

Designing for Search:

Making information easy to find

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First, let's hear from you

- What kinds of sites or products do you work on?
- What do you hope to take away from today's workshop?

This workshop builds on what I have learned from projects over the last 7+ years

- Search at The Open University (2002 – 2009)
 - Large, diverse web site with many different reasons people might use search
- General searches for health information (2002-2009)
 - Several projects for different types of sites: pharmaceutical, general health sites and government health info sites
- Cancer clinicals trials search (2005-2008)
 - Detailed information in a complex medical domain

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Designing for Search

Search is the new normal

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Googlification

There is no need to *know*
Because we can *find*

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Does search put users in charge of their own work, or does it decrease chances of success?

“Users now have precise expectations for the behavior of search... Search is such a prominent part of the Web user experience that users have developed a firm mental model for how it's supposed to work.”

- Jakob Nielsen, 2005

“If most of the users don't find what they want in the first try, it doesn't seem likely they will ever find it.”

- Jared Spool, 2001

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In 2002-2003, we were surprised by a strong desire for a search feature

- More participants wanted search than we had expected
- Those who use search regularly were adamant about wanting search
- They had opinions about where the search box should be placed
- Many were influenced by having a search engine as their browser start page

"I think I might have to type it in"

"I want to see a box ...like a search box"

"I guess my question is, do they have a search"

"I do miss being able to just type somewhere...I could get to it quicker if I were able to search"

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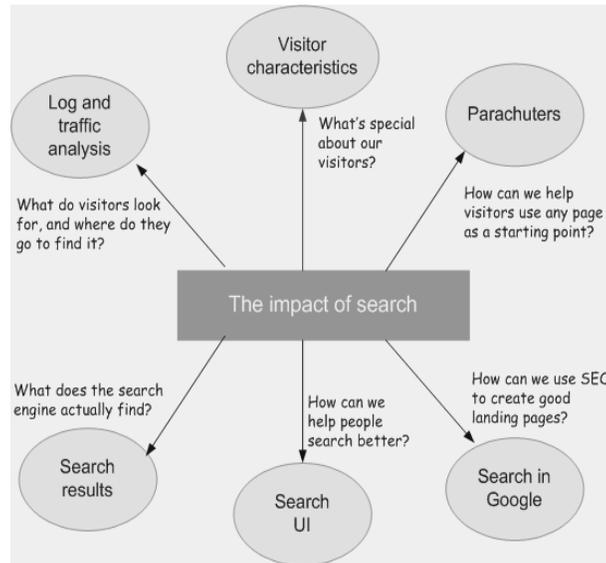
Research with older suburban women on general health sites, 2002

Is "search" the right question, or should we be thinking about helping people "find"?



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Search is more than a technology problem. We need to look at users, context and behavior.



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Designing for Search

Sometimes search can be a failure of navigation

- The Open University case study

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Term rank: May-04	
first class	2
student home	3
students	8
student	18
student home page	22

Term rank: Jan-05	
first class	22
student home	5
students	17
student	20
student home page	21

April 2006 "student home" gone from top searches

The Open University

OU Home | Study at the OU | About the OU | Research at the OU | Search | Contact the OU

() StudentHome TutorHome IntranetHome → Sign out

Accessibility A A A

Social Sciences gives you a fascinating window on society

Find out more →

Study at the OU →
About the OU →

Search the OU website
 go

News
The Open University tops student satisfaction ratings for third year running
Read all news releases

Students and staff help?
Username forgotten password?
Password
StudentHome

Focus on
+ New to OU study? See why we're tops at student satisfaction.
+ Find out about Research at the OU.
+ OU educational resources freely available from OpenLearn.

New to OU | OU on TV | For Alumni | For Employers | Privacy | Copyright | Cymraeg | Jobs | News | Donate

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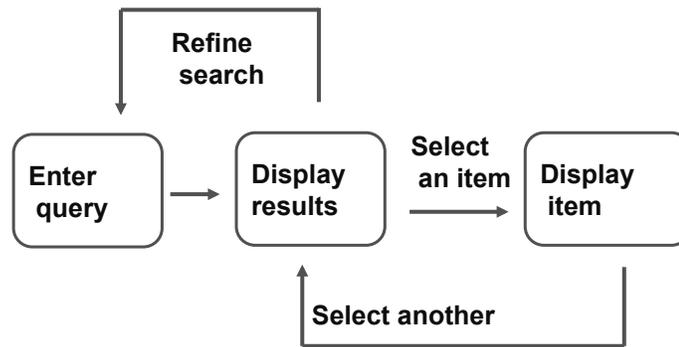
Designing for Search

Models for search

“If you help a lot of people find the content they seek, you improve the overall efficiency of the organization.”

– Richard Wiggins

The classic information retrieval model treats search as a single, iterative task



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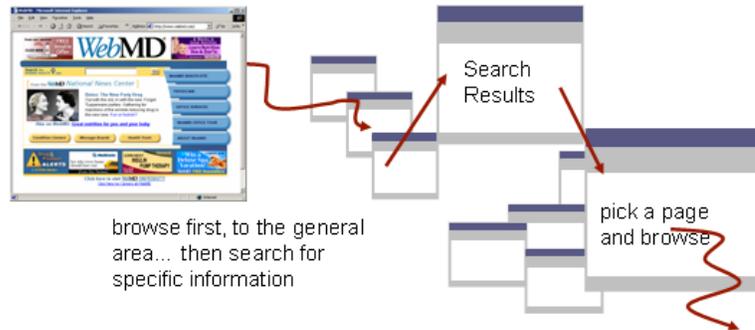
But people are focused on their questions. Search is just a way to find answers.



NCI research on searching for clinical trials

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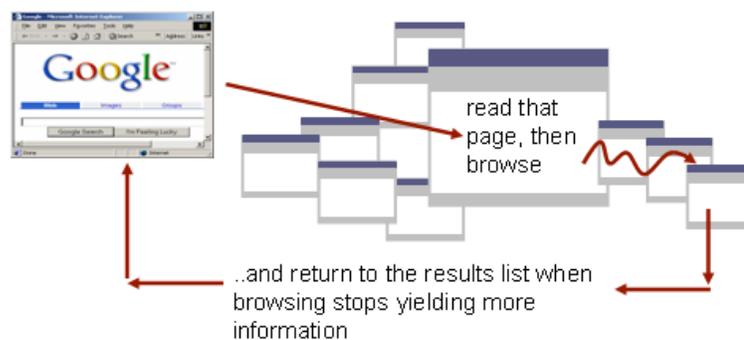
People often alternate searching and browsing



“Orienteering” - improvisational searching, using information from each place to determine where to go next

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People use search as a home base for exploration, choosing many different sites to visit



“Berry picking” – gathering discrete facts from many places to collect a “basket” of information

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People use search as a way to jump quickly, even if they know the name of the site

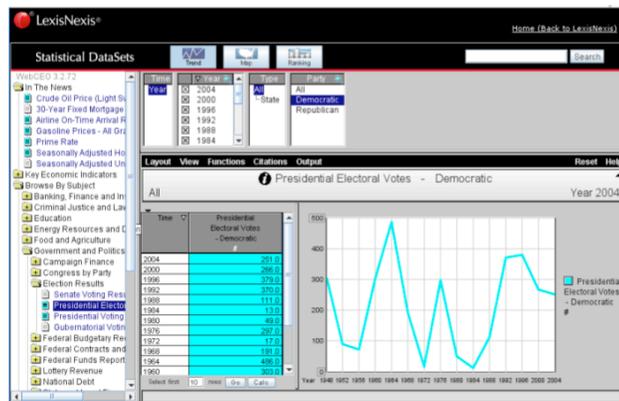
- On external searches entering The Open University web site, the query included:

A brand marker only "Open Uni"	86%
A brand marker plus another term "open university course"	7%
A general term only "creative writing"	7%

Analysis from October 2006 logs of 396,000 queries

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There is still a place for search in some kinds of tasks



"Sensemaking" – a term applied to information-intensive tasks and scientific analysis

Illustration from "Search User Interfaces" by Marti Hearst

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Why do we search?

