Seeing Vs. Noticing: Helping users find and use information quickly

Prasad Kantamneni
About Me

- M.S. CS and HFE
- Research Scientist at Honeywell Labs
- Research Engineer at WSU
- Principal architect of the Eye Tracking Platform at Yahoo!
- Social Entrepreneur at BCT
The challenge of large scale sites

“When you do something… 54M people will see it by the end of the week”

- ~$4 billion in Profit in 2010
- 2.6 Billion visits on the Yahoo! home page alone
- Small changes in UI may lead to large changes in user behavior
What is good user experience?

- Microsoft IPOd?
Things I’ve heard

• Just add marketing text

• It looks good -- launch it
  ■ OR It didn’t get as many clicks – shelve it.

• Just put it out there – people will figure it out

• You worry about the experience I’ll worry about the revenue.
Agenda

• Share case studies highlighting fun challenges in product design.

• Stimulate thought through discussion.
The toolkit

Implicit
- Large sample set
- Fast data collection
- What?

Explicit
- Small sample set
- Slow data collection
- Why?

- User studies
- Editorial
- Statistical metrics
- Online user studies
- Log analysis of real traffic
1. Managing user attention

- Is key to making money for the business while helping users find information faster.
- But the window of opportunity is small
  <search result page>
In the few seconds, a multitude of signals compete for user attention.
Multiple design patterns

- Shortcuts
- Search suggestions / Search Assist
- Quick links
- Nintendo Wii
- Indentation
- Rich results

**Shortcuts**

- **Slumdog Millionaire (2008)**
  - movies.yahoo.com
  - Yahoo! A.             B.  The story of Jamal Malik, an 18 year-old orphan from the slums of Mumbai, who is about to...
  - Showtimes
    - Enter City and State or Zip Code:
    - Make this your default location

**Search suggestions / Search Assist**

- obama

**Quick links**

- **Barack Obama** - News Results
  - Obama visits Canada to discuss economy, trade
  - AP via Yahoo News - 1 minute ago
  - Carter voices confidence in Obama stimulus plan
  - AP via Yahoo News - 37 minutes ago
  - Mr. Obama Goes To Ottawa
  - Forbes - 51 minute ago
  - More Barack Obama Headlines

- **Nintendo Wii**
  - Official U.S. page of the Nintendo Wii game console, formerly called Nintendo Revolution. Site includes game specs, video clips, photos, and the Wii philosophy.
  - us.wii.com  Cached
  - Wii Experience
  - Wii Menu
  - Software
  - Commercials
  - Developer's Voice
  - more results from us.wii.com

**Indentation**

- The White House
  - Features statements and press releases by President Barack Obama as well as documents, an index of government information, history, and tour information.
  - www.whitehouse.gov

- President Barack Obama
  - WhiteHouse.gov is the official web site for the White House and President Barack Obama, the 44th President of the United States. This site is a source for...
  - www.whitehouse.gov/administration/president_obama  Cached

**Rich results**

- **Athena Grill** - Wikipedia, the free encyclopedia
  - Fairly high and Political - 2008  Presidency
  - Barack Hussein Obama II (pronounced Barack Hoover on born), born August 4, 1961 in Honolulu, Hawaii, US, is an African American politician who served as the 44th President of the United States from 2009 to 2017.

- **Athena Grill - Santa Clara, CA**
  - User Reviews  Photos  Write Review
    - Yelp Rating: ★★★★★ (Based on 201 reviews)
    - Address: 1508 Space Park Dr, Santa Clara, CA 95054, USA
    - Phone: +1-408-997-9144
    - www.yelp.com/biz/athena-grill-santa-clara  - 15%  Cached
Strategies to cope

Golden triangle is habituated.

• **Effort** is usually predetermined based on the perceived ROI

• The user is trying to maximize the **ROI** for the amount of **effort** invested.

• Result #1 is always more trusted and is considered more relevant by default.

• Scan path gets narrower, and the user spends less time reading lower down the page.
Strategies to cope

• Users use **bolding in titles** to rapidly scan the SRP.

• **Bolding in scan path is critical** to making users notice a result.

