Orchestrating the Research Process

The Library Media Specialist's Role

Itinerary

- National goals for technology
- Big 6 Model
- Library Media Specialist as conductor
  - Pathfinders
  - Effective searching
  - Evaluation of Web sites
- Other info literacy models

Envisioning the Future

- Eliminate the Digital Divide
- Techno-literate teachers
- Information-literate students
- E-learning model
- Research and development
- Citizenship
- National treasures

The Big Six Approach

- Task definition
- Information seeking strategies
- Location and access
- Use of information
- Synthesis
- Evaluation

1 Task Definition: Ask the Question

- Students think about the question they are trying to answer
- Students think about what they already know about the topic
- Students formulate their question

1 Task Definition: Use of Technology

- Use of e-mail to communicate with teachers
- Use of e-mail and listservs to facilitate cooperative activities
- Use of desktop videoconferencing

2 Information Seeking Strategy: Make a Plan

- Students think about all the possible ways to find information about their topic
- Students make a list of all possible sources of information

2 Information Seeking Strategy: Use of Technology

- Students assess the value of electronic resources
- Students identify criteria for evaluation
- Students use a graphic organizer for planning

3 Location and Access: Finding the Information

- Students determine where everything can be found
- Students make a map or flowchart of the "path" they are going to take to find the information

3 Location and Access: Use of Technology

- Students locate and use computer resources
- Students know the roles of staff
- Students use "ask an expert" sites
- Students conduct data collection
- Students use organizational systems

4 Use of Information: Using the Found Sources

- Students skim tables of contents and indexes to see if sources are helpful
- Students write down bibliographic citations and collect information

4 Use of Information: Use of Technology

- Students download and open documents
- Students cut and paste information
- Students cite information correctly
- Students take notes and outline
- Students analyze data with spreadsheets
- Students reject non-relevant information

5 Synthesis: Show What You Know

- Students organize notes into an order that best answers the question
- Students decide on the best way to answer the question and present

5 Synthesis: Use of Technology

- Students classify and organize information using software
- Students create original graphics
- Students create hypermedia presentations
- Students use specialized tools

6 Evaluation: Questions to Myself

- Students ask themselves questions
  - Did I answer the question?
  - Did I have enough information?
  - Did others understand my presentation?
  - Is there anything else I want to know?
  - Would I do anything else differently next time?

6 Evaluation: Use of Technology

- Students evaluate electronic presentations for content and format
- Students apply legal and ethical principles
- Students abide by AUP's and Netiquette

Library Media Specialist as Conductor

- Guide the students to desired result

- Information literacy skills
  - Find information
  - Evaluate information for relevance
  - Determine if relevant information is valid

1 Task Definition: Ask the Question

- Reactivating prior knowledge
- The reference interview process
- Manageable topic definition

2 Information Seeking Strategy: Make a Plan

- Use the Pathfinder as a model of how to make an information-seeking plan
- Give them an example and a template

Development of a Pathfinder

- Title
- Brief description of topic
- Sample search terms
- General Dewey numbers
- Nonfiction and fiction books
- Related Web sites
- Multimedia resources

3 Location and Access: Finding the Information

- Teach effective search strategies
- Teach Boolean and wildcard searching
- Teach advanced search strategies

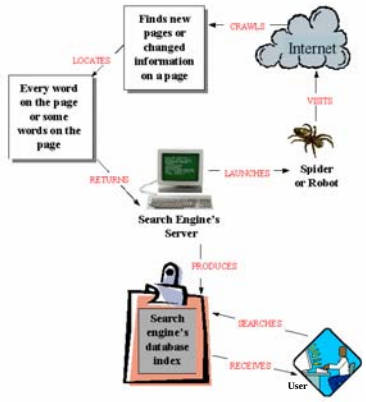
What is an Internet search engine?

- An Internet tool which will search for sites containing the words that you designate as a search term
- Search engines search their own databases of information

How does a search engine work?

- Deploys a robot program called a *spider* or *robot* designed to track down Web pages, follow the links these pages contain, and add information to their own database
- Each search engine has its own way of doing things

How does a search engine work?



How do the search engines differ?

- Different databases are searched
- The degree of detail collected differs
- The level of sophistication of the "robot" varies
- Relevancy rankings differ

What determines relevancy?

- Results are presented in order of relevance
- Web page designers often try *spamdexing*
- Relevancy rankings based on a formula
- Differing methods of collection

How does a search engine know about the documents on the Web?

- If the search engine's "spiders" or "robots" find the site on their gathering missions
- If the publisher of the document registers it with the search engines

What are some search engines?