People use search for many different reasons

FIND
I know exactly what I'm looking for and just need to find it

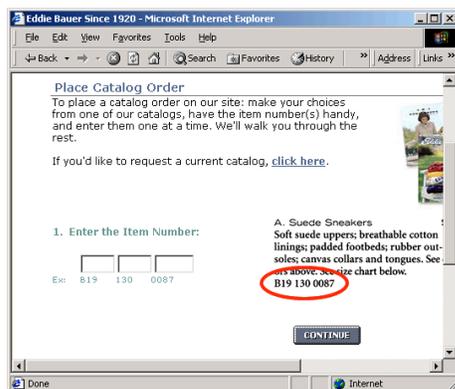
QUERY
I can describe what I'm looking for and need a few good options

ORIENTATION
I want to see what's available on the web (or on this site)

EXHAUSTIVE
I want to make sure I've found everything about this topic



Find

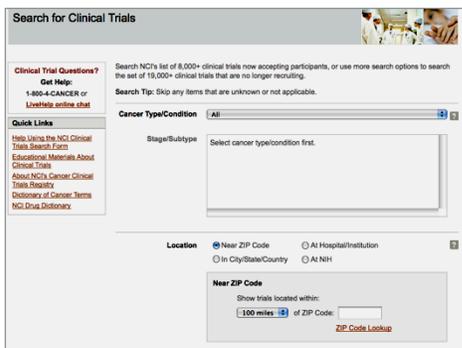
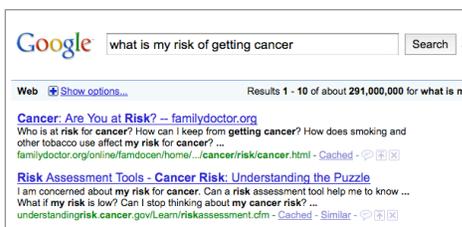


www.eddiebauer.com

- Specific information – a “known item”
 - Know exactly what they are looking for or believe it exists
 - Have a second source of information
 - Shortcut, for efficiency
- “Fish hook”

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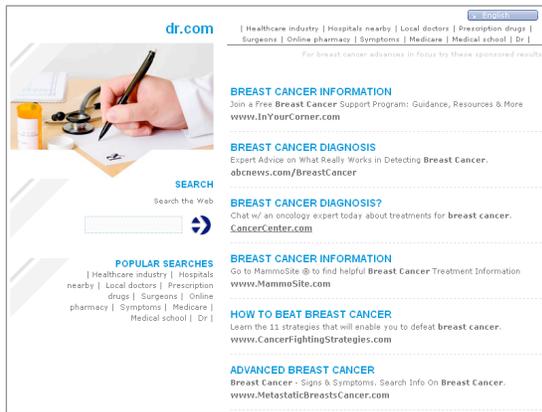
Query



- Information matching a question
 - Often part of information gathering or “berry picking”
 - May not know how to phrase the question well
 - May just need a starting point for exploration
- “Lobster pot”

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Orientation



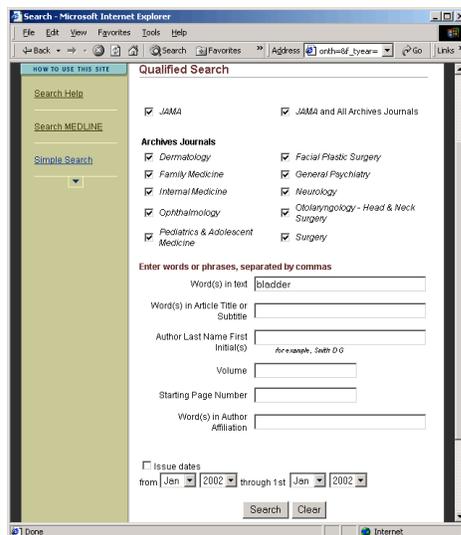
- Find out what's available
 - Using search to explore or browse
 - Search results as a home page
 - "Tidal pool"

Searches related to: **usability**

[usability testing](#) [usability jobs](#) [website usability](#) [usability definition](#)
[software usability](#) [usability dictionary](#) [usability evaluation](#) [usability engineering](#)

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Exhaustive



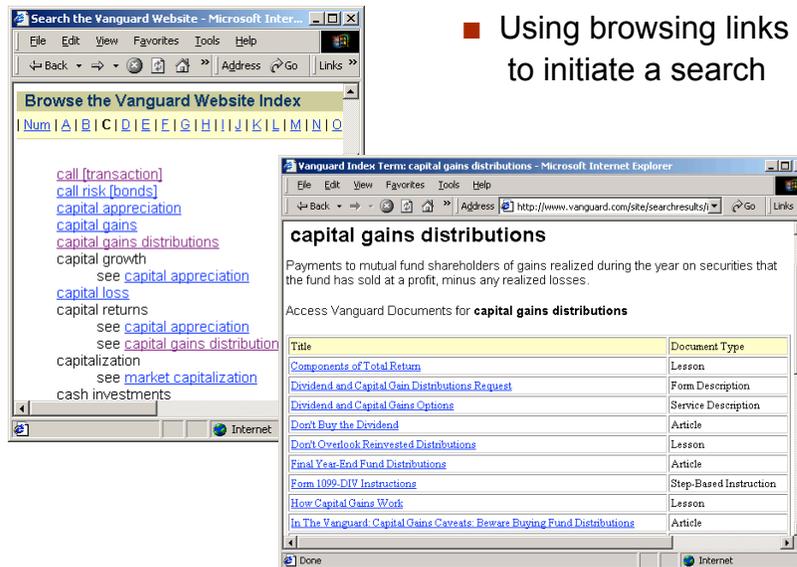
- Looking for complete answer
 - "Recall"
 - May search across several sites, but the goal is to make sure they have found all the information available
 - "Fishing net"

<http://jama.ama-assn.org/>

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Search without searching

- Using browsing links to initiate a search



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Search personas from one early project

Hunter: Looking for the Target

- “The web is a library”
- Use rapid narrowing techniques
- Often professionals or know content well
- Influenced by previous experience

Gatherers: Collecting Information

- “The web is a resource”
- Search is a launch pad to “the right stuff”
- More discriminating readers
- Tend to notice source or date

InfoSeeker: On a Journey

- “The web is a wonderland”
- Berrypickers - a page with new information is a success
- May use search to create a starting point, but with less specificity than others

Transitional: Novice Searchers

- “The web is a mystery”
- Easily frustrated
- Use of search depends on computer experience more than other personas
- Often in transition from seeker to gatherer

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Lilly: consumers and professionals, 2002

A few years later, “search” had disappeared into general information seeking

Magpies (the collectors)

- Persistent novices
- Ad-hoc exploration and orienteering
- A few favorite sites, but rely on search engines
- Easily overwhelmed

The Unconscious Competents

- See themselves as novices, but have more skills than they say
- Tend to be methodical
- Follow patterns that have worked before

The IMpatients

- Move quickly to snap judgements, but also miss things because they move too quickly
- Don't know what they don't know
- Read material on site to check against own knowledge

Deeply Engaged

- Proficient searchers
- Use many sources of information, including primary sources
- Tend to be sure about their opinions.
- Gather things to read later

National Cancer Institute, Clinical Trials Search, 2005

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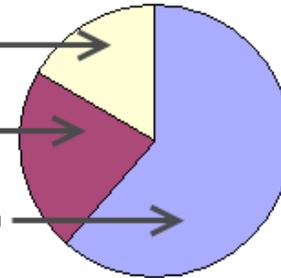
In later work, there is a stronger trend towards blending search and browsing

Approach to Information Seeking

6 - Strong browser

8 - Strong searcher

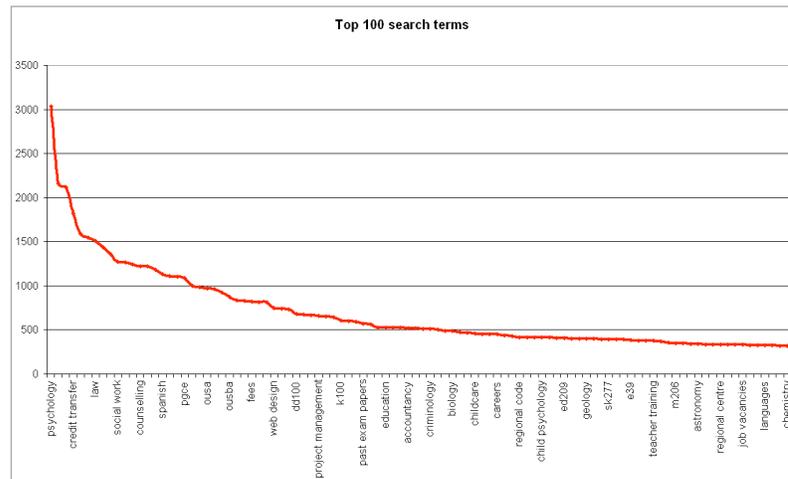
22 - Blended approach



National Cancer Institute, 2007

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We see the same pattern, even with the top 100 search terms: a few searches have the most use



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When we analysed the OU search logs, we found that the top terms are persistent.

