



Usability News is a free web newsletter that is produced by the Software Usability Research Laboratory (SURL) at Wichita State University. The SURL team specializes in software/website user interface design, usability testing, and research in human-computer interaction.

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Searching the Web: Who Uses the Advanced Search Options?

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There are hundreds of search sites available today, each differing in number and scope of search options. These sites such, as AltaVistaTM and HotBotTM, help users explore the World Wide Web (WWW) as well as find specific information. Some search sites are very simple, using only a single text entry field, while other sites offer more complex designs which incorporate advanced search options that enable users to narrow their search inquiries. With all of these search sites available, strangely, there has been little research investigating how helpful the search options are in finding specific information. In order to address this question, we looked at how often people use advanced search options when they are available, and how successful they were when they used them. To do this, three of the top search engines: HotBot.comTM, AltaVista.comTM, and Lycos.comTM were chosen for our evaluation because they offered a broad range of search options to the user.

- HotBotTM has a multitude of search options available to the user. These options help a user narrow a search by specifying the type of search query, time period, language, and what the pages must include. The number of results for a search request can be specified in addition to a separate webpage of advanced search options.
- AltaVistaTM has a relatively simple user interface design with a slightly more sophisticated search field that allows plain language queries. One option allows language specification for the query, and an advanced search button offers a webpage full of additional search options.
- LycosTM has the simplest user interface design of the three sites. The interface consists of a single search field, a "Go get it" button, as well as an advanced search option to further refine searches. The primary search interface does not incorporate any refining options for an initial search.

In order to explore search behavior, we asked seven Wichita State University students with moderate Internet experience to complete two search tasks for each of the three search sites. The participants were instructed to use each search site to find specified information on the WWW. To encourage them to use the search site interface to its fullest rather than follow a long path of hyperlinks, they were told the information had to be found on a website within three subsequent links from the search site's initial search results. For example, participants were asked to find "What year did The First Lady enter college?" If they did not find the answer after following two subsequent links from the initial search result page, they were asked to go back to the main search site page and try again. Task and search site order were randomized across all trials. Success of task completion, number of typed search attempts, and frequency of advanced search options used were recorded. After the study, participants rated the usefulness of each search option using a 7-point Likert scale (1 = not very useful, 7 = very useful). Success of task completion for each search site is shown in Table 1.

Table 1. Success of tasks completion for each search site.

	HotBot TM	AltaVista TM	Lycos TM
Successful	10	9	5
Not Successful	4	5	9

Table 1 shows us that the participants were more successful with HotBot and AltaVista than with Lycos. They also preferred HotBot the most, followed by AltaVista then Lycos. These results appear to be due to the quality and intelligibility of the search results, as well as the availability of search options.

For example, participants reported the initial results received with Lycos were hard to interpret. In addition, they indicated that the advanced search page was cluttered, confusing, and contained irrelevant information. AltaVista users liked the ability to pose search queries in the form of natural language questions (rather than strictly keywords), but many did not have any understanding of the Boolean expression field available in the advanced search options. Conversely, participants indicated that the HotBot site's search fields and results were "simple" and "easy to understand." Specifically, they liked the search result layout and having many options available to limit and specify their search queries. A summary of the subjective comments are listed in Table 2.

The percentage of participants who used each search option and the corresponding average perception of usefulness ratings (in parentheses) are shown in Figures 1, 2, & 3 below. Analysis of this data shows that the search options were used by approximately half of the participants in order to complete the search tasks. Those who tried the search options stated that they found them to be useful. There was, interestingly, no difference in the number of successful searches between participants who used the search options and those who did not. So, it is not clear whether the use of advanced search options helped the participants find the information quicker or not. We believe that such search options can be helpful as long as the user has a good understanding of what the option does. Further research (with a much larger sample size) needs to be done to examine the utilization and usability of each advanced search option to determine its value.