AltaVista

Google

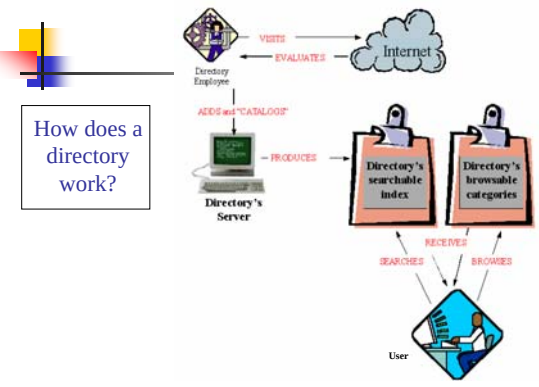
HotBot

Northern Light

What is an Internet subject directory?

- Organizes Internet sites by subject
- User works down a series of menus
- Smaller than search engines
- Maintained by human beings

How does a directory work?



Which is better – a search engine or a subject directory?

- Personal preference
- Directories allow the user to form the search, but may not use common terms
- Search engines allow the user to use common language, but may lead to lots of hits

How do students prepare to search?

Formulate their search question carefully

Examples

- I want to find information on popular methods of losing weight.
- What are the characteristics to look for when purchasing a diamond?
- When do the Monarch butterflies migrate?

How do students prepare to search?

Identify keywords

I want to find information on popular methods of losing weight.

What are the characteristics to look for when purchasing a diamond?

When do the Monarch butterflies migrate?

How do students prepare to search?

Select synonyms and other word forms

I want to find information on popular methods of losing weight.

Popular _____ common favorite

methods _____ method ways way techniques technique

losing _____ lose reducing reduce reduction

weight _____ fat dieting diet

How can students improve their use of search engines?

- Read the help files
- Learn about wildcard searches
- Learn about Boolean searching
- Use the advanced search boxes

How do search engines deal with Boolean operators?

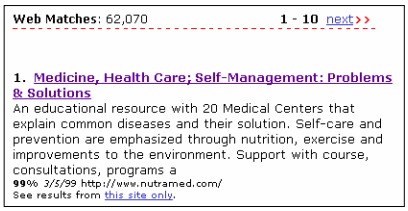
- Not consistent among search engines
- May enter it by hand or via a pop-up box
- May have to go to an “advanced” page
- The default may be *and* or *or*

Dieting methods search string

Combine synonyms and keywords carefully

(popular or common or favorite)
and (method* or way* or technique*)
and (los* or reduc*)
and (weight or fat or diet*)

Result #1 from HotBot



How do students prepare to search?

Combine synonyms and keywords carefully

Combine synonyms with Boolean OR
(popular or common or favorite)
(losing or lose or reducing or reduce or reduction)

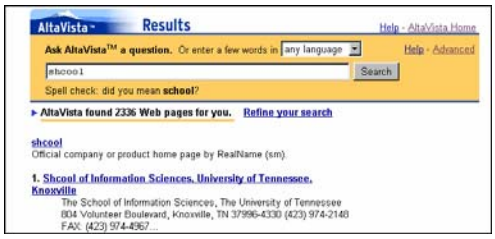
Use wildcards to combine variant word forms
(method* or way* or technique*)
(weight or fat or diet*)

Combine these phrases with the Boolean AND to limit the search

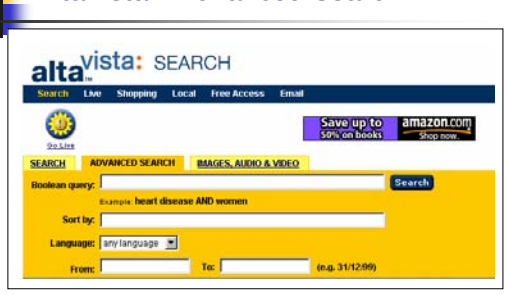
Some other considerations

- Know how to use the browser
- Consider the time of day
- Check the spelling
- Search engines are in competition

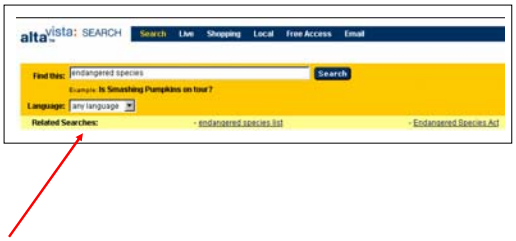
Misspelling



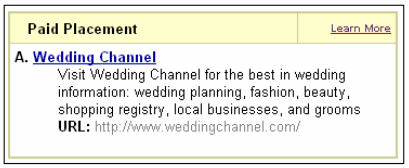
AltaVista : Advanced Search



AltaVista : Related Search

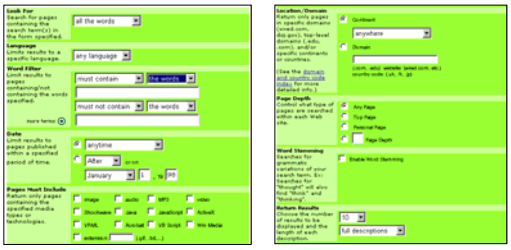


AltaVista : Paid Placement

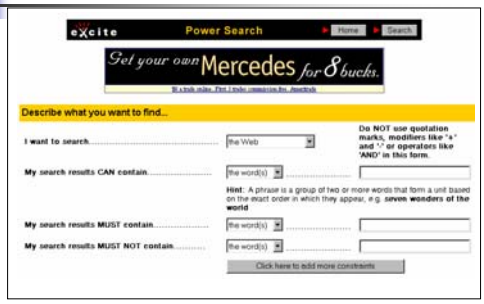


HotBot : Search Options

HotBot : More Search Options



Excite : Power Search



Northern Light

Northern Light results

What is a "meta" search engine?

- A meta search engine doesn't create its own database of information
- It searches the databases of other engines
- Allow you to sift and see what is out there

Dogpile

What is a unified search interface?

- Users enter search queries to several search engines/directories within the same interface
- The databases are searched sequentially, rather than simultaneously

All-In-One Search Page

http://allonesearch.com/

Specialized Interest from All-In-One

Choosing the right terms

- Use a unique keyword
- Make it a multi-step process
- Search only your results
- Start with a “title” search
- Find out if case counts
- Check your spelling
- Try using quotation marks around phrases

What are some effective search strategies?

- Decide whether a subject directory or search engine is needed
- Be as specific as possible when using a search engine
- Try different search engines
- Read the help and tips files for each search engine

How do students determine if a search engine meets their needs?

- How easy was it to figure out how to search?
- Were the help files adequate?
- Were the amount of results returned adequate/overwhelming?
- How current were the results?
- What else makes it good?

What is the best tool for the job?

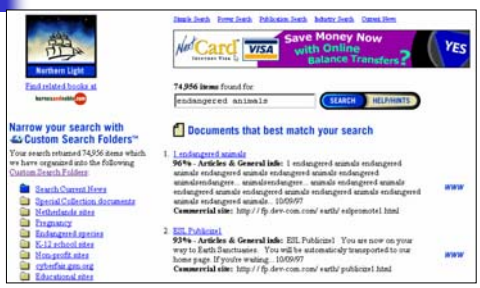
What is the best tool for the job?

INFORMATION NEED

- I have an idea of a **broad** topic.

Broad topic : Yahoo

Broad topic : Northern Light

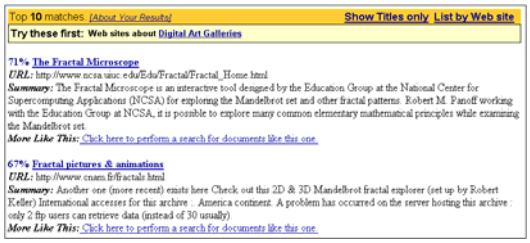


What is the best tool for the job?

INFORMATION NEED

- I want a small number of **relevant hits** and an idea of what's in each document before I visit the page.

Small number of hits & good summaries: Excite



What is the best tool for the job?

INFORMATION NEED

- What's **available on the Internet** for my topic?

What is available for my topic : Vivisimo

What is the best tool for the job?

INFORMATION NEED

- I need to do a **pinpoint search** because my terms are narrow.

Pinpoint search : AltaVista

What is the best tool for the job?

INFORMATION NEED

- I have **common keywords** that probably appear in many documents and I should make my search specific.

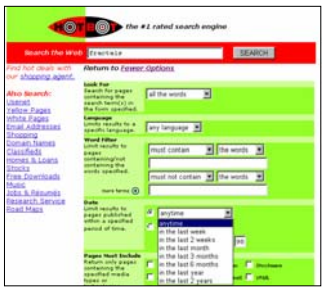
Common keywords : HotBot

What is the best tool for the job?

INFORMATION NEED

- I know the **date of an event** and am looking for more information.

Date of an event : Hotbot



What is the best tool for the job?

INFORMATION NEED:

- I need information on a **proper noun**.

Proper noun : AltaVista, Go.com, Hotbot

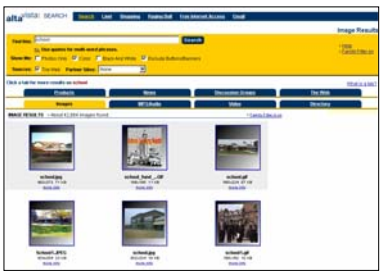
What is the best tool for the job?

INFORMATION NEED

- I want to find an **image** on the Web.

Image : AltaVista

http://www.altavista.com/



What is the best tool for the job?

INFORMATION NEED

- I want to find out who has **links to a site**.

Links to a site : AltaVista

Common error messages

- 404 Not found
  - host computer found, but not the file you are looking for
- 403 Forbidden/Access denied
  - Web site needs special permission or a password to access
- 503 Service unavailable
  - server is very busy; try again in 30 seconds
- Document contains no data
  - you are at the right place but the page is being updated at that moment; try again later

What is the future of searching?

- Mapping
- Collaborative filtering
- Client-side metasearching
- Personal agents

What is the future of searching?

Mapping

Java-based products that analyze and organize documents by concept and then present the user with a dynamically generated navigable map of the relationships and hierarchies

Mapping

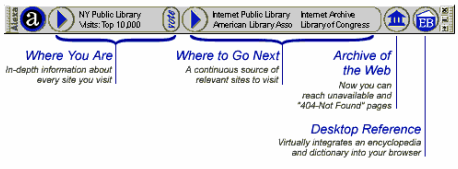
What is the future of searching?

Collaborative Filtering

Using data on where other users who have visited a site have gone, as well as text analyses of the site, these engines dynamically suggest other links

Collaborative Filtering : Alexa's Internet

www.alexa.com



What is the future of searching?

Client-side Metasearching

A search tool that resides on your machine, searches the Net, cleans up the results, and returns the results to you.

Client-Side Metasearching : Copernic

www.copernic.com

What is the future of searching?

Personal Agents

Users set up the agents with ongoing queries and the agents monitor the sites and notify the user of the relevant new pages

Personal Agents : Wisewire

www.wisewire.com

4 Use of Information: Using the Found Sources

- Teaching students critical evaluation skills
- Teaching the students proper bibliographic citation format

The Five W's of Evaluation

Who wrote the pages and are they an expert?

What does the author say is the purpose of the site?

When was the site created and last updated?

Where does the information come from?

Why is the information useful for my purpose?

Who wrote the pages and are they an expert?

- Who is providing the information?
- What do you know about them?
- Are they an expert?
- How can you find out more about the author?

What does the author say is the purpose of the site?

- Does the information go into sufficient depth?
- Is the rationale for inclusion/exclusion given?
- Are there any obvious gaps in the information?

When was the site created and last updated?

- Date of creation included?
- Date of last update included?
- Does date make a difference?

Where does the information come from?

- Is a bibliography of sources used provided?
- Is a bibliography of related items included?
- Are full citations given?

Why is the information useful for my purpose?

- Does the new information change what the student knows about the topic?
- Is the information pertinent to the student's needs?
- Is the information verifiable in a reputable print source?

5 Synthesis: Show What You Know

- Provide the tools
- Teach how to use the tools
- Help students with organizational skills training

6 Evaluation: Questions to Myself

- Videotape
- Audiotape
- CD-ROM creation
- Photograph

Other Models of Info Literacy

- CA School Library Association Information Literacy Model
- Information Power from AASL/AECT
- The NetSavvy Model
- The National Educational Technology Standards for Students (NETS)

CA School Library Association Information Literacy Model

- Three main sections
  - Searcher's thinking
  - Search process
  - Instructional strategies

California School Library Association. *From Library Skills to Information Literacy.* 2d edition. 1997. CA: Hi Willow.

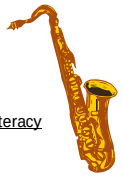
Information Power

- Nine information literacy standards
  - Information Literacy
  - Independent Learning
  - Social Responsibility

AASL & AECT. 1997. "Information Literacy Standards for Students". *Hotline Conections*. V4:n6.

NetSavvy Model

- Awareness
- Asking
- Accessing
- Analyzing
- Applying
- Assessing



Jukes, Ian, et. al. 1998. NetSavvy: Information Literacy for the Communication Age. WA: Spokane.

The NETS

1. Communicate using a variety of media.
2. Access & exchange info in a number of ways
3. Compile, organize, analyze, and synthesize information
4. Draw conclusions & make generalizations
5. Use info and select appropriate tools
6. Know content and be able to locate info
7. Become self-directed learners
8. Interact with others in ethical ways

ISTE. 1998. National Educational Technology Goals for Students. Eugene, OR: ISTE.

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The End

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