Course information:

- Subject
- Department or faculty
- Qualifications and courses

Academic and calendar-related

- Finding tutorials
- Exam results
- Past exam papers

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Top search terms persist from month to month, with some variations for the academic calendar

Oct-06		Jan-05		May-04	
psychology	1	psychology	4	psychology	1
law	7	law	6	law	7
social work	10	social work	8	social work	10
teaching	18	teaching	7	teaching	12
<u>counselling</u>	14	<u>counselling</u>	15	<u>counselling</u>	13
<u>pgce</u>	19	<u>pgce</u>	12	<u>pgce</u>	14
<u>mba</u>	9	<u>mba</u>	19	<u>mba</u>	5
photography	6	photography	24	photography	19
history	17	history	13	history	20
		nursing	18	nursing	21
nutrition	12	nutrition	23		
creative writing	8			creative writing	25

Oct-06		Jan-05		May-04	
<u>ousa</u> [exam papers]	22	tutorial finder	25		
<u>ousba</u> [finance]	25				
exam results	15			past exam papers	15

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Even small groups of terms on a single subject show this pattern

Search term	Number of searches
classical studies	81
classical studies department	12
classical <u>latin</u>	8
classical <u>greek</u>	7
classics courses	7
classical <u>greek</u> course calendar	6
classics department	6
classical studies diploma	5
classical studies dept	3
classical studies website	3
classic history	2
classical <u>civilisations</u>	2
classical <u>greek</u> course calendar 2005	2
classical studies webpage	2
classical <u>studiews</u>	2
<u>classiccs</u>	2
classicts	2
classic home page	1
classical <u>athens</u>	1
classical <u>civilisation</u> gcse	1
classical <u>civilisatons</u>	1
classical <u>greece</u>	1
classical <u>greek</u> gcse	1
classical <u>studies</u>	1
classical <u>studies</u>	1

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This pattern can be found however we analyse the search logs

- Across audiences
- When narrowed by theme: for example, within a particular subject
- Over time: themes persist from month to month
- Across internal and external search engines

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Designing for Search

Designing a good search

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In a 1997 paper, Ben Shneiderman offered these guidelines for search

- Offer informative feedback
- Support user control
- Reduce short-term memory load
- Provide shortcuts for skilled users
- Reduce errors, offer simple error handling
- Strive for consistency
- Permit easy reversal of actions
- Design for closure

Don't they sound like general guidelines for good design?

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Design Recommendations

- Make search visible
- Help users ask a question easily.
- Make results meaningful
- Make search smart
- Make it a conversation

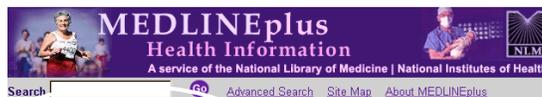
40

Make search visible:

Finding the search feature

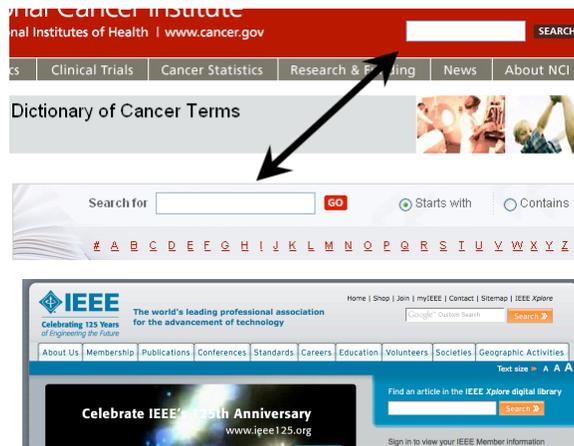
Finding the search box

- Users look for search at the top of the page



- Clutter around the box or being hidden in the header decoration could make it hard to see

Two search boxes on a page can be a usability problem, unless they are clearly defined



- Text entry boxes have a strong “attraction” and users will type in any field that is not clearly defined

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Advanced search features on the home page (or in the banner) are wasted effort

- Why? Because no one will try them until they have tried the simple search first.
- This may not be true if there is a strong audience of “insider experts”



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“Search” may be a series of selections

■ Behind the scenes, a search by a classification scheme

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Make search visible

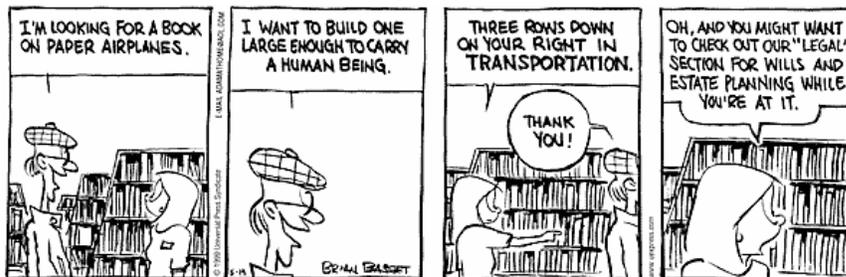
- Put a simple entry box on the home page, in a visible position
- Keep search in a standard location
- Avoid clutter with options and other distractions
- Consider “hiding” search behind smart links

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Help users ask a question easily

It is hard to be specific enough for a machine to interpret what we say

- Words can have specialized meanings
 - “Old House” is a renovator’s term, and has special meaning
- Words can have double meanings
 - “Dinosaur” can be a prehistoric beast or a metaphor for someone whose time has passed



<http://www.ucomics.com/adamatome>
May 19, 1999

Putting a question into words is hard for users, especially with difficult terminology

- They try to guess the correct type of language to use
- They get “stuck” on specific words and have trouble thinking of other terminology
- They try to be “precise” or to think “the way the computer does”

... and they recognize the problem

Even relatively experienced searchers expressed frustration about choosing search terms

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Constructing complex expressions is hard

The screenshot shows a web browser window titled "EPICURIUS: ENHANCED SEARCH - Microsoft Internet Explorer". The page is titled "Recipe Search" and contains the following elements:

- A text input field for "KEYWORD".
- A dropdown menu for "CUISINE" with "No Preference" selected.
- A section titled "SPECIAL CONSIDERATIONS" with checkboxes for "Kid-Friendly", "Low-Fat", and "Meatless".
- Two radio buttons for "Meal/Course": "May include any selection" (selected) and "Must include all selections".
- A grid of checkboxes for various meal categories: Appetizers, Bread, Breakfast, Brunch, Condiments, Cookies, Desserts, Hors d'Oeuvres, Main Dishes, Salads, Sandwiches, Sauces, Side Dishes, Snacks, Soups, and Vegetables.
- Another set of radio buttons for "MAIN INGREDIENTS": "May include any selection" (selected) and "Must include all selections".
- A grid of checkboxes for various ingredients: Beans, Beef, Berries, Cheese, Fish, Fruits, Garlic, Ginger, Mushrooms, Mustard, Nuts, Olives, Potatoes, Poultry, Rice, and Shellfish.

- Boolean logic is backwards from everyday speech:

AND limits (ALL)
OR expands (ANY)

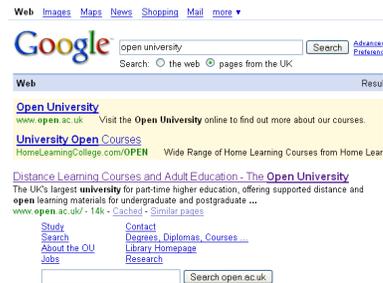
- Selecting from a list is easier.

Users assume that checkboxes mean ANY

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People use suggestions when they are offered

- They let users know what is available and support recognition over recall
- They have quickly shifted from a “new feature” to something expected.



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We're starting to see users refine their search, by adding words, or using helpers

- Looking for “what is the best treatment for breast cancer?” on Google, one participant tried the search three times, each time getting more specific:
 - Treatment
 - Cancer treatment
 - Breast cancer treatment

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Help users enter questions easily

- Offer suggestions for spelling correction
- Search for similar words or synonyms
- Offer selection instead of typed entry

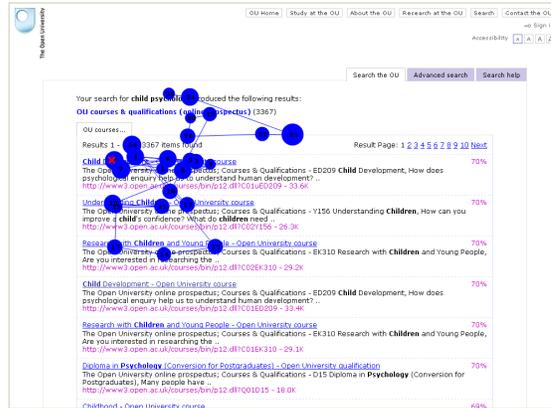
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Designing for Search

Make the results meaningful

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Search results must be easy to scan



- Search results pages are a variation of any menu page where visitors “scan, select and move on.”

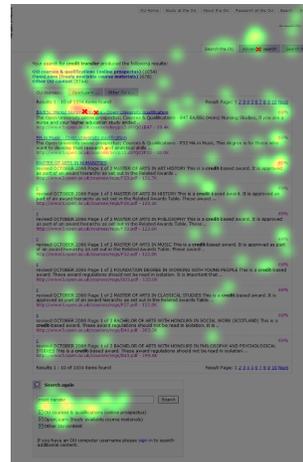
55

The Open University

Frequent and new visitors have different reading patterns.



Students: focused and purposeful, using options and special functions



Enquirers: more diffuse as they learn the page

The Open University

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People treat the search results page like any other menu page

- They rely on “headlines” to tell them what is in an article
- The abstracts need to convey the difficulty, type and scope of the content
- Sometimes, reading the abstracts gave them the information they needed

...and they count on it to be informative.

When the results list is chaotic or uninformative, users give up quickly

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We saw many typical search results, but some that were really terrible.

On the About network: stress urinary incontinence

What are the types of urinary incontinence?

A look at the various types of urinary incontinence. Learn about the symptoms a
URL: <http://womenshealth.about.com/library/weekly/aa071700b.htm> (About Women's Health)

Urinary Incontinence Treatment Options for Women

Medical Treatment options in physical therapy for loss of bladder control and urin
URL: <http://physicaltherapy.about.com/library/bl/pelvicfloor/bladderx.htm> (About Physical Therap

Types of Urinary Incontinence in Women

Types of Urinary incontinence that causes loss of bladder control in women.
URL: <http://physicaltherapy.about.com/library/bl/pelvicfloor/blincontinence.htm> (About Physical T

It's No Laughing Matter

New Survey Reveals the Emotional Impact of Incontinence
URL: http://seniorliving.about.com/library/newsbytes/bl0402_incontinence.htm (About Senior Livi

Urinary Incontinence in Women--How it is diagnosed

How loss of bladder control and urinary incontinence difficulties id diagnosed in v
URL: <http://physicaltherapy.about.com/library/bl/pelvicfloor/blincontinencx.htm> (About Physical

All About Urinary Incontinence - Senior Health - Date 01/15/99

Articles matching "bladder":

[glossary.asp](#)
[problems.asp](#)
[print_problems.asp](#)
[doctor.asp](#)
[print_doctor.asp](#)
[basics.asp](#)
[expert.asp](#)
[print_expert.asp](#)
[basics.asp](#)
[doctor_not_alone.asp](#)
[print_basics.asp](#)
[doctor_conversation.asp](#)
[how.asp](#)
[helping.asp](#)
[helping.asp](#)

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Everyone assumed that the most important items are at the top of the results list

Results for: incontinence

153 results found, sorted by relevance 1-10 ▶

THE MERCK MANUAL, Sec. 17, Ch. 215, Urinary Incontinence	63%	<input type="checkbox"/>
Transient incontinence is uncommon in younger persons but common in the elderly, in whom it should always be considered. It requires ...	03 Apr 02	Find Similar
http://www.merck.com/pubs/mmanual/section17/chapter215/215b.htm		size 13.5K
THE MERCK MANUAL, Sec. 17, Ch. 215, Urinary Incontinence	61%	<input type="checkbox"/>
Urinary incontinence is abnormal regardless of age, mobility, mental status, or frailty. Incontinent persons are frequently embarrassed ...	03 Apr 02	Find Similar
http://www.merck.com/pubs/mmanual/section17/chapter215/215a.htm		size 11.6K
THE MERCK MANUAL OF GERIATRICS, Sec. 12, Ch. 99, Urinary Incontinence	58%	<input type="checkbox"/>
Eight to 34% of community-dwelling elderly persons suffer from urinary incontinence; rates are higher in women than in men, and urinary ...	03 Apr 02	Find Similar
http://www.merck.com/pubs/mm_geriatrics/sec12/ch99.htm		size 50.7K
THE MERCK MANUAL OF GERIATRICS, Sec. 13, Ch. 110, Constipation, Diarrhea, and Fecal ...	57%	<input type="checkbox"/>
Constipation has different meanings to different people, making a precise definition ...	03 Apr 02	Find Similar

- Headline words count heavily in setting apparent priority

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To design pages for search, write the titles like headlines

- People only read the description if the title is promising

[Bon départ: beginners' French - Open University course](#)

...Open University online prospectus; Courses & Qualifications - LZ192 **Bon départ**: beginners' French, **Bon départ** is the first course in the University's...

<http://www3.open.ac.uk/courses/bin/p12.dll?C01LZX192>

[Nouvel envol: upper intermediate French - Open University course](#)

...Open University online prospectus; Courses & Qualifications - L211 **Nouvel envol**: upper intermediate French, Envol is the first course in the...

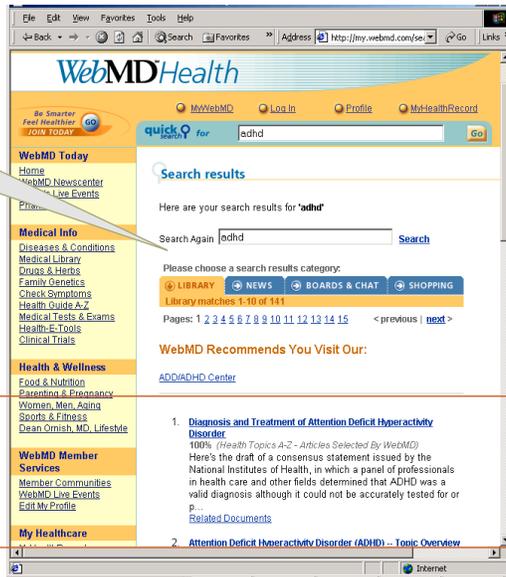
<http://www3.open.ac.uk/courses/bin/p12.dll?C01L211>

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Too many features on the search results page can confuse instead of supporting users

"It says to search again..."

