A Single Search Box Interface to the NCSU Libraries, Two Years Later

Tito Sierra
NCSU Libraries
DLF Spring Forum 2007
Opening Remarks

I will not talk about:

- Endeca
- ILS/OPACs
- Faceted search
Opening Remarks

I will talk about:

• Academic library search, beyond the catalog
• A project called Quick Search
In Search of the Single Search Box: Building a "First-step" Library Search Tool

DLF Spring Forum 2005
Tito Sierra and Steven Morris
Opening Remarks
Outline

• Motivation
• The State of Library Search
• Quick Search at NCSU
• Usage Statistics
• Lessons Learned
Motivation

• Libraries provide online access to a variety of information resources
  • Print resources
  • Electronic journals and serials
  • Article databases
  • Subject guides and reference tools
  • Library services and information

• Many of these resources are keyword searchable, but via separate interfaces
Motivation

• User desire for a single search box that searches everything the library has to offer
• Evidence of library website search being used exactly in this way
Motivation

Search Logs:

acm digital, ILL, policies, standard, international economic development, fines, dissertation abstracts, music therapy, ACM, wolfcopy, Oxford English Dictionary, audio, illegal immigration, schedule, interlibrary, datamonitor, chemistry, JAMA, stephen king, CRC, photography, vision, wiley, citation builder, job, andrew pace, academic search elite, ria, film studies, career development, sanborn maps, citation index, iee, history, industry analysis, scholarly journals, citation builder, hamlet, ethics, spss, petition, animal behavior, psych info, repository, ENR, diabetes, data, Irl, cancer, textbooks, wharton, Christian Science Monitor, ITTC, blah, PubMed, time magazine, nutrition, book return, DVD, questia, conductive heat transfer, sage, newspaper, mp3 player, enzyme lactase, digital media lab, american journal of psychology
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The Challenge

To develop a *useful* and *usable* single search box interface to the library
The State of Library Search

Many dedicated discovery tools:

- Catalog search
- Journal finders
- Database finders
- Article metasearch
- Subject guides/portals
- Library website search
The State of Library Search
The State of Library Search

Problems:

• Assumes users know they need to select a dedicated discovery tool
• Assumes users know which discovery tool they should select for their search
• Sometimes the library’s information architecture does not make this selection process easy
Quick Search at NCSU

A **unified** search interface to the library:

- Not a replacement for dedicated discovery tools!
- A simplified single search box interface
- Goal is to direct users to the appropriate library discovery tool, collection or resource for their search
Quick Search at NCSU
Quick Search at NCSU
Quick Search Modules

1. Best Bets
2. Frequently Asked Questions
3. Library Web Pages
4. Catalog Results (new)
5. Journal Title Results (in development)
6. Find Articles
Best Bets
Best Bets
Best Bets

Search: lexus nexus

Library Web

LexisNexis Academic
Search for news, business, legal, medical, and congressional information

Find articles on lexus nexus in:
- General databases: Quick article search
- Specialty research databases: Agricultural Economics, Architecture, Sustainable Agriculture, Business & Management, More...

Quick Search: DLI: NCSU Libraries
... Links Quick Search Example search: lexus nexus Example search: algorithms Example search ...
Best Bets

Goal:
• Quick access to high demand resources

Mix of:
• Popular databases (‘Web of Science’)
• Services (‘Course Reserves’)
• Library information (‘Library Hours’)

Best Bets

How it works:

• Best Bets collection based on top 100 most searched for items
• Specialized search index of xml files representing each Best Bet link
• Keyword-based retrieval returns the single most relevant Best Bet link, if any
Best Bets

Benefits:

• Force popular resources to the top
• Includes items that aren’t included in your Web search crawl (e.g. databases)
• Custom <keywords> field enables matching on misspellings or synonyms (e.g. ‘Lexus Nexus’)
• Custom description displays
Frequently Asked Questions
Frequently Asked Questions

Library Web

Library FAQs about fines: (see all 12 results)
- Are overdue fines charged at the NCSU Libraries?
- What are the fines for recalled books and overdue reserve items?

Find articles on fines in:
- General databases: Quick article search
- Specialty research databases: Civil Engineering, More...

Library Catalog

Top titles
- SEC and CFTC (electronic resource): most fines collected, but im...
- Evaluation of Day Fines in Maricopa County, Arizona, 1991-1993 (e...
- Fines as a Criminal Sanction (electronic resource): Practices an...

See all 4513 titles

Format
- Book (4038)
- Online (493)
- Microform (297)
- Software and Multimedia (72)
- Videos and DVDs (60)

Show more...

More Search Options

Find results for fines in:
- Encyclopedias & Dictionaries
- NCSU Faculty Publications Repository
Library FAQs about **fines**: (see all 12 results)
- Are overdue fines charged at the NCSU Libraries?
- What are the fines for recalled books and overdue reserve items?
Frequently Asked Questions

Goal:

• Answers to common library questions

How it works:

• Searches our homegrown FAQ database
• Displays the top two matches from our FAQ database, if any
Library Web Pages

NCSU LIBRARIES

Library Web

Find articles on compendex in:
- General databases: Quick article search
  Specialty research databases: Browse by subject area

Compendex: NCSU Libraries
... Abstracts FAQ | Site Index Databases: Compendex Compendex
Coverage: 1884-present. Subject areas: Compendex: NCSU Libraries MY LIBRARY | Library ...
http://www.lib.ncsu.edu/searchcollection/data ... ?database=24254 - Cached

Tutorials - Find Articles Page 4
... Education ERIC Engineering & Technology Compendex History Americas: History and ...
http://www.lib.ncsu.edu/tutorials/index.php?o ... =1&limitstart=3 - Cached

Graduate Chemistry Research: Subject Guide: NCSU Libraries ...
... MEDLINE, and Toxicology Abstracts: Compendex Coverage of engineering ...
http://www.lib.ncsu.edu/guides/chemgrad/journal.html - Cached

Browse Aerospace Engineering: NCSU Libraries
... Databases for Aerospace Engineering Compendex Aerospace & High Technology Database ...
http://www2.lib.ncsu.edu/browsesubjects?subj ... subject_group=4 - Cached

Finding Older Articles: Subject Guide: NCSU Libraries ...
... to use print indexes. Engineering Compendex, an online database, goes back ...
http://www.lib.ncsu.edu/guides/older_articles/ - Cached

Browse Chemical Engineering: NCSU Libraries

Library Catalog

Top titles
- Compendex (electronic resource)
- Materials handling in manufacturing (Jan 86 - Mar 88): citations...
- Quality control.
See all 4 titles

Format
- Book (2)
- Online (1)
- Journal, Magazine, or Serial (1)
Show more...

More Search Options

Find results for compendex in:
- Encyclopedias & Dictionaries
- NCSU Faculty Publications Repository
- NCSU Electronic Theses & Dissertations
Library Web Pages

Library Web

Find articles on compendex in:
- General databases: Quick article search
- Specialty research databases: Browse by subject area

Compendex: NCSU Libraries
... Abstracts FAQ | Site Index Databases: Compendex Compendex
Coverage: 1884-present. Subject areas Compendex: NCSU Libraries
Library: Library ...
http://www.lib.ncsu.edu/searchcollection/data ... ?database=24254 - Cached

Tutorials - Find Articles Page 4
... Education ERIC Engineering & Technology Compendex History America:
History and ...
http://www.lib.ncsu.edu/tutorials/index.php?o ... =1&limitstart=3 - Cached

Graduate Chemistry Research: Subject Guide: NCSU Libraries
... MEDLINE, and Toxicology Abstracts: Compendex Coverage of engineering...
http://www.lib.ncsu.edu/guides/chemgrad/journal.html - Cached

Browse Aerospace Engineering: NCSU Libraries
... Databases for Aerospace Engineering Compendex Aerospace & High Technology Database ...
http://www2.lib.ncsu.edu/browsesubjects?subj ... subject_group=4 - Cached

Finding Older Articles: Subject Guide: NCSU Libraries
... to use print indexes. Engineering Compendex, an online database, goes back ...
http://www.lib.ncsu.edu/guides/older_articles/ - Cached

Browse Chemical Engineering: NCSU Libraries

Library Catalog

Top titles
- Compendex [electronic resource]
- Materials handling in manufacturing (Jan 86 - Mar 88) : citations...
- Quality control.
See all 4 titles

Format
- Book (2)
- Online (1)
- Journal, Magazine, or Serial (1)
Show more...

More Search Options

Find results for compendex in:
- Encyclopedias & Dictionaries
- NCSU Faculty Publications Repository
- NCSU Electronic Theses & Dissertations
Library Web Pages

Goal:
• Provide relevant Google-style search results for our library website

How it works:
• Locally managed search engine crawls library website once a week
• We control what gets crawled
Catalog Results
Catalog Results
Catalog Results

Goal:

- Direct users to native catalog interface for catalog specific searches
- Provide a direct link to the most relevant catalog matches for their search
Catalog Results

How it works:

• Ajax request to a locally developed catalog web services api (CatalogWS)

• Module displays:
  • Top three matching titles
  • Top five matching “Format” facet values

• CatalogWS provides us with more detailed information, if we ever need it
Journal Title Results

Library Web

- Journal matches for amer journal of psychology:
  - American journal of psychology

- Find articles on amer journal of psychology in:
  - General databases: Quick article search
  - Specialty research databases: Psychology, Education, Leadership & Counselor Education, Landscape Architecture, More...

Careers in Psychology: Subject Guide: NCSU Libraries
... Careers in Psychology: Subject Guide: NCSU Libraries MY ...
http://www.lib.ncsu.edu/guides/psychology/psycareers.html - Cached

Browse Anthropology: NCSU Libraries
... Used - Catalog Reserves Find Articles Journal List Citation Builder Tripaver Top ...
http://www2.lib.ncsu.edu/browsesubjects/subj ... subject_group=5 - Cached

Browse Anthropology: NCSU Libraries
... Used - Catalog Reserves Find Articles Journal List Citation Builder Tripaver Top ...
http://www2.lib.ncsu.edu/browsesubjects/subj ... subject_group=11 - Cached

NCSU Libraries Focus Online, volume 26 number 3 (spring 2...
... fall in the journal Information Technology and Libraries ...
http://www.lib.ncsu.edu/publications/focusonli ... /FocOn.26.3.pdf - Cached

Library Catalog

No catalog matches found. Please redo your search in the catalog.

- Catalog (books & more)

More Search Options

Find results for amer journal of psychology in:

- Encyclopedias & Dictionaries
- NCSU Faculty Publications Repository
- NCSU Electronic Theses & Dissertations
Journal Title Results

Library Web

Journal matches for **amer journal of psychology**:
- American journal of psychology

Library Catalog

No catalog matches found. Please redo your search in the catalog.
- Catalog (books & more)

More Search Options

Find results for **amer journal of psychology** in:
- Encyclopedias & Dictionaries
- NCSU Faculty Publications Repository
- NCSU Electronic Theses & Dissertations
Journal Title Results

Search: amer journal of psychology

Library Web

- Journal matches for **amer journal of psychology**:
  - American journal of psychology

- Find articles on **amer journal of psychology** in:
  - General databases: Quick article search
  - Specialty research databases: Psychology, Education, Leadership & Counselor Education, Landscape Architecture, More...

Careers in Psychology: Subject Guide: NCSU Libraries
... Careers in **Psychology**: Subject Guide: NCSU Libraries MY ...
http://www.lib.ncsu.edu/guides/psychology/psychcareers.html - Cached
Journal Title Results

Goal:
• Provide direct links to journals for known item journal title searches

How it works:
• Remote request to the Journal List for the top three matching titles
• Only displays if there is a direct match
Find Articles

• Article search: toughest nut to crack
• Library metasearch is slow and poorly ranked, making direct integration of metasearch results difficult to do well
• Google Scholar is fast, but does not accurately represent library holdings
• The Find Articles Module is a stop-gap until something better comes along
Find Articles
Find Articles
Find Articles

Search: music therapy

Library Web

Library FAQs about music therapy:
- How do I find music scores?

Find articles on music therapy in:
- General databases: Quick article search
- Specialty research databases: Music, Curriculum & Instruction, Education, Communication & Media, More...

Tutorials - LOBO: Psychology
... Intelligence tests Learning disabilities Memory Music therapy Physical attraction Repressed memories Schizophrenia ...
Find Articles

Goal:
• Direct users to the best place to initiate an article search

How it works:
• “Quick article search” link passes search to Academic Search Premier
• Subject links go to subject portal page listing core databases mapped to the subject
Technology

- Homegrown front end based on open source technologies
  - PHP for website programming
  - SWISH-E for local content indexing
  - Nutch for website search results
  - Ajax for catalog and journal results
- Not a standalone product
- Highly adapted to our diverse library systems infrastructure
Usage Statistics

Report: Page Query Terms - Search - Filtered
Date Range: 01/01/2006 - 12/31/2006

Count: 146,782

/s/search_redirect.php?ref
LWP_RES_1 33,439 22.79%
BB_postbuilder 10,908 7.43%
SC_A_CAT 9,481 6.45%
LWP_RES_2 8,285 5.64%
FAQ_A 7,834 5.34%
FA_QAS 7,374 5.02%
LWP_RES_3 4,203 2.86%
BB_etd 3,130 2.13%
SC_B_EDF 3,049 2.09%
BB_renewals 2,840 1.93%
(all others) 56,239

View Total: 90,543 61.59%
Total: 146,782 100.00%
Usage Statistics Method

- Web stats enhanced by collecting click data on the individual link level rather than just the page level
- Individual links tracked using a unique “reference” code
- Aggregated click totals for each link visible through Urchin “Page Query Terms” feature
Usage Statistics Method

Example:
Usage Statistics Method

Example:

```html
<a href="redirect.php?
target=[destination_url]
&ref=FA_QAS">Find Articles module,
“Quick article search”
```
Usage Statistics Method

Example:

```
<a href="redirect.php?
target=[destination_url]
&ref=CAT_RES_2">

Catalog Results module, second result
```
Usage Statistics Method

Benefits:

• Enables comparative performance on the module level
• Allows comparative clickthrough analysis within a module
• Enables application specific analysis
Seasonality of Library Search
Top Search Terms in 2006

1. citation builder
2. refworks
3. web of science
4. jstor
5. citation

1. lobo
2. thesis
3. gis
4. etd
5. ieee
## Year to Year Comparison

<table>
<thead>
<tr>
<th></th>
<th>Fall 2005</th>
<th>Fall 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Searches per day</td>
<td>548</td>
<td>757</td>
</tr>
<tr>
<td>Sessions per day</td>
<td>331</td>
<td>472</td>
</tr>
<tr>
<td>Searches per session</td>
<td>1.66</td>
<td>1.60</td>
</tr>
<tr>
<td>Length of Session</td>
<td>00:03:17</td>
<td>00:03:18</td>
</tr>
<tr>
<td>Total searches</td>
<td>58552</td>
<td>81105</td>
</tr>
<tr>
<td>Total clicks</td>
<td>38995</td>
<td>60147</td>
</tr>
<tr>
<td>Clicks per search</td>
<td>0.67</td>
<td>0.74</td>
</tr>
</tbody>
</table>
Fall 2005 Module Usage

Fall 2005 Click Share

- Library Web Pages: 47%
- Best Bets: 26%
- Search the Collection: 16%
- FAQs: 7%
- Browse Subjects: 2%
- Book or Article Alert: 2%
Fall 2006 Module Usage

Fall 2006 Click Share

- Library Web Pages: 30%
- Best Bets: 30%
- Search the Collection: 15%
- FAQs: 9%
- Find Articles: 16%
## Most Clicked Links in 2006

<table>
<thead>
<tr>
<th>Rank</th>
<th>Link Description</th>
<th>Click Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Library Web Pages - First Result</td>
<td>22.8%</td>
</tr>
<tr>
<td>2</td>
<td>Best Bets - Citation Builder</td>
<td>7.4%</td>
</tr>
<tr>
<td>3</td>
<td>Search the Collection - Catalog</td>
<td>6.5%</td>
</tr>
<tr>
<td>4</td>
<td>Library Web Pages - Second Result</td>
<td>5.6%</td>
</tr>
<tr>
<td>5</td>
<td>Frequently Asked Questions - First Result</td>
<td>5.3%</td>
</tr>
<tr>
<td>6</td>
<td>Find Articles - Quick Article Search</td>
<td>5.0%</td>
</tr>
<tr>
<td>7</td>
<td>Library Web Pages - Third Result</td>
<td>2.9%</td>
</tr>
<tr>
<td>8</td>
<td>Best Bets - Electronic Theses and Dissertations</td>
<td>2.1%</td>
</tr>
<tr>
<td>9</td>
<td>Search the Collection - Journal Titles</td>
<td>2.1%</td>
</tr>
<tr>
<td>10</td>
<td>Best Bets - Refworks</td>
<td>1.9%</td>
</tr>
</tbody>
</table>
Challenges and Issues

• Redundant results
• Finding articles
• How to deal with local stuff
  • Digitized collections
  • Institutional repositories
Lessons Learned

Library search behavior *is* diverse

Search logs confirm that when presented with a single search box on a library homepage, users search for a wide-range of resources, services, tools; they don’t assume a single library collection type (e.g. catalog, articles)
Lessons Learned

There is high user demand for a simple way to find articles

Our Find Articles module gets a lot of use, particularly the “quick article search” link; libraries should be doing more to make the process of finding articles easier
Lessons Learned

Subject recommendations (in current form) are not very popular

Although users frequently enter open-ended topical searches, they don’t seem to respond to our current implementation of subject recommendations; we don’t know why, yet
Lessons Learned

Power law is in effect for library search

An exceeding small number of library resources account for a sizable percentage of all searches and clicks; it pays to make these high demand resources easier to find
Lessons Learned

In terms of library search, we still have a lot of work ahead of us

Libraries spend enormous resources on acquiring, cataloguing, and licensing content in a variety of forms; we need to make it easier to access all of this information; we ought to know more about how people search
More Information

Project Page:
http://www.lib.ncsu.edu/dli/projects/quicksearch/
Thanks!

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