Table 2. Subjective Comments

HotBot
Search partners
<ul style="list-style-type: none">• "I went somewhere I didn't want to go."• "I don't understand search partners."
Link at top of results: search for books on _____
<ul style="list-style-type: none">• "This is weird because I didn't know it was a book." (Accessed the link "find a book" and was unaware of it)
General Comments
<ul style="list-style-type: none">• "The site was much easier to come by and find exactly what I needed."• "This site was fairly simple."• "Getting to know the search site for a few minutes was sufficient to feel comfortable."• "Screen was easy to understand."• "A lot of easy options, also more familiar with this type."• "I was able to find exactly what I needed without having to go through a round about process."• "It was easier to enter the information."• "The sites come back more detailed."• "I like how they made the information more specific to enter."

Lycos

Search field

- "Do I have to hit search or can I hit advanced search first?"

Subject links

- "Lets see if I can use some of this."

Initial Results

- "I cant tell which link is with what, its confusing."
- "I like the titles and description not the initial way they showed the results."
- "It was confusing because of the colors of the words." (all links were blue)

Advanced search interface

- "How much of this do I really need to mess with?"

Advanced search rank word according to importance

- "This is a little confusing, the bottom section which asks you to rank importance of the words."
- "Too much, I don't need all this."
- "Too much work when all you need to do is put in a different search."

Advanced search type of search query option

- "This is nice, I like this."
- "This still isn't getting me anything."

AltaVista

Search field

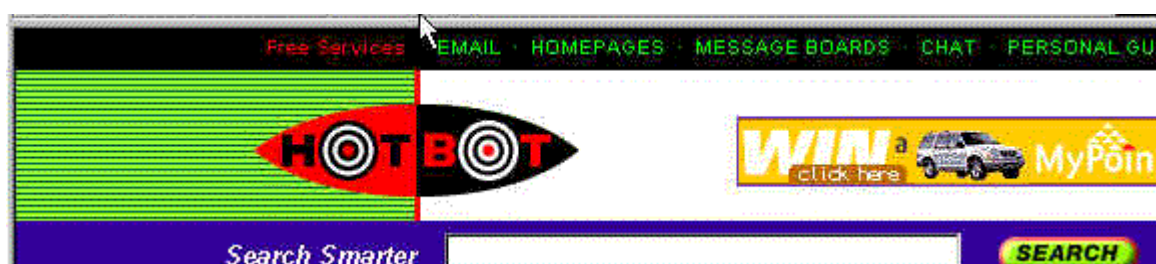
- "I like that you can ask a question."
- "How can I word this!?"

Results

- "I don't like how I don't have a bunch of options, I don't know how to add another search word to this search query."
- "I want to type in a new search, how do I do that?"
- "I don't see an advanced search, it may be here but I don't see it."
- "This shows me what I need to know!"

Advanced Boolean option

- "Honestly, I don't know what Boolean is, I'll try it anyway."
- "What is Boolean?"