Results list

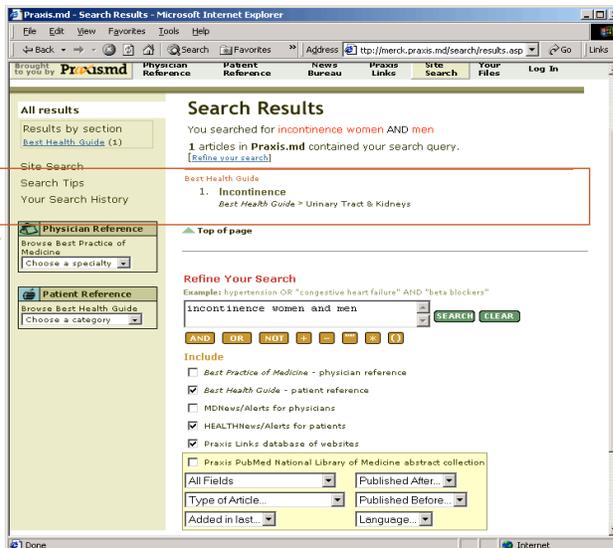


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Another example of a confusing search results page

Results list

"There are no headlines on this page"



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Search again options can be tricky to implement well.

- When they are too complicated – or don't seem relevant, they are ignored.

Refine Your Search Enter a free text or Boolean [search term](#): By Author:

Choose any additional criteria then select the Search Again button.

Date: From to months

Sort by: Publish Date Relevance

Choose Content Type

- Choose Content Type
- Abstract
- Ask The Expert
- CME Circle
- CME Spotlight
- Conference Coverage

[Search Again](#)

www.medscape.com

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Make results meaningful

- Create informative link titles
- Make descriptions short, but informative
- List results in priority - relevance order
- Don't clutter results so that the list is hard to see

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Make search smart

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People are starting to expect smart features that help them search better

- Recommendations for “best bets” (and make them sticky at the top of the list)
- Suggestions for additional ideas for search
- Cluster results for semantic meaning
- Personalize the search based on history

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Make suggestions based on knowledge of how people search

■ Which is more usable?

Searches related to: **usability**

[usability testing](#) [usability jobs](#) [website usability](#) [usability definition](#)
[software usability](#) [usability dictionary](#) [usability evaluation](#) [usability engineering](#)

Refine Your Search Enter a free text or Boolean search term: By Author:

Choose any additional criteria then select the Search Again button.

Date: From to months

Sort by: Publish Date Relevance

Choose Content Type

- Choose Content Type
- Abstract
- Ask The Expert
- CME Circle
- CME Spotlight
- Conference Coverage

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Clustering can be useful, but must be done well.

Clusty web news images wikipedia blogs jobs more »

usability Search advanced preferences

clusters sources sites remix

All Results (214)

- Testing (61)
- Accessibility (17)
- Web Design (15)
- Centered design (13)
- Usability Consulting (11)
- Training (10)
- Methods, Inspection (8)
- Definition (8)
- Overview (7)
- Studies (7)

more | all clusters

find in clusters: Find

Font size:

Top 210 results of at least 9,970,000 retrieved for the query **usability** (definition) (details)

Sponsored Results

- Web Trends 2009** - The latest version of the popular Web Trend Map - Get yours today! - [www.informationarchitects.jp/vtm4](#)
- Easy online card sorting** - Set up & run card sorts in minutes using the most popular online tool. - [www.OptimalSort.com](#)

Search Results

- Usability.gov - Usability Home**
Provided by the National Cancer Institute. Includes information and resources on making web sites and other user interfaces more useful, usable, and accessible. News and current ...
[www.usability.gov](#) - [cache] - Bing, Ask, Open Directory
- UPA - The Usability Professionals' Association**
The UPA is a membership organization of professionals in usability, user experience and related fields.
[www.upassoc.org](#) - [cache] - Bing, Ask, Open Directory
- Usability First: Usability in Website and Software Design**
Usability resources: a glossary of usability-related terms, usability methods, best practices, humor, and more. A free service of Foraker Design
[www.usabilityfirst.com](#) - [cache] - Bing, Ask, Open Directory
- Usability 101: Definition and Fundamentals - What, Why, How (Jakob ...)**
What is usability? How, when, and where can you improve it? Why should you care? This overview answers basic questions and explains how to run fast tests
[www.useit.com/alertbox/20030825.html](#) - [cache] - Bing, Ask

68

Clustering relies on users understanding the categories

Search Results Results 1-10 of about 113,983 for design

Sort by relevance - Sort by date - Sort by size

Design | Undergraduate Courses, Degrees, Diplomas, Certificates

The Open University offers a range of **Design** Qualifications including degrees, diplomas and certificates. ... **Design** and Innovation On this page Where to ...
www3.open.ac.uk/study/undergraduate/engineering-and-technology/design-and-innovation/index.htm - 10 Nov 2009 - 21k - [More results from this site >](#)

T207 - Engineering: mechanics, materials, design - Open ...

Engineering: mechanics, materials, **design** On this page Si disability or additional ... analysis, **design**, and modelling r
www3.open.ac.uk/study/undergraduate/course/t207.htm - [More results from this site >](#)

D43 - Diploma in Design and Innovation - Open ...

Gain a good understanding of the processes and contexts of presenting and ... in **Design** and Innovation On this page F
www3.open.ac.uk/study/undergraduate/qualification/d43.htm - [More results from this site >](#)

M873 - User interface design and evaluation

Learn to assess the effectiveness of a user interface, and in **design** an interface ... **design** and evaluation On this page
www3.open.ac.uk/study/postgraduate/course/m873.htm - [More results from this site >](#)

Centre for Excellence in Teaching and Learning

Teaching and Learning through **Design** Email a friend Reso Description The Centre for ... Activities and projects | News
www.open.ac.uk/ocencet/resources/details/detail.php?iten Nov 2009 - 16k - [More results from this site >](#)

Refine your search

Source

- Publicly available (99%)
- About the OU (52%)
- Free resources (39%)
- Research (5%)
- Online Prospectus (1%)
- Supporting OU

Search Results Results 1-10 of about 1,636 for design

Sort by relevance - Sort by date - Sort by size

Design | Undergraduate Courses, Degrees, Diplomas, Certificates

The Open University offers a range of **Design** Qualifications including degrees, diplomas and certificates. ... **Design** and Innovation On this page Where to ...
www3.open.ac.uk/study/undergraduate/engineering-and-technology/design-and-innovation/index.htm - 10 Nov 2009 - 21k - [More results from this site >](#)

T207 - Engineering: mechanics, materials, design - Open ...

Engineering: mechanics, materials, **design** On this page Summary Entry If you have a disability or additional ... analysis, **design**, and modelling methods, ...
www3.open.ac.uk/study/undergraduate/course/t207.htm - 10 Nov 2009 - 30k - [More results from this site >](#)

D43 - Diploma in Design and Innovation - Open University

Gain a good understanding of the processes and contexts of design, and skills in presenting and ... in **Design** and Innovation On this page Planning your ...
www3.open.ac.uk/study/undergraduate/qualification/d43.htm - 09 Nov 2009 - 18k - [More results from this site >](#)

M873 - User interface design and evaluation - Open University

Learn to assess the effectiveness of a user interface, and involve your users as you **design** an interface ... **design** and evaluation On this page Summary ...
www3.open.ac.uk/study/postgraduate/course/m873.htm - 09 Nov 2009 - 46k - [More results from this site >](#)

Refine your search

Your refinements

Source

- Publicly available (remove)
- Online Prospectus (remove)

Source

- study (35%)
- undergraduate (342)
- postgraduate (210)
- atos (11)
- tools (9)
- explained (3)
- careers (31%)
- news (247)
- pages (30)
- secure (3)
- virtual-employer-fair (2)
- disability (13%)
- pages (37)
- documents (3)
- assets (1)
- services_available (1)
- assets (1)

69

Special searches can be tailored

Study at the OU New to the OU Your questions How to apply

Search **management**

Subjects

The following subjects are relevant to your search.

- Business and Management postgraduate
- The Open University offers a range of postgraduate Business and Management qualifications including certificates, diplomas and Masters.
- Business and Management undergraduate
- The Open University offers a range of Business and Management Qualifications including degrees, diplomas and certificates.
- Global Development Management undergraduate
- The Open University offers a range of Global Development Diplomas Qualifications including degrees, diplomas and certificate.
- Technology Management undergraduate
- The Open University offers a range of Technology Management Qualifications including degrees, diplomas and certificates.

Qualifications

Most OU qualifications are modular in structure - the appropriate number of courses at the appropriate level to obtain a qualification (a degree, certificate or diploma). **Individual Courses are listed below.**

Undergraduate

- Accounting (C30)
- Business Studies (C53)
- Higher Education in Sport, Fitness and Management (C18)
- Management (C1)
- Management (Health and Social Care) (C46)
- Managing Care (C42)
- Web Applications Development (C39)

Diplomas

- Business Studies (E23)
- Higher Education in Business (E42)
- Higher Education in Business Information Technology (E45)
- Higher Education in Leadership and Management (E43)
- Higher Education in Sport, Fitness and Health (E44)
- Innovation, Economics and Sustainability (E34)
- International Development and Business Innovation (E32)
- Population Control (E13)
- Systems Practice (E40)

Degrees

- BABEC Open degree (E0)
- Business Studies (E34)
- Computing with Business (E35)
- Foundation Degree in Business (E37)
- Foundation Degree in Business Information Technology (E17)
- Foundation Degree in Leadership and Management (E38)
- Foundation Degree in Sport, Fitness and Health (E10)

Postgraduate

- Business Administration (C56)
- Computing (C49)
- Conflict and Development (C37)
- Creative and Knowledge Management (C61)
- Development Management (C40)
- Human Resource Management (C32)
- Information Systems (E15)
- International Finance and Reporting (C59)
- Knowledge Transfer (C62)
- Professional Studies in Education (C27)
- Social Sciences (C24)
- Technology Management (C44)

Diplomas

- Advanced Diploma in Environmental Decision Making (C18)
- Computing and Manufacturing (C41)
- Computing for Commerce and Industry (C22)
- Development Management (C37)
- Environmental Decision Making (D38)
- Information Systems (E10)
- Management (E04)
- Management and Business Research Methods (E26)
- Management of Software Projects (E10)
- Manufacturing Management and Technology (C20)
- Networks and Distributed Systems (E18)
- Professional Studies in Education (E02)
- Social Sciences (E41)
- Software Development (E30)
- Technology Management (E08)

Taught Masters

- M.A. in Environment, Policy and Society (F19)
- MBA (Life Sciences) (F25)
- MBA (Technology Management) (F23)
- MBA in Finance for Commerce and Industry (E22)

Courses

The following courses are not necessarily shown in the recommended order of study for an OU qualification.

Course title	Points	Next start	OU
Undergraduate			
Preparing for study			
We strongly recommend that students new to higher Education, Open University study or to a particular subject area start with either a Preparation for study course or after Level 1 course.			
Starting with maths (1162)	10	Jun 2009	499
Understanding management (1259)	10	Jun 2009	499
Understanding society (1157)	10	Jun 2009	499
Level 1			
We strongly recommend that students new to higher Education, Open University study or to a particular subject area start at Level 1. Below are listed the courses with credit standing with "A" and "B" degree courses designed particularly to prepare you for starting at level 1:			
An intro to the social sciences: understanding social change part 1 (101151)	20	May 2009	£315
An intro to the social sciences: understanding social change part 2 (101152)	20	Nov 2009	£340
An introduction to business studies (01100)	20	Nov 2009	£340
An introduction to health and social care (011010) (NEW)	60	Oct 2009	Not yet available
An introduction to the social sciences: understanding social change (00100)	60	Oct 2009	£610
Data, computing and information (H100)	30	Sep 2009	£380
Information and communication technologies at work (1121)	30	May 2009	£315
Other results			
Professional recognition by other institutions			
You may read, download and print recognition leaflets for professional bodies where OU courses and awards can gain entry to, membership of, or exemption from academic requirements for these institutions. (Aboard reader required.)			
Recognition leaflet 3.10 Administration and management institutions			
This leaflet is aimed at students who are using their studies to gain entry to administration and management institutions.			
Recognition leaflet 3.2 Royal Town Planning Institute			
This leaflet is one of a series aimed at students who are using their studies to gain entry to the Royal Town Planning Institute.			
Which course are you starting with?			
If you are new to study or new to the OU, this will help you choose a suitable course.			
Research			
If you are interested in studying for a postgraduate Research Degree you may like to visit the Research Degree Prospectus			
Search our prospectus <input type="text"/> <input type="button" value="go"/>			
Or if you haven't found what you are looking for, try our wider OU search.			

70

The problem with federated search is that it is usually based on servers, not content.

Search the OU [Advanced search](#) [Search help](#)

Your search for *health* produced the following results:

- K307 course materials (8)
- Other OU materials available to OU students (8514)
- Open Learn materials (1773)

Show all results as merged list

K307 course materials Other OU materials available to OU students Open Learn materials

8 items found 1-8

K307 06	82%
...K307 Managing Health and Social Care ... http://students.open.ac.uk/desktop/3.307-06/ - 9.1K	
B701 MentorGuide SUP560281	82%

71

Recommendation engines mix crowd-sourcing with personal ratings or past history

NETFLIX Whitney Quesenbery | Your Account & Help

Browse DVDs Watch Instantly Queue Movies You'll Up Instantly to your TV

Suggestions (1237) Rate Movies Taste Preferences Movies You've Rated (1237)

Suggestions in All Genres **RATED MOVIES 1237**

New Suggestions for Whitney [See all >](#)

<p>Black Orpheus Because you enjoyed: The Year of Living Dangerously Central Station Babel's Feast</p> <p>Add ★★★★☆ (Not Interested)</p>	<p>Kiss of the Spider Woman Because you enjoyed: Phylis, Queen of the Desert Amadeus Dangerous Liaisons</p> <p>Add ★★★★☆ (Not Interested)</p>	<p>Judgment at Nuremberg Because you enjoyed: Inherit the Wind Witness for the Prosecution All the President's Men</p> <p>Add ★★★★☆ (Not Interested)</p>
--	---	--

Action & Adventure

<p>The Train Because you enjoyed: The Merchant of Venice A Man for All Seasons The Big Sleep</p> <p>Add ★★★★☆ (Not Interested)</p>	<p>Billy Budd Because you enjoyed: One Bird A Man for All Seasons Central Station</p> <p>Add ★★★★☆ (Not Interested)</p>	<p>Rate more Action & Adventure So we can give you more suggestions</p>
--	---	--

Children & Family [See all >](#)

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72

Make search smart

- Use search engine features to help with misspellings and synonyms
- Provide recommended links when appropriate
- Suggest good search terms and examples
- Use metatags to customize search

73

Designing for Search

Make it a conversation

74

Tagging on blogs allows users to connect chunks of information

Find accrual resources

Search by keyword, topic, or resource type

Search

About this Resource

These tags describe the key topics for this resource.

Click on a link to see of all resources on that topic.

Resource Type: [Journal article](#), [Case study](#)

Strategies: [Talking about Clinical Trials](#)

Tags: [Provider barriers](#), [Providers' influence](#)

Tag Clusters

 Photos with tags like **street, woman and man**

 Photos with tags like **sea, beach and water**

 Photos with tags like **portrait, child and canon**

Places

[more...](#)

 **New York, NY**
See related photos

 **London, England**
See related photos

- Folksonomies allow users to add their own tagging

75

This interface allows users to decide how many fields they want to see

Search for Clinical Trials

Search NCI's list of 8,000+ clinical trials now accepting participants, or use more search options to search the list of 18,000+ clinical trials that are no longer recruiting.

Search Tip: Skip any items that are unknown or not applicable.

Cancer Type/Condition:

Stage/Subtype:

Location: Near ZIP Code At Hosp In City/State/Country At NCI

Near ZIP Code: of ZIP Code:

Trial/Treatment Type: Search by trial type, drug, or treatment/intervention. [Show Search Options](#)

Keywords/Phrases: Search by word or phrase (use quote marks). Examples: PSA, HER-2, "target disease".

