Outline of Presentation

I. Introduction
   - Definitions
   - Landscape of metasearching in academic libraries

II. Description of the Implementation at CSU Northridge

III. Literature Review

IV. Results of student assessment

V. Results of librarian assessment

VI. Conclusion - including impact of portal/federated searching technology on information literacy programs as well as the future of resource.
“Would you tell me please, which way I ought to go from here?”

“That depends a good deal on where you want to get to,” said the Cat.

“I don’t care much where –” said Alice.

“Then it doesn’t matter which way you go,” said the Cat.

Lewis Carroll

Through the Looking Glass
Introductory Questions & Remarks

• To what extent do undergraduates understand the nature, scope and limitations of the online databases they are using?

• How effectively do undergraduates prepare a search strategy, select appropriate databases and formulate search statements?

• How has the advent of electronic resources in the library changed the nature and quality of student research?

• Do technologies like metasearch mask the limitations of students information literacy skills?

• Do technologies like metasearch impair student information literacy skills?

• Should librarians rethink the content of information literacy lectures because of metasearching technologies?

Metasearching

“Metasearching, also known as integrated searching, simultaneous searching, cross-database searching, parallel searching, broadcast searching, and federated searching, refers to a process in which a user submits a query to numerous information resources. The resources can be heterogeneous in many respects: their location, the format of the information that they offer, the technologies on which they draw, the types of materials that they contain, and more. The user's query is broadcast to each resource, and the results are returned to the user.”
Federated Searching

Federated searching, for this presentation will be defined as a search system using a common interface that enables the simultaneous searching of databases from a variety of vendors.
Information Literacy

Information literacy is a set of abilities requiring individuals to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information." - American Library Association. Presidential Committee on Information Literacy. Final Report. (Chicago: American Library Association, 1989.)

ACRL Information Literacy Competency Standards for Higher Education

An information literate individual is able to:

- Determine the extent of information needed
- Access the needed information effectively and efficiently
- Evaluate information and its sources critically
- Incorporate selected information into one’s knowledge base
- Use information effectively to accomplish a specific purpose
- Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally
z39.50 - The definition of z39.50 from the Library of Congress, the official z39.50 maintenance Agency, is:

• ‘Z39.50 is a national and international (ISO 23950) standard defining a protocol for computer-to-computer information retrieval. Z39.50 makes it possible for a user in one system to search and retrieve information from other computer systems (that have also implemented Z39.50) without knowing the search syntax that is used by those other systems. Z39.50 was originally approved by the National Information Standards Organization (NISO) in 1988.’
http://www.loc.gov/z3950/
Metasearch Landscape & Academic Libraries

- Metasearch vendors (WebFeat, Muse Global, Ex Libris MetaLib, Endeavor EnCompass etc.)

- Google Scholar is seen as the competition for both campus institutional repository systems (at least in terms of search and discovery) and academic library federated searching.

- The NISO Metasearch Initiative ([http://www.niso.org/committees/MetaSearch-info.html](http://www.niso.org/committees/MetaSearch-info.html)) seeks to develop industry standards for one-search access to multiple resources that will allow libraries to offer portal environments for library users offering the same easy searching found in Web-based services like Google.

- Growth of information literacy programs across colleges and universities.

NISO Metasearch Initiative

To move toward industry solutions NISO (National Information Standards Organization) is sponsoring a Metasearch Initiative to enable:

- metasearch service providers to offer more effective and responsive services
- content providers to deliver enhanced content and protect their intellectual property
- libraries to deliver services that distinguish their services from Google and other free web services.

Implementation at CSUN

- California State University Northridge (CSUN) implemented MetaSearch (ExLibris’ Metalib) in August of 2004

- Implementation occurred in cooperation with CSU Chancellor's Office where the Metalib server resides for all CSU 23 campuses.

- Implementation Team Approach at Oviatt Library

- Development of MetaSearch includes:
  - Training of Librarians
  - Creation of IRD Records
  - Creation of Categories (Subject)
  - Inventory of Databases
  - Customization of out of box interfaces
  - Marketing
  - Instruction
  - Assessment
A Review of the Literature

Areas of focus

• Metasearch technologies
• Metasearch technologies, Academic Libraries and Information Literacy
• Undergraduate Searching/Research Behavior
Even Before The Google Generation - Perspective -


Lamentation of growth of online databases and stagnation of student research skills.