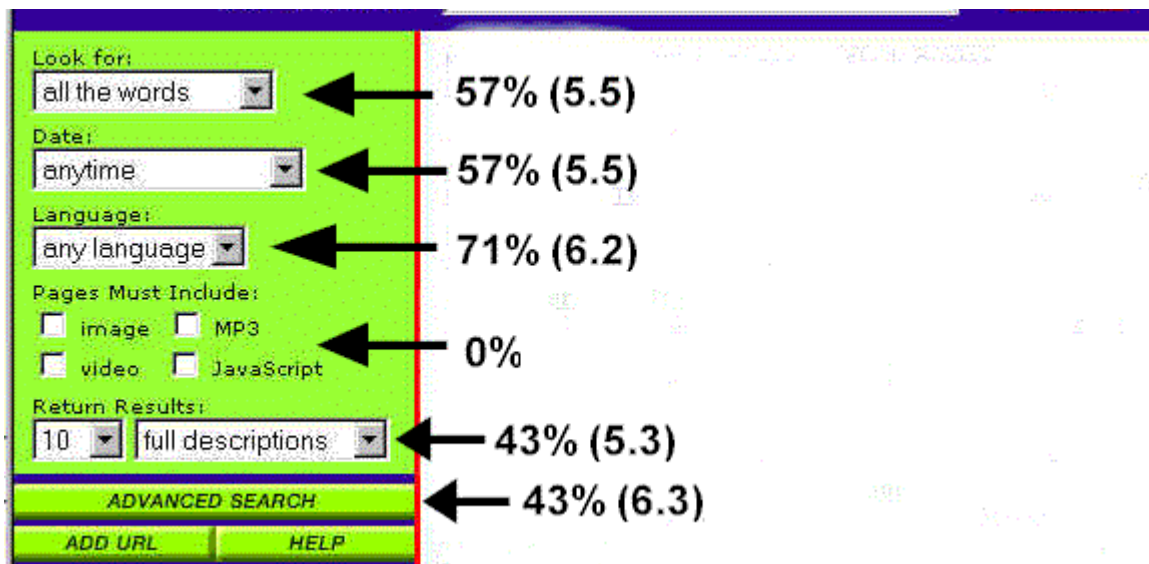


Figure 1. Percentage of participants who used the various search options with HotBotTM.

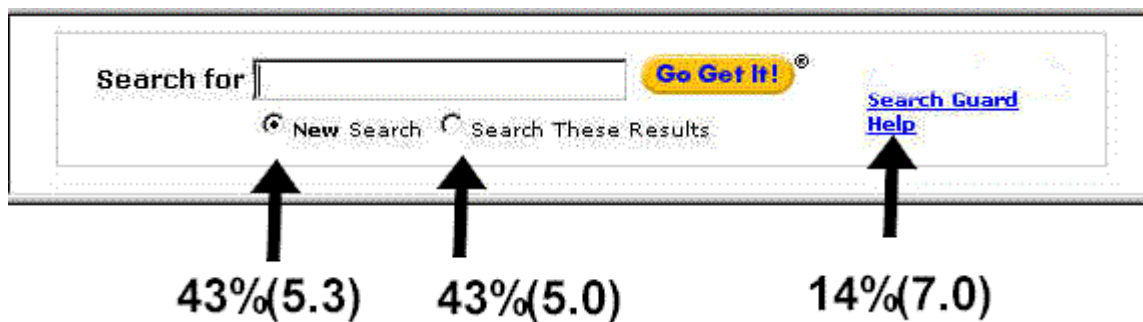


Figure 2. Percentage of participants (and usefulness ratings) who used the various search options with LycosTM.

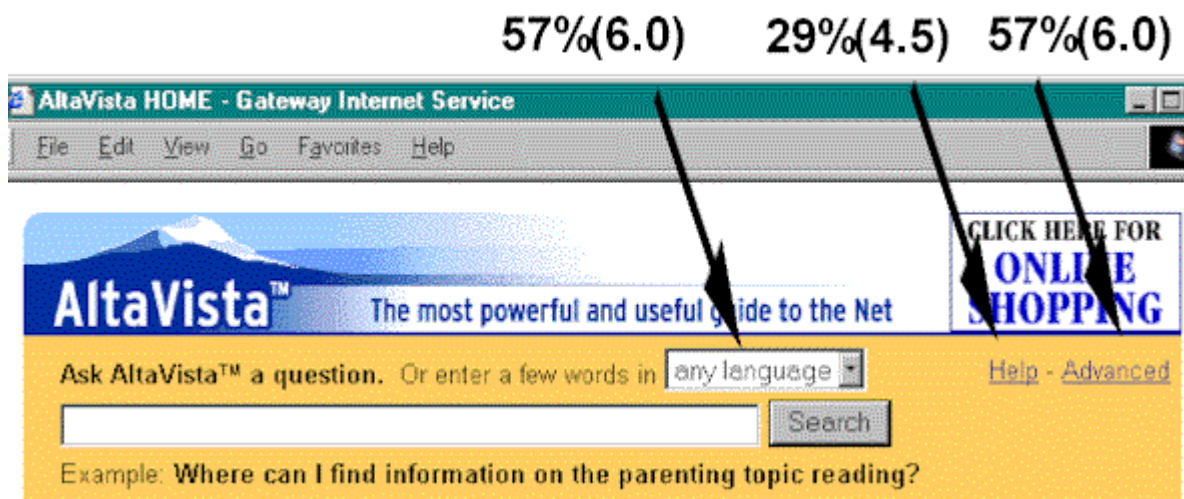


Figure 3. Percentage of participants (and usefulness ratings) who used the various search options with AltaVistaTM.

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