• If a result is not bolded here, it is not noticed, and hence cannot be judged as relevant.
Experiments to validate findings

Design A
Conversational title style

Design B
To the point title (query term – property)
What if we can reduce user effort?

Current Exp
The abstracts bleed into the east

Tested Exp
Fixed width for abstracts
2: Introducing Change

- People learn, and evolve expectations
- Knowing when and which habits to break and when to reinforce – is the difference between gaining market share or loosing it.
2: Introducing small changes into the UI.

• What happens when we change our abstract style to:

Yahoo! Greetings
Birthday eCards
Anniversary
Friendship
Love & Dating

Join Yahoo! Greetings now to try our ecard and create & print memberships for one month FREE trial. You will be able to print paper cards like never before. Show your style, your care & versatility. The ecards are more amazing than ever!

www.yahoo.americangreetings.com - 55k - Cached
Small Changes.

• What happens when we change our abstract style <Vid>
High resolution image seen by the Fovea

Reduced visual acuity experienced by the parafovea

Progressively reducing visual acuity from the periphery of the retina
Users use parafoveal preview to identify the parts most likely to have relevant information based on the location of boldfaced terms.
Users are relatively blind to unfamiliar summary patterns.

Familiar summary patterns draw user attention and clicks.
Introducing change in a UI – which one did the best?

Amazon.com: Samsung HPT5054 50" Plasma HDTV, Electronics
...for its price. Samsung HPT5054 50" Plasma TV uses the company's latest...the HP-TS54. Samsung's entry level 50" Plasma for 2007. A differ...
www.amazon.com/Samsung-HPT5054-50-Inch-Plasma-HDTV/dp/B001HECRWV - 272k - Cached

Royal Caribbean International - Royal Caribbean Cruise Lines (NYSE: RCL)
Royal Caribbean's cruise ships are some of the most innovative in the industry - they're bigger and brighter, with a lot more open spaces and private balconies. Our onboard and shore-side activities appeal to everyone from the rock climber, to the sun worshiper.
www.royalcaribbean.com - 3k - Cached

Yahoo! Greetings
Birthday e-Card
Anniversary
Friendship
Love & Dating
Join Yahoo! Greetings now to try our ecard & create & print memberships for one month FREE trial. You will be able to print paper cards like never before. Show your style, your care & versatility. The ecards are more amazing than ever.
29 www.yahoo.americangreetings.com - 65k - Cached

Cartoon Network
CAMERAS - 150+ Film Stills - Play Now
VIDEO: Watch Snail Park, George of the Jungle
SHOP: Get the fastest product. Now with Free Shipping!
www.cartoonnetwork.com - 30k - Cached

Digital Cameras - High-End, Advanced Digital Cameras - Performance
Features
Specifications
Camera Type: 3x Optical/4x Digital/12x Combined Zoom
Image Capture: 5.0 Megapixel
Shutter: 5-8.17 sec/1/2-0.4 s
Support: Viewfinder, Real-image optical zoom viewfinder
www.usa.canon.com/consumer/controller?...&modelId=11158 - 72k - Cached
Introducing change in a UI – How much is too much?

Also try: new iphone 2008, new iphone 2 2008, the new iphone 2008 at&t. More...

The Apple iPhone - Engadget

iPhone redefines what you can do on a mobile phone. Tap a number to make a call. Listen to voicemail in any order with Visual Voicemail. Enjoy music, videos, movies, rentals, and more on the 3.5-inch color display.

www.engadget.com/2007/01/03/the-apple-iphone - 140k - Cached

Apple - iPhone

iPhone is a revolutionary new mobile phone that allows you to make a call by simply tapping a name or number in your address book, a favorites list, or a call log. It also automatically syncs all your contacts from a Windows PC, Mac, or Internet service.

www.apple.com/iphone - 29k

iPhone - Wikipedia, the free encyclopedia

iPhone is a revolutionary new mobile phone that allows you to make a call by simply tapping a name or number in your address book, a favorites list, or a call log. It also automatically syncs all your contacts from a Windows PC, Mac, or Internet service.

