User Interface Designs to Support the Social Spread of Search Expertise

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SIGIR large tries to improve systems. But expertise will always matter. Not “computer expert” – domain-specific search expertise matters. Systems to support social spread of expertise. What should we be transferring?
Social holds potential

Transmit expert patterns that they use for anticipation
ClassSearch video
In-class evaluation

Revealing multiple perspectives
Sharing best practices and insights
Popularity vs. utility
“Why’d you go there?”
Is more searches better or is more webpage visits better?
Sharing results from complex searches

LineHive demo
(Marchionini, 2006)
US Marine base in Okinawa dispute: Is relocation imminent?

- Dec 21, 1997: REFUSE Okinawa residents vote 'No' to heliport
- Nov 09, 2009: PROTEST Flights over residential areas, crimes by soldiers became controversial over the years
- Nov 20, 2009: GUAM? The American Navy released an announcement of relocation plan to Guam
- Apr 24, 2010: RELOCATION Japan moves to settle dispute with U.S. over Okinawa base relocation
- May 04, 2010: IMPOSSIBLE Moving Futenma SOLUTION? Hatoyama Seeka U.S. Base Solution After Disappointing Okinawa

iPhone vs. Flash

- Apr 06, 2010: Apple's iPhone lockdown: apps
- Apr 18, 2010: Adobe CEO: Flash coming to Chrome
- Apr 21, 2010: Adobe halts investment in Phone-specific Flash development
- Apr 30, 2010: Microsoft weighs in: the future Apple Becomes Largest U.S.-Based Mobile Phone
- May 03, 2010: Apple Facing Antitrust Inquiry Over Flash-to-Phone
Our research platform:

A lightweight, structured means of sharing insights.
Fewer women self-identify as "feminist," but definition is slowly changing

- **Jun 28, 1998**: TIME Magazine claims feminism is dead and modern supporters are vying for "pseudo-feminists.
- **Aug 17, 2002**: Gallup reveals American public is less willing to accept "feminist" label over past 30 years.
- **May 13, 2005**: CBS News Poll finds more women self-identify as feminists when given definition.
- **Mar 22, 2008**: Feminist Majority Foundation releases video to challenge negative stereotypes.
- **May 13, 2010**: Sarah Palin embraces "F-word" in an "emerging, conservative feminist identity."

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**Create New Timeline**

URLs:

http://techcrunch.com/2010/04/02/the-unauthorized-techcrunch-ipad-review/

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**Caption:**

iPad reviews from 6 of the most popular publications: general agreement

e.g. "Chinese couple finally take figure skating gold in 2010 after tumultuous history"
What differentiates high-quality insights?

274 timelines from 117 users in 3 contexts:
- 58 high school journalism students in 2 classes
- 37 online journalists
- 22 college Ed students in a class
(Hearst, 2009), adapted from (Broder, 2002)
ClassSearch + LineHive: what was transferred?
   keywords, reasoning, sequence, insights

What should be shared?
   How do search experts do what they do?
Existing notions of expertise

Domain, termination, URL, & sequence knowledge
Domain-specific search expertise
Search procedures, sequence
‘Online reading’
Advanced operators
Expertise (with Dan Russell)

Chunking (chess, etc.)
Categorizing on deep structure (physics)
Anticipation (chess)

Hypothesis: Search experts see web corpora in patterns. They know what to expect. The anticipate their next moves before even issuing a query.
The role of **anticipation** in search

What do experts anticipate?
- Categories/tone of results
- Where relevant information is
- How can this inform IR system design?

Anticipation as a metric for expertise?
Backup
Search is important

- Information literacy in ‘participatory culture’ as part of ‘new literacies’:
  - judgment
  - networking
  - transmedia navigation

- Academic performance not (always) correlated with search performance

(Jenkins, 2005), (Coiro, Dobler, 2008) (Gee, 2008)
Open-ended is most interesting

• No clear taxonomy:
  – Closed-ended, fact-finding
  – **Open-ended**
  – Exploratory
  – Re-finding, re-visititation
  – Informational vs. Transactional
  – Dispersed vs. Categorical

• Not *modeling search processes*
Domain expertise affects performance

• Search expertise vs. domain expertise

• Domain expertise predicts:
  – Query attributes
  – Search strategies and tactics
  – Search outcomes

(White/Dumais/Teevan, 2009), (Bhavani, 2002), (Marchionini, 2000)
Social learning is poorly supported

- Imitation is powerful & innate
- Which skills (should) transfer?
- Networking?
  - Syntax, operators
  - Sites & engines
  - Query reformulation strategies
- Judgment?
  - Credibility
  - Relevance
  - Heuristics
  - Belief systems (self, world, domain)
  - Self-regulation strategies