Trial Status/Phase: Search by trial status, phase, or trial status. [Show Search Options](#)

Trial ID/Sponsor: Search by protocol ID, sponsor, investigator, group, or special category. [Show Search Options](#)

Trial/Treatment Type

Type of Trial

- All
- Treatment
- Supportive care
- Screening
- Prevention
- Genetics
- Diagnostic
- Biomarker/Laboratory analysis

Drug:

Treatment/Intervention: Examples: chemotherapy, adjuvant therapy, colonoscopy.

www.cancer.gov/clinicaltrials

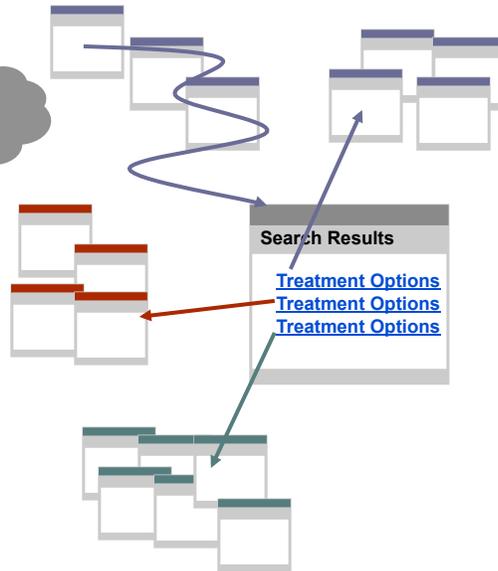
76

Users make assumptions about the scope of the search based on their path through the site



Keep up with me...

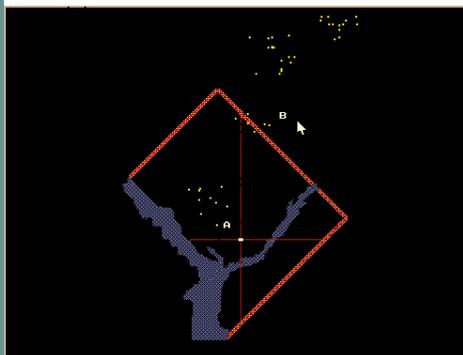
- "Of course I know it's a machine, but you do want it to know..."
- "You ask for one thing, and you get all of this."
- "We're already in 'stroke.' Will that stay, or will I have to add it..."



77

This search combines results and query on one screen

"Where can I find a house?"



The yellow dots above are homes in the DC area for sale. You may get more information on a home by selecting it. You may drag the 'A' and 'B' distance markers to your office or any other location you want to live near. Select distances, bedrooms, and cost ranges by dragging the corresponding slider boxes on the right. Select specific home types and services by pressing the labeled buttons on the right.

Developed at the HCIL of University of Maryland
<http://www.cs.umd.edu/hcil>

Direct manipulation to form a query

Visual representation of results

Rapid, incremental, and reversible actions

Immediate and continuous display of results

78

Google maps and other mashups let users ask follow-up questions easily



79

Social networks rely on an implicit search, based on tags or location



80

Tag clouds: some love them, some hate them, some think they are just decoration

accessories apparel art
arts audio australia baby
bags beauty books
business california
canada car casual cheap
children clothes
clothing community
companies computer
computers
computersandinternet
consumerelectronics

■ What do the items in the cloud represent?

- Recent use
- Frequent use
- Most people using
- Most hits

81

What happens when the list of tags gets very long?

Tags on Pete Freitag's Blog

apache java jvm scriptprotect mysql brace prepared.statements utils xml blogging linux
flash form autodownload static.profiles laszlo staroffice editors trackback.scm streamer bookshelves: urix jls out
exceptions model.networking bluedragon macos: base atn2: nl attention: almost: feedback: ldbc firefox
spensearch deals folksonomy future:of:connect: module: monitoring: contribute: share: administrator: cfparam: shiblet:
referer.scm smooov: febuozio: plugins: blue:scor:6.2: cdocs: thawte: neler: dsetting: array: administration:
rubyonrails hds email macromedia api hosting postaresql dheader: dooboo: powerbook: best:practices:
extensions: abstract: full: version: control: silences: info: mofary: web: services: sites: php: http: software:
engineering: databases: sqlserver: urly: assets: q: soccde: at: object: mac: notes: map: job: security: yahoo:
usability: trends: attacks: setup: assess: poll: map: cfedipse: bookmarklets: operating: systems: sql: injection:
synchronization: stye: jobs: books: stats: amine: base: marketing: classification: mail: static: model: glue: basecamp: xhtml: hds:
new: balance: standards: lavadocs: spam: subversion: quicksilver: amazon: forrest: jazz: remote: ssi: virtual: desktop:
manager: made: dreamweaver: freeland: widco's: tolan: signing: facts: domain: transfer: apple: umco: comments:
assumptions: control: urly: um: selad: dms: netwin: launch: usability: book: ds: mize: and: dimensions: test: performance:
mysql: connect: type: cloud: blog: cebozer: rla: eclipse: validation: chunked: accessibility: site: casebank: lier: soap: user:
documentation: srasemoss: lucid: coldfusion 7 no: advertising: opensource: has: cf: generic: tan: ratios:
le: design: del.icio.us: mac: spelling: security: broken: crypto: mod: reverse: cookies: cfquery: best: webmaster:
adobe: ordering: of:ano: sah: sota: hear: mach:il: border: structures: section:008: castcha: treasury: umi: allaire: seeking:
windows: oax:10.8: web: servers: freebsd: mozilla: windows: xp: cfmap: speakers: certificates: hooks: word: web:
standards: has: dhs: to: idents: architecture: duplicates: times: clear: flex: lvs: mass: maintab: sarsasraoffomat: sah: ossler:
trackbacks: frameworks: css: javascript: ref: oroboro: domain: names: sql: cfml: brook: bookmarks:
23:zale: more: object: web:tracker: mysql: notes: certified: site: yahoo: tests: cool: tthread: vs: cfqueryparam: status: act:
dms: staroffice: java: ds: time: travel: srs: servers: atom: google: aggregator: html: has: teskins: sas: soderoy:
music: vices: performance: ratios: invalid: marker: solive: tags: articles: zodac: productivity: oax: java:1.5: safari:
terms: site: cost: savings: search: plugins: last: tested: nbs: dashboard: dhs: user: user: replace: ssmiles: crash:
fss: ir: confessions: notation: memory: regex: query: prefetch: ds: shinsasubor: control: cost: tips: search:
merget: make: use: if: modified: since: coldfusion: legging: acrobat: site: analytics: shibbo: branding

82

Make it a conversation

- Maintain context of page or section, especially on large sites
- Identify different types of content clearly
- Create ways for search to interact with other dynamic data
- Make it easy to dynamically interact with the query and the results

83

Designing for Search

You can't design good search results until you understand the goals of search for your site

84

Let's brainstorm

- What are some of the goals you might have for search on your site?

85

One model for thinking about how search works within a site

Focused site

Single narrow topic
Limited number of pages
Single primary audience

Deep site

Single, broader topic
May have many pages
Several audiences

Broad site

Multiple topics
May be organized into "subsites"
Large number of pages
Many audiences



Search helps locate specific, detailed topics (but may often have no hits)
Expands the site by providing a way to link to other sites that have appropriate material

Search aids in site navigation
Exposes all of the site content on a specific topic, cutting across the menu hierarchy

Search narrows the world to a section where the visitor can explore
Search makes connections between sections or topics on the site

86

We compared 4 different search engines to see how useful their results were

Case study: The Open University

Overall Success Scores	
Search 1	(+31) 
Search 2	(+1) 
Search 3	(-6) 
Search 4	(-17) 

- Searched on each for the top 25 terms from the search logs
- Graded the results on a +3 to -3 scale
- Totaled the scores

87

Good search results showed the breadth and depth of the OU content

Your search for **french** produced the following results:

[OU courses & qualifications \(online prospectus\)](#) (310)
[OpenLearn \(freely available course materials\)](#) (704)
[Other OU content](#) (1630)

OU courses... OpenLearn ... Other OU c...

Results 1 - 10 of 310 items found Result Page: [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) [10](#) [Next](#)

[Language courses - French, German, Spanish - New to the OU - The Open University](#) 69%
 Language courses - **French**, German, Spanish - courses at The Open University
<http://www.open.ac.uk/new/languages.shtml> - 11.7K

[Where is the OU? - New to the OU - The Open University](#) 60%
 The Open University is where you are. What makes the OU unique amongst universities is that you study at home, or wherever suits you.
<http://www.open.ac.uk/new/where-is-the-ou.shtml> - 9.4K

[Course tasters \(L120/LZx120\) : Ouverture: A fresh start in French](#) 60%
 UK's largest university for part-time higher education, offering supported open learning materials for undergrad and postgrad qualifications in many ..
<http://www.open.ac.uk/courses/tasters/l120/> - 7.9K

[Ouverture - A Fresh Start in French - Open University course](#) 58%
 The Open University online prospectus; Courses & Qualifications - LZx120 Ouverture - A Fresh Start in **French**, Ouverture follows on from L192/LZx192 Bon ..
<http://www3.open.ac.uk/courses/bin/p12.dll?CD1LZx120> - 28.5K

88

Poor results had just one type of page, and repeated hits.

Your search for **french** produced the following results:

[All OU content](#) (2247)

All OU con...

Results 1 - 10 of 2247 items found

Result Page: 1 2 3 4 5 6 7 8 9 10 [Next](#)

- [Bon Départ: Beginners' French - Open University course](#) 74%

The Open University online prospectus; Courses & Qualifications - LZX192 Bon Départ: Beginners' French, Bon départ is the first course in the University's ...

<http://www3.open.ac.uk/courses/bin/p12.dll?C01LZX192> - 28.5K
- [Bon Départ: Beginners' French - Open University course](#) 74%

The Open University online prospectus; Courses & Qualifications - L192 Bon Départ: Beginners' French, Bon départ is the first course in the University's ...

<http://www3.open.ac.uk/courses/bin/p12.dll?C02L192> - 29.3K
- [Ouverture - A Fresh Start in French - Open University course](#) 74%

The Open University online prospectus; Courses & Qualifications - LZX120 Ouverture - A Fresh Start in French, Ouverture follows on from L192/LZ192 Bon ...

<http://www3.open.ac.uk/courses/bin/p12.dll?C01LZX120> - 28.5K
- [Ouverture - A Fresh Start in French - Open University course](#) 74%

The Open University online prospectus; Courses & Qualifications - L120 Ouverture: A Fresh Start in French, Ouverture follows on from L192/LZ192 Bon départ ...

<http://www3.open.ac.uk/courses/bin/p12.dll?C01L120> - 32.2K

89

Another example of search results

Results for: screening for colon cancer

Best Bets for Colorectal Cancer Screening

[Colon and Rectal Cancer Home Page](#)

NCI's gateway for information about colon and rectal cancer.

← Cancer X Topic

[Cancer Trends Progress Report: Colorectal Cancer Screening](#)

This section of the Cancer Trends Progress Report focuses on the use of the fecal occult blood test (FOBT) and colorectal endoscopy (sigmoidoscopy or colonoscopy).

← Research report

Results 1-10 of 1457 for: screening for colon cancer

[Colon Cancer \(PDQ®\): Treatment \(Health Professional\)](#)

Expert-reviewed information summary about the treatment of colon cancer.
<http://www.cancer.gov/cancertopics/pdq/treatment/colon/healthprofessional>

← PDQ Professional Treatment Pages

[Abstracts of Approved Projects](#)

In addition, tumor DNAs from the cases will be examined for promoter hypermethylation at specific candidate genes including Page 3 NATIONAL CANCER INSTITUTE COLON CANCER FAMILY REGISTRY ABSTRACTS OF APPROVED PROJECTS (1999-2007) MLH1, APC, and MGMT.
<http://epi.grants.cancer.gov/documents/CFR/ApprovedProjectsAbstracts.pdf>

← Research document

[Microsoft Word - Final Signed NCAB Minutes February 7 2006-email version.doc](#)

VIII. Cancer Stem Cells—Drs. Max Wicha and Jonathan Vogel..... 13
Questions and Answers 17
IX. Annual Delegations of Authority—Dr. Paulette S. Gray..... 18
X. Review of Program Project Grant Applications—Ms. Diane Bronzert and Dr. http://deainfo.nci.nih.gov/advisory/ncab/137_0206/07feb06mins.pdf

← Internal document

[Vermont State Cancer Plan, December 2005](#)

Vermont State Cancer Plan A statewide plan to reduce the impact of cancer on individuals, families and communities in Vermont December 2005 The Vermont Department of Health and Vermonters Taking Action Against Cancer, Vermont's cancer coalition,
http://cancercontrolplanet.cancer.gov/state_plans/Vermont_Cancer_Control_Plan.pdf

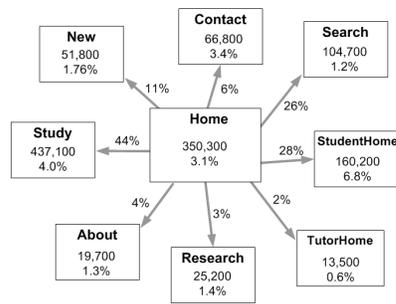
← Policy document

[Cancer Prevention Overview \(PDQ®\) \(Health Professional\)](#)

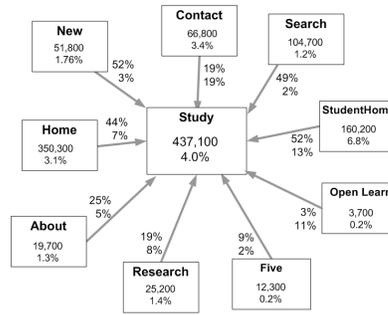
90

An important part of the analysis is understanding how search supports traffic

Traffic from OU Home to Primary Portals



Traffic from Primary Portals to Study at the OU (and conversions from that traffic)



91

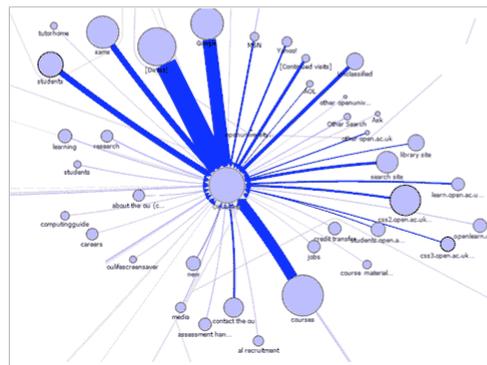
OU Home

Web Traffic Snapshot - October 2006

Type of site:	Primary Portal	The primary gateway to the OU's web presence
Value of site:	Prime converter	
Visitor behaviour	Dipper	Visitors mostly visit more than once, but move rapidly to another part of the site
Registrations	Sends plenty of traffic to Study, and achieves a good conversion rate	

Basic Statistics

Number of Visitors	Number of Visits	Registering Visits	Conversion Rate	Repeat factor	Dwell Time	Funnel factor
350,300	975,000	10691	3.1%	1.78	1m 51s	7%



The top referring sites to OU Home are...

External Referrers	% of Visitors
Direct	49%
Google	33%
Yahoo	5%
MSN	5%
other open.ac.uk	3%
AOL	3%
Internal referrers	% of Visitors
Courses	26%
SAMS	15%
StudentHome	14%
Search	6%
css2 (brochure / registration)	6%
Contact	5%
learn (VLE)	4%
css3 (ethna etc)	3%

92

Usability evaluation of search interfaces

93

Evaluating search requires meaningful tasks, something to search and interaction

- You can affect how people search by how you phrase the task.
 - If you want all participants to do the same tasks, phrase them carefully.
 - Consider working with participants to construct their own tasks
- You can test static search forms and search results, but it is not the same as the dynamic interaction of search.

94

Support for searching has to be embedded into all aspects of the design

- Understand, and design for, popular searches
- Make search results more useful
- Improve the “searchability” of content pages
- Help make connections between content

95



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- Fellow of the Society for Technical Communication
- Served on two US government standards advisory committees: voting systems and accessibility.

96

Collaborators

- The Open University: Caroline Jarrett (Effortmark), Ian Roddis, Viki Stirling, Sarah Allen
- Lilly Women's Health: Christy Mylks, Debbie Kauffman
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