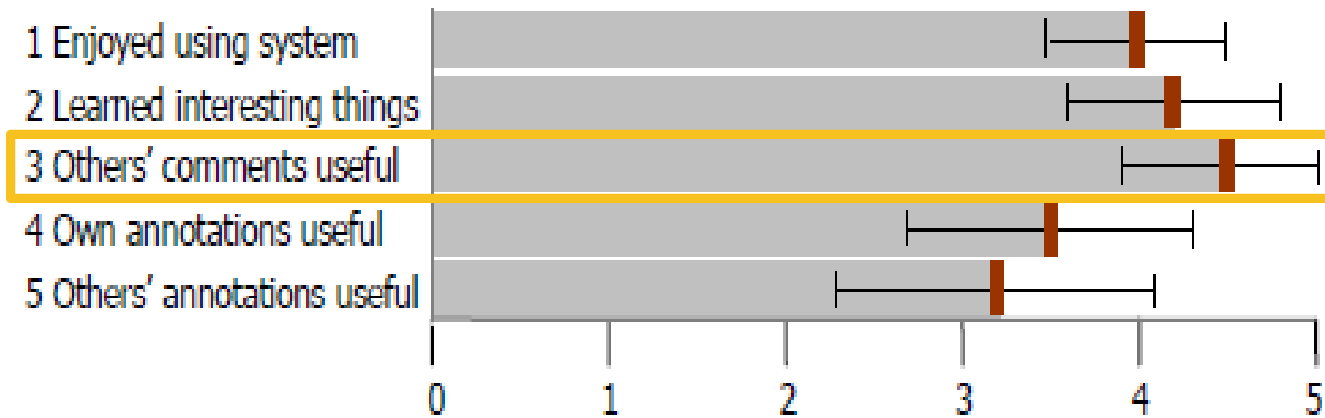
Graphical Annotations



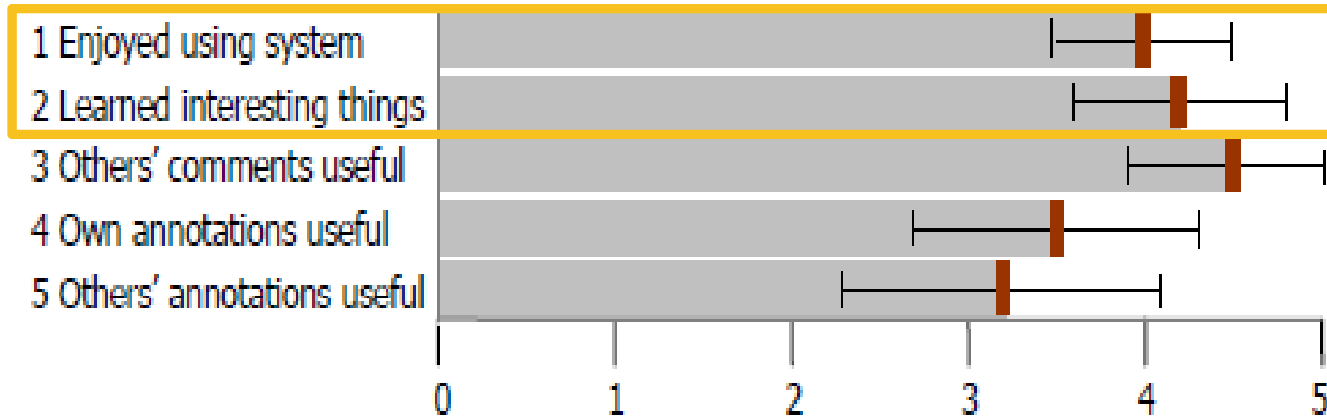
Visitation and Navigation



People found others' comments useful for exploring the data.



User Experience



Future Work