Wen.wikipedia.org/wiki/Iphone - 189k - Cached

3G iPhone Confirmed for 2008

Steve Jobs has said that there is a 3G iPhone in the works. ... 3G iPhone Confirmed for 2008

September 18, 2007 - 10:06 PM PDT - by Kristen Nicole ...

mashable.com/2007/09/18/iphone-3g - 83k - Cached

iPhone - Gizmodo

Looks like the delay was true: an invite for the launch of the iPhone SDK came in, and it’s showing a Town Hall event on Cupertino campus on March 8th. The mail includes a reference to “some exciting new enterprise features” as well.

gizmodo.com/gadgets/iphone - 121k - Cached
Introducing change – How much is too much?

Users scan less of the Search Result.

Users increase dependence on titles to judge relevance

Also reduce dependence on URL’s

RISKS:

Reduced perception of relevance
Increased frustration
It’s all about triangulation! – the process of introducing change

Generative Studies
Understand what users ideally want

Eye Tracking Study 1
Understand what users really do – develop behavior models

Design Iteration

Eye Tracking Study 2
To optimize designs

Design Iteration

A/B Testing
- Verify models

Design Iteration and A/B testing
Pre launch test to verify performance

Launch Decision
Based on all data points
How design templates evolved

1st Round of SM Templates tested

Users didn’t notice pictures in most cases. Images are consistently ignored except in some specific intents.

Deep links & structured data increased perception of clutter.

The perception of ads Increased significantly.

Parcel 104 is a collaborative venture of renowned chefs, Bradley Ogden and Robert Sapirman. The American-themed menu celebrates seasonal delights and showcases the finest efforts of local growers...

Mark Elliot Zuckerberg (born May 14, 1984) is an American computer programmer and entrepreneur. As a Harvard College student he founded the online social networking website Facebook.

Amazon.com: Samsung HPT5054-50" Plasma HDTV: Electronics

Customer Reviews: ★★★★★ (69)
Resolution: 1365 x 768 resolution
Contrast: 15,000:1 Contrast Ratio
Color: 18 Bit, Filter Bright 2 Anti Glare Technology
How design templates evolve

2nd Round of SM Templates tested

Canon Powershot SD1000 digital camera
Features | Specifications | Support
- Customer Review: ★★★★☆ (173)
- Type: 7.1 Megapixel, 1/2.5 inch type Charge Coupled Device (CCD)
- Focal Length: 5.8-17.4mm f/2.8-4.9
- Digital Zoom: 4X
usa.canon.com/consumer/controller?...&categoryid=145&modelid=14901 - 82k - Cached

Diabetes diet - sample meal plan - WebMD
Symptoms & Types | Diagnosis & Tests | Living & Managing
Understanding diabetes is the first step to managing it. Get information on diabetes causes, risk factors, warning signs, and prevention tips. Follow a sample diabetic meal plan that is about 1,600 calories and 220 grams of carbohydrate.
diabetes.webmd.com/guide/sample-meal-plan - 114k - Cached

EARTH DAY, APRIL 22nd, 2008
Earth Day Network is a driving force steering environmental awareness around the world. Through Earth Day Network, activists connect, interact, and have an impact on their communities, and create positive change in local, national, and global policies.
www.earthday.net/earthday2008.aspx - 29k - Cached

Also See:
About Earth Day Network
Programs & Events
Get Active
Join EDN

Moving the image out of the critical scan path helped users selectively discover it, without disrupting scanability.

Deep links were more discoverable when presented separately from the image.
3: making sustainable long term changes

Results 1 - 10 of about 534,000 for zen calligraphy

*** ZEN CALLIGRAPHY ***
THE ZEN CALLIGRAPHY of Alok Hsu ... Home Video The Artist Painting Workshops Assessments ... Nov 01 - Apr 02, China ink on xuan paper, si
www.zencalligraphy.com

*** ZEN CALLIGRAPHY ***
ZEN CALLIGRAPHIC ART of Alok Hsu Kwang-han ... the beauty of Chinese calligraphy, the spontaneity of Zen, and the evolution of ...
www.zencalligraphy.com/interview.html

Calligraphy from Zen and Feng Shui Traditions to cure wea
Calligraphy from Zen and Feng Shui Traditions to cure wealth, relationship challenges, available from FourGates.com
www.fourgates.com/calligraphy11.asp

Amazon.com: Zen Word, Zen (Art of Twentieth-Century Zen: Pain)
www.amazon.com/Zen-Word-Calligr

Shambhala Publications: Buddha Calligraphy
In terms of output and quality, Teeshu, sword, the brush, and Zen and, although
zenart.shambhala.com/product-id/21

Zen Calligraphy by Nonin Ch
The key to making sustainable changes

- **Discoverable and Usable**
  - Can users discover and use the new feature
  - Does the feature impede the users workflow

- **Understandable**
  - Do users understand why the feature is there
  - Does the feature communicate relevance to the user

- **Consistently Repeatable**
  - Is the experience repeatable on a consistent basis – to support learning through repetition
3: What was the problem

Results 1 - 10 of about 534,000 for zen calligraphy

*** ZEN CALLIGRAPHY ***
THE ZEN CALLIGRAPHY of Alok Hsu ... Home Video The Artist Painting Workshops Assessments ... Nov 01 - Apr 02, China ink on xuan paper, si
www.zencalligraphy.com

*** ZEN CALLIGRAPHY ***
ZEN CALLIGRAPHIC ART of Alok Hsu Kwang-han ... the beauty of Chine calligraphy, the spontaneity of Zen, and the evolution of ...
www.zencalligraphy.com/interview.html

Calligraphy from Zen and Feng Shui Traditions to cure wea
Calligraphy from Zen and Feng Shui Traditions to cure wealth, relationship, friendship challenges, available from FourGates.com
www.fourgates.com/calligraphy11.asp

Amazon.com: Zen Word, Zen (Art of Twentieth-Century Zen: Pain
www.amazon.com/Zen-Word-Calligr

Shambhala Publications: Budc Calligraphy
in terms of output and quality, Teesh
sword, the brush, and Zen and, although zenart.shambhala.com/product-id/21

Zen Calligraphy by Nonin Ch
Usable – Understandable - Repeatable

- <vid>
Unexpected side effects

Understanding user needs, and behaviors put Assistance on the launch path.
It takes time to get used to a new experience

- Once you optimize for learning, give time for people to learn the new experience.

- Peter G. Anick, Raj Gopal Prasad Kantamneni: A longitudinal study of real-time search assistance adoption. SIGIR 2008: 701-702
There are times when it doesn’t make sense to change!

Rapidly Evaluating new ideas, and predicting user behavior → Launched with Keywords instead of image thumbnails -- despite more positive response to thumbnails – because of cognitive overhead.
Usability over understandability

1. *Introduction to Psychology: Glossary: Cognitive Miser*
   Cognitive Miser. A mental characteristic in which the least amount of attention and mental effort (referred to as cognitive heuristics) that simplify... (source: scottsdalecc.edu/nicker/.../readings/definitions/cognitive_miser.html) - 3k - Cached

2. *Highbeam Encyclopedia - Search Results for miser*
   Make research projects easier with our FREE online library of educational resources like Oxford Dictionaries. ...cognitive miser A Dictionary of Psychology... (source: www.encyclopedia.com/SearchResults.aspx?Q=miser) - 39k - Cached


4. *Highbeam Encyclopedia - Search Results for Cognitive*
   Make research projects easier with our FREE online library of educational resources like Oxford Dictionaries. ...cognitive miser A Dictionary of Psychology... (source: www.encyclopedia.com/SearchResults.aspx?Q=Cognitive&StartAt=11) - 70k - Cached

5. *Gregory Mitchell* (PDF)
   Evidence law based on a "cognitive miser" view of legal judgment fail to ... intentionally use the "cognitive miser" metaphor, despite increasing recognition... (source: lic.law.ufl.edu/~pandris/papers.pdf) - 1169k - View as html
Final Thought Exercise

Which is better?
Why?

Which is better?
Intent is Key
The bottom line.

• You cannot separate revenue and user experience in good products.
• If you can measure it you can fix it.
• Plan for learnability
• Triangulate your data always
• Focus on the experience
THANK YOU
Prasad
Kantamneni
kprasad@bctindia.org
91-810-646-1393

BCT, Haripuram Farm Complex
Rambilli mandal, Vishakhapatnam