

A close-up, angled photograph of a computer keyboard. The keys are dark, and the text 'Searching...' is visible on a blue key, rendered in a white, glowing font. The background is blurred, showing other keys and the overall texture of the keyboard.

Searching...

Designing a Search People Can Really Use

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The challenge of finding the right information at the right time has grown with the Web. The information superhighway is larger and more crowded than ever, and individual sites are also larger and more complex. With this explosion in the sheer volume of pages, finding the information you need is harder than ever. Search engines have always held out the promise of solving this problem, but they are often a usability disaster area. Inaccurate results, cluttered search entries, and a narrow focus on technological capabilities are only a few of the issues that make search features so difficult to use.

Creating a good search engine for a Web site, documentation, or intranet starts with a good understanding of people and how they look for information. If you start with the users, choosing the appropriate technology, features, terminology, and content is easy. And the key to a good search experience is to keep it simple, letting users focus on the content rather than distracting them with clutter and too many choices.

The designers at Google understood this, and they created a tool that showed how easy and useful search can be—and changed browsing habits in the process. People who never used a search engine before now use Google (and its competitors) as their home page. I realized the depth of this change during a usability test of a small health information site—one that the usability team thought was too small to need a search function. But we heard “average suburbanites” asking over and over for a place to “just type [a query] in.”

With that mandate, we set out to answer the question, “What kind of search will meet their needs and provide a useful and usable feature?” From our research findings, we developed a set of design guidelines that can help you create a useful search on your own site or intranet.

Understanding Search

We started by looking at how search works. (See the sidebar for more information about our research process.) Most people working on search engines and information retrieval define search as a three-step process: (1) enter the query, (2) display results, and (3) select an item to read. Because they focus specifically on the technology, they see the search as complete when the user selects an item to read. What this model lacks is a good representation of how a user interacts with the system and makes the decisions that are part of each step. Users might try the query again or browse several items, looking for the one with the information they want.

In preparation for our research, we considered the kinds of information users need and the decisions they must make at each step of the process. (See Figure 1 for an illustration of the kinds of questions we heard users ask during a typical search—questions that illuminated problems with search features.) As we listened to users, the goal of the search interface design became clear: minimize the chances for confusion by keeping the interface as clear and uncluttered as possible. This rule holds true for every aspect of a user-search interface, from the first step to the last.

Some of the following guidelines rely on technical features of the search engine; some are good rules for user interface design. Together, they create a search that people can really use.