The limited level of undergraduate subject knowledge and “Lack of analytic selection from the [resulting] citations produced by the search as well as initial error in qualifying limitation placed on the search further exacerbate problems.”

“It remains the responsibility of the librarian to see to it that important steps are not excluded in the assembling of the bibliography – the realization of both expediency and comprehensiveness without the sacrifice of the true exercise in research that the library has always advocated – the careful, conscious discrimination in the student’s selection of...source material.”
Potential Undergraduate Pitfall/Barriers cited in Gordon’s 1986 article:

- Student Procrastination
- Lack of in-depth subject knowledge & terminology impairability to go beyond search matches
- Students downplay need for selective review
- Student trust/overconfidence in online information blinds their understanding of the need for critical thinking
- Citation by virtue of convenience or because results happen to be first 5 or 10 results
Metasearching Technologies

Metasearch technologies, Academic Libraries and Information Literacy

• Webster, Peter *Metasearching in an Academic Environment Online®, v. 28, no. 2 (Mar./Apr. 2004).

• McCaskie, Lucy (2004) What are the implications for information literacy training in higher education with the introduction of federated search tools?, University of Sheffield (M.A. Thesis)


Undergraduate Searching Behavior


Assessment – “Considering the Evidence”

Results of Students Assessment

Results of Librarian Assessment
Assessments of Metasearch

• RLG – Metasearch Survey Report was released May/June 2005

• William Moen (University of North Texas) – Research on usability testing and metasearch, “Users and Metasearch Applications: New Challenges for Usability Assessment”

• Others Studies/ Lack of focus on users
User Assessment Focus

- CSUN users
- Satisfaction with service
- Knowledge of service
- Who is using Metasearch
User Assessment Research Questions

- Compare direct database searching with Metasearch
- Ease of Metasearch use
- Knowledge of Metasearch
- Demographics
- Comments
User Assessment Instrument

- Web-based survey
- CTL Silhouette Flashlight™ (http://flashlightonline.wsu.edu)
- 18 questions
  - 16 close-ended
  - 2 open-ended
- Distributed via Library homepage and Metasearch login
User Assessment Findings

• CSUN status
  - Grad: 62%
  - Undergrad: 31%
  - Faculty: 8%
User Assessment Findings

• Colleges Represented
  - Health & Human Development: 47%
  - Social & Behavioral Sciences: 24%
  - Education: 18%
  - Business: 6%
  - Humanities: 6%
User Assessment Findings

Frequency of Database vs. Metasearch Use

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Databases</th>
<th>Metasearch</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/week</td>
<td>40%</td>
<td>30%</td>
</tr>
<tr>
<td>1/month</td>
<td>25%</td>
<td>15%</td>
</tr>
<tr>
<td>1/semester</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>1/year</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>Never</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>
User Assessment Findings

Expectations of Finding Relevant Resources

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Databases</th>
<th>Metasearch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>Mostly</td>
<td>50%</td>
<td>60%</td>
</tr>
<tr>
<td>Sometimes</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Rarely</td>
<td>0%</td>
<td>0%</td>
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<tr>
<td>Never</td>
<td>0%</td>
<td>0%</td>
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</tbody>
</table>
User Assessment Findings

Importance of Databases vs. Metasearch for Research

<table>
<thead>
<tr>
<th>Importance</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Imp.</td>
<td>70%</td>
</tr>
<tr>
<td>Important</td>
<td>20%</td>
</tr>
<tr>
<td>Somewhat</td>
<td>10%</td>
</tr>
<tr>
<td>Not at all</td>
<td>0%</td>
</tr>
</tbody>
</table>

Databases vs. Metasearch
User Assessment Findings

Metasearch vs. Databases Ease of Use

- Much easier
- Easier
- About the same
- More difficult
- Much more difficult

Percent
User Assessment Findings

• Metasearch and Info Lit …
  – Had formal library instruction?
    • Yes: 84%
    • No: 15%
  – 62% of users said it does not require librarian training; 38% said it does
  – 60% found out about it during a library instruction session; 20% “just by clicking on it”
User Assessment Findings

Self-Rating of Library/Internet Research Skills

- Excellent: 20%
- Very good: 45%
- Good: 15%
- Fair: 5%
- Poor: 0%
User Assessment Findings

• Knowledge of Meta search . . .
  - Allows limiting to scholarly journals only?: 68% yes; 32% no
  - Allows multi-db search with one interface?: 92% true; 8% false
  - Allows single db search with one interface?: 80% true; 20% false
User Comments Summary

- Comments from 15 out of 26 (58%) survey respondents
  - Positive: 66%
  - Negative: 27%
  - Neutral: 6%
User Comments

• “It's a great service, allowing me to research topics related to my field in a way that I feel comfortable and competent.” – Undergrad
• “From a user’s perspective, this is the wave of the future.”—Grad
• “Now that I'm accustomed to using it, I consider it an absolute necessity.”--Grad
User Comments

• “It is a bit overwhelming as far as navigating goes, but I have found it very useful. The more I use it, the more comfortable I have become.” — Grad

• “… I have had less success overall as compared to other search engines.” — Faculty
User Suggestions

- Easier navigation to save articles/searches
- Easier navigation from MySpace to current search
- Difficult to refine a search from the beginning. Needs a Boolean "cheat sheet."
- More difficult to find full text articles than in the individual databases
- Problems logging in since upgrade
User Assessment Summary

- Frequency of use, expectations of finding relevant resources, and importance to research were similar to direct searching of databases.
- Metasearch considered easier to use than databases by majority.
- Majority had IL instruction and considered themselves having very good to excellent IL skills.
- While most found out about Metasearch in an IL session, only 38% felt they needed instruction to learn how to use it.
- However, only 32% realized you could not limit results to scholarly journals.
- Most comments were positive, with constructive criticism.
Results of Librarian Assessment

Focus
Research Questions
Instrument
Findings
Summary

“Alice’s Evidence”
Librarian Assessment Focus

• Librarians from many institutions
• Experiences with Meta searching
Librarian Assessment Research Questions

- Teaching Metasearch in formal IL sessions or at the reference desk
- Attitudes
- Impact on user IL skills
Librarian Assessment Instrument

- Web-based survey
- CTL Silhouette Flashlight™ (http://flashlightonline.wsu.edu)
- 10 open-ended questions
- General, not about a specific product
- Distributed as a link in postings to librarian listservs
  - ILL-L@ala.org (Info Lit Instruction, ACRL/ALA)
  - CALIBACA-L@CSUS.EDU (Calif. Academic & Research Libraries, ACRL/ALA)
  - CSUN librarians
- Respondents = 33 academic librarians
Librarian Assessment Findings

• Q1: When did your library first provide patron access to a federated search system?
Librarian Assessment Findings

When Patrons Offered Access to Federated Searching

- 2001: Don't have
- 2002: Stopped using
- 2003: Stopped using
- 2004: Don't have
- 2005: Stopped using
- Don't have 2001: 0%
- Stopped using 2001: 5%
- Don't have 2002: 10%
- Stopped using 2002: 15%
- Don't have 2003: 20%
- Stopped using 2003: 25%
- Don't have 2004: 30%
- Stopped using 2004: 35%
- Don't have 2005: 30%
- Stopped using 2005: 25%
Librarian Assessment Findings

• Q2: Do you offer federated searching instruction to your patrons, in a formal classroom setting, such as during a library instruction session?
Do You Teach Federated Searching in Library Instruction Sessions?

- Yes: 20%
- No: 70%
- Depends: 10%
- N/A: 0%

Librarian Assessment Findings
Librarian Assessment Findings

- Librarians who do not teach federated searching said:
  - Loss of controlled vocabularies and specialized features of individual databases
  - Suspicion of the precision and recall of federated searching
  - Not all databases are available in federated search system
Librarian Assessment Findings

Q3: Do you offer federated searching instruction to your patrons at the reference desk, and/or via email or chat?
Teach Federated Searching at the Reference Desk?

- Yes: 10%
- No: 70%
- Depends: 20%
- N/A: 0%
Librarian Assessment Findings

• Librarians who said “it depends” whether or not they teach it at the reference desk said:
  – If asked, they show it
  – If topic is interdisciplinary

• Librarians who said “no” cited similar reasons to Q 2.
Q4: Are librarians at your library expected to train patrons on federated searching, in library instruction sessions and/or at the reference desk?
Librarian Assessment Findings

Librarians Expected to Teach Federated Searching?

<table>
<thead>
<tr>
<th>Percent</th>
<th>Yes</th>
<th>No</th>
<th>Depends</th>
<th>N/A</th>
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<tbody>
<tr>
<td>0%</td>
<td></td>
<td>70%</td>
<td></td>
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<tr>
<td>10%</td>
<td></td>
<td></td>
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<td>20%</td>
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<td>60%</td>
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<td>70%</td>
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<tr>
<td>80%</td>
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Percent of librarians expected to teach federated searching.
Librarian Assessment Findings

• Q5: Are you confident teaching federated searching in instruction sessions and/or at the reference desk?
Confident Teaching Federated Searching?

- Yes: 50% of respondents
- No: 40% of respondents
- N/A: 10% of respondents
Librarian Assessment Findings

• Q6: What impact does federated searching have on your patrons' information literacy skills?
Librarian Assessment Findings

Impact of Federated Searching on IL?

- Positive: 10%
- Negative: 35%
- Neutral: 25%
- N/A: 5%

Percent
Librarian Assessment Findings

- Negative impact on IL skills:
  - Cannot recognize the benefits of using a particular database
  - Don’t know what they are searching
  - Difficult to distinguish types of sources retrieved
  - Encourages “Google thinking”
Librarian Assessment Findings

- Neutral impact on IL skills:
  - Too new, not sure of the impact yet
  - Just another tool
  - Depends on the patron and his/her skills
Librarian Assessment Findings

• Q7: Do you prefer to teach the native interface for individual databases over federated searching?
Librarian Assessment Findings

Prefer to Teach Native Interface vs. Federated?

<table>
<thead>
<tr>
<th>Choice</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>70%</td>
</tr>
<tr>
<td>No</td>
<td>10%</td>
</tr>
<tr>
<td>Depends</td>
<td>20%</td>
</tr>
<tr>
<td>Don't know</td>
<td>5%</td>
</tr>
<tr>
<td>N/A</td>
<td>5%</td>
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</tbody>
</table>
Librarian Assessment Findings

- Why librarians prefer native interface:
  - Limiting
  - Sophisticated search options
  - Distinguish scholarly vs. popular
  - Controlled vocabularies

- Most students don't need a lot of databases
Federated searching is a path of despair that assumes that either we do not have time or a venue to teach more sophisticated search methods, or our students are incapable or unmotivated to learn how to search with more sophistication. Federated searching produces muddled results that take us only a few baby steps beyond Google.
Librarian Assessment Findings

• Q8: Do you consider your federated search service a starting point for teaching or providing reference assistance?
Federated Searching a Starting Point?

- Yes: 0%
- No: 60%
- Depends: 20%
- N/A: 10%
Librarian Assessment Findings

• Q9: Do you limit teaching federated searching to a particular "type" of library patron, i.e., undergrads, grads, etc.?
Limit Teaching Federated Searching to Particular Patron?

- Yes: 30%
- No: 45%
- N/A: 25%
Librarian Assessment Summary

• Most are negative about teaching federated searching
• While not required to teach it, they are confident in their skills to do so, not confident in the technology, and will teach it when appropriate to the question
• IL impact seen as equally negative or neutral
• Majority prefer to teach the native interface of individual databases
Concluding Remarks

• Findings
• Impact on Information Literacy Skills of Undergraduates
• Impact on Academic Libraries
• Advantages/Disadvantages of Implementing Metasearch
• Recommendations
• Future Research Questions
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