

EVALUATING DISCOVERY: HOW TOOLS AFFECT UNDERGRADUATES' RESEARCH PRACTICES



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Recovery
&
Discovery

Algorithmic Culture

The sorting, classifying, hierarchizing, and curating of people, places, objects, and ideas by machine-based information processing systems (Striphas 2011).

Algorithms as cultural objects



Image credit: <http://searchengineand.com/seotable>

Embedded value judgments

Non-neutrality

All information technologies favor some content or users over others. One cannot design a neutral system. So, a declaration or description of bias is not an indictment of a system or a firm. A bias is not necessarily bad: it is necessary

--Siva Vaidhyanathan, *The Googlization of Everything*

Discovery Tools Implementation



- 87 students participating:
 - 41 @ Illinois Wesleyan University
 - 46 @ Bucknell University

Discovery Tool Methods

- 5 Test Groups
 - Summon
 - EDS
 - Google Scholar
 - “Conventional” Library Catalog
 - No tool (i.e. Google)
- 4 Research Tasks
 - Find 2 sources per task
- Debriefing Interview
 - Open-ended questions on search practices and evaluation processes

Disclaimer

The goal of this research was not to make purchasing recommendations.

Caveat

Every discovery tool instance is different.
Your mileage may vary.

Search Pattern

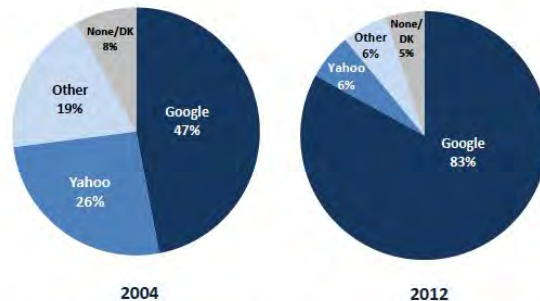
1. Use something familiar
2. Simple keyword searches
3. First page results
4. cursory evaluation of sources

Google dominates

Pew Search Engine Use Study

Google is far and away the search engine of choice, preferred by 83% of search users

% of search users who answered the question: Which search engine do you use MOST OFTEN?



Source: The Pew Research Center's Internet & American Life Project Winter 2012 Tracking Survey, January 20-February 19, 2012. N=2,253 adults, age 18 and older, including 901 cell phone interviews. Interviews conducted in English and Spanish.

Image credit: <http://www.pewinternet.org/Reports/2012/Search-Engine-Use-2012/Main-findings/Search-engine-use-over-time.aspx>

Google structures expectations

- Single search box
- Simple keyword search

Discovery Tools Project

Simple search was used 82% of the time.

Type of Search			
	Simple	Advanced	Boolean
Google Scholar	94.5%	4.2%	1.4%
Summon	79.3%	12.6%	8.1%
EDS	75.4%	23.1%	1.5%
Library Catalog/Databases	77.2%	19.1%	3.7%
No Tool	81.1%	16.3%	2.5%
Total, All Groups	81.5%	15.1%	3.4%

Source: Discovery Tool Research Results, Illinois Wesleyan University/Bucknell University, 2011

Search Evaluation

- Students iterate search rather than refine.
- Cursory evaluation of sources.
- Eclectic, and sometimes inaccurate, methods of evaluation.
- Assumption that if information is not easily found then it must not exist.

"Apparently you don't have much on Rock and Roll"
--First Year in French

Discovery Tools Project

92% of the resources utilized were found on the first page of search results.

First-page Sources	
	Percent of sources found on first page
Google Scholar	83%
Summon	96%
EDS	94%
Library Catalog/Databases	94%
No Tool Specified	94%

Source: Discovery Tool Research Results, Illinois Wesleyan University/Bucknell University, 2011

Three Biases

De facto outsourcing of evaluation to the search algorithm itself.

{ Brand Bias } { Default Bias } { Trust Bias }

Brand Bias

Search tool as “surrogate expert”

Trust Bias

“I have no idea [how Google determines search results]. I’m just trusting Google to know what are the good resources.”
--Sophomore in Biology

Default Bias

“I have no idea [how Google determines search results]. I’m just trusting Google to know what are the good resources.”
--Sophomore in Biology

What a tool searches determines what students use:

	Resource Types				
	Google Scholar	Summon	EDS	Library Catalog/Databases	No Tool
Academic Journal Articles	55.0%	65.0%	73.8%	49.2%	50.3%
Books	26.5%	13.4%	12.5%	41.3%	15.4%
Newspapers/Magazines/ Trade Journals	2.0%	20.6%	6.3%	3.2%	2.7%
For-Pay Articles	13.3%	0.0%	0.0%	0.0%	1.3%
Websites (including Wikipedia)	0.7%	0.0%	0.0%	0.0%	21.5%
Government & Legal Document	2.7%	0.0%	5.0%	2.1%	2.0%
Other Documents	0.0%	1.0%	2.5%	4.2%	6.7%

Source: Discovery Tool Research Results, Illinois Wesleyan University/Bucknell University, 2011

Library Responses

- Critically assess the effects of search tools
 - Statistical evaluation
 - Modeling of user flows/search terms



Library Responses

- Advocate for Disclosure
 - e.g. NISO Open Discovery Initiative

- Concentrate on teaching algorithmic literacy

- Evaluate implementation of library discovery tools

For more information:

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Full Results:

Andrew Asher, Lynda M. Duke & Suzanne Wilson, "Paths of Discovery: Comparing the Search effectiveness of EBSCO Discovery Service, Summon, Google Scholar, and Conventional Library Resources." *College and Research Libraries* 74(5) (2013)
<http://cr1.acrl.org/content/74/5/464.abstract?sid=6dd1f8c3-4ce1-4220-aca6-525aa3f57a31>

Questions?