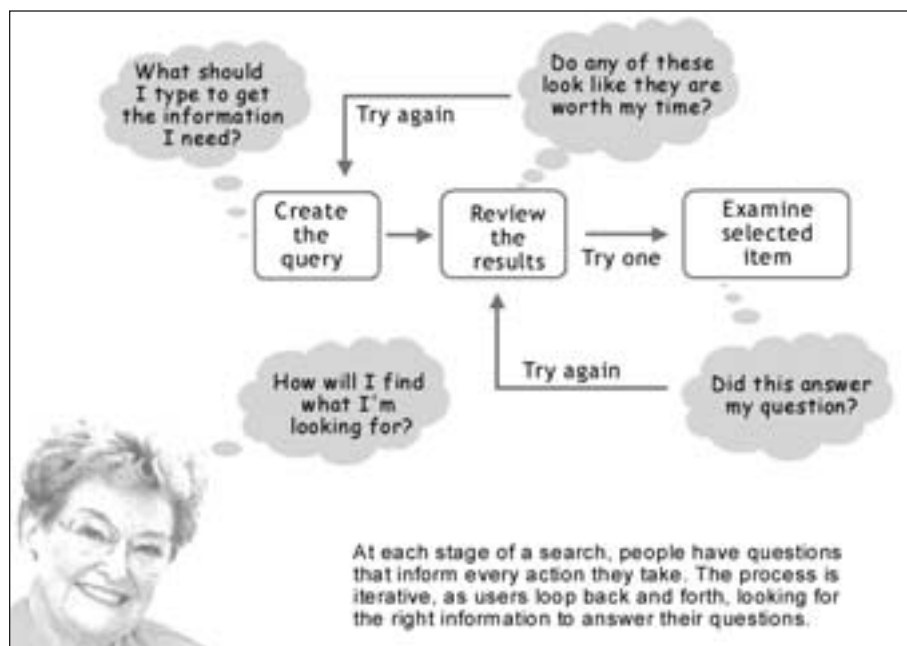
Make It Easy to Start Searching

Even users who liked to search a lot took a moment to peruse the returned list for a promising link. If they found one that had a good “scent of information,” they followed it, and only turned to the search feature when they lost the trail. This means that the search feature needs to be “right there”—when and where the user looks for it.

Make the Search Easy to Find

Even before anything is typed into the search box, two things must happen. The user has to decide that search is the right strategy at that moment. And, he or she has to find the search function. This

Figure 1. An example of a typical search process, with thought bubbles illustrating the user's considerations at various steps.



second requirement is much easier to accomplish if the search is right there, easily visible, and not lost in the clutter of other links, menus, content, ads, and decoration.

Put a search input box on the site's home page, rather than a link to a special “search screen.” This front-and-center placement lets users who can't find the right choices in the navigation or content start their search immediately from the home page. The search box should be in a consistent location on all the other pages, so that the user can find the search easily any time it is needed.

Don't Clutter the Search Entry

Don't put extra fields or options such as “search for all words or any words” around this first search box. Many people found it very difficult to decide what to type in the search box to begin the search. They said things like “I know there's a better word, but I just can't think of it right now” or “I don't know if this is what it wants...but I'll try it.” Users hope that the initial search will return the item they want, so any extra work is distracting at this point. Those options to add criteria or set the scope of the search belong later, as part of an option to refine the search.

Make the Search Smart

Do use all the features of the search engine to help users get the most out of the terms they enter. Remember how hard they found it to decide what to type? This is where the search engine can shine. Content experts or designers can work with the developers to implement features that use synonyms, correct misspellings, or suggest correctly spelled words, and generally do as much as possible to help the user accomplish a successful search.

Make the Results Meaningful

The more clearly you present the search results, the easier it is for users to find the information they need. In our research, we saw search results pages (even on popular Web sites) that buried their responses in a sea of fields, headings, warnings, and other noise.

Emphasize the Results List

One of the most amazing things we saw in the usability tests was how often users could not even find the list of items that the search returned. The items were often buried halfway down the page; displayed in small type or in colors that made them nearly invisible; or competed with ads, advanced search forms, or other links. Make the results list the most important thing on the page.

Put the Best Match First

Prioritize the results, with the best matches first. Every user in our study expected their results to be organized like this, and could not imagine any other order being useful to them. This may not be true for every site and every user, but it's a good place to start.

Present Results Lists Clearly and Simply

The best search results lists looked more like an annotated list of links than anything else. They had a useful headline and a short description that actually described the content of the page. They did *not* have a lot of extras: no listing of the date the page was posted down to the hundredth of a second, or the size of the page file in bytes, or even the URL of the page. Just a simple presentation of pages that might contain the information the user was looking for. (See Figure 2.)

Customize Metatags for the Search Interface

If you can, create a special title for each page on your site. This will let you optimize the title for use by both internal and external search engines. To create the description paragraph, most search engines will use the first text on the page. Ideally, however, you want to create a specific identifier that, in just a few words, will help users understand the content of the page.

Make It a Conversation

Interactivity is like a conversation, with actions by the user alternating with responses by the site. If you think about the search interface that way, you will avoid many of the problems that impede usability. Remember that users are looking for something, and it's your (and the search's) job to help them find it.

Don't Use Unnecessary Features

As we worked on the design of the search interface, we had to say "no" to a lot of special features to keep the interface simple. We hid most of the options, and used advanced features very sparingly. This approach did not make the people in charge of the search programming happy, until they realized that we

Figure 2. An example of a search results page with good item structure.



didn't want to ignore the best features of the search engine, but to let them work behind the scenes.

Save advanced features for content (and users) that need it. For example, the ability to sort by date of posting might be important for researchers looking for the most recent journal articles, but makes little sense in most Web sites. Or, on an online bookstore, most users will search by author or title, but some professionals will prefer an ISBN search. If you do use advanced search features, carefully test the interface to make sure that it makes sense to your users.

Make Recommendations

Any good librarian can make recommendations to point you in the right direction. One consistently successful feature of any search engine is recommended links or "best bets" for frequently searched terms. This feature combines the advantages of an index with the dynamic retrieval of a search engine. If you haven't created a standard list of words or phrases to use for keywords, descriptions, or other metatags, look into it. The authoring work of good metatags can change a seemingly ran-

dom search into one that seems to know "just what you wanted."

Keep Up with the User's Progress

When people browse (or search) a Web site, they are creating an experience that includes time. They start, explore, and (hopefully) find a destination. But to the Web site, each click is a whole new event. In other words, the person is on a journey, but the Web site has no sense of this context. This was a source of a lot of frustration for our users. Let's say that a user had browsed to a section on osteoporosis and decided to search for "treatment." A person would easily understand that they meant "treatment for osteoporosis," but the search engine brings back information about treatment for any condition.

One solution to this problem works well for large sites with clearly identified sections: limit all searches to the current section, and provide an easy way to back up and search the whole site. But however your site is structured, the key to making these decisions is understanding your users and the way—or many different ways—they are likely to use the site and the search feature. If you can antici-

pate the most obvious choices, you can help the Web site keep up its end of the conversation.

In our user research, we found two basic patterns for how people alternated search and browse techniques. These two patterns matched reports from others working in the field.

Pattern 1: Use search as a launching point to find information

Our participants used this technique when they were looking for new kinds of information or did not have a familiar site from which to begin their search.

1. Participants started from a general search engine, such as Google or MSN, where they searched on a broad term.
2. From the results list returned by the search engine, they created a "home base" that provided a starting point for browsing.
3. From the results list, participants picked one likely item to read; sometimes they followed links from that page to explore further.
4. After they felt they had completely mined that item for useful information, participants returned to home base to select another item. They would return to the home base throughout the session, whenever they reached a dead end in their browsing, creating a new search if necessary.

Pattern 2: Use search to find information within a large, familiar site

Our participants used this technique when they had a starting site that they knew well.

1. Participants started from the home page of a familiar site, where they used the site navigation to browse for information.
2. If they reached a dead end, participants turned to the site's internal search engine; because they knew the site, they were confident that the information was there...somewhere.
3. From the results list created by the internal search engine, participants

looked for articles that would take them to the right section of the site; the search helped them pinpoint the best part of the site.

4. Once in the right section, they resumed browsing, using links and the site navigation. If they did not find the information, they would try another site or try a general search, such as Google or MSN.

The people we observed were comfortable using either tactic as appropriate, using one pattern to look for information on a subject they knew well and the other for a new topic. They also switched tactics during a search, depending on how confident they felt that they were moving in the right direction. Knowing your users and how they seek information can help you design a smart search—one that's appropriate to all of their searching habits.

Keep It Simple

The key to a usable search is to keep it simple—for the users. Take the time to learn how visitors use your site, and create a design that gives them what they need without throwing lots of other features in their way.

Author's Note:

The usability and design work described here was a project by Cognetics Corporation for Eli Lilly Company in 2001–2002. This team was responsible for all usability testing, design guidelines, and the search user interface. The project was led by Whitney Quesenbery with Debbie Kaufman, Rachel Leventhal, Christy Mylks, and Chris Shields. The project manager for Lilly was Manfred Strobl.

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How We Developed and Tested Our Guidelines

We began by conducting usability tests, observing eighteen participants using their favorite sites, or ones we suggested to them, to find information. Our participants met the following criteria:

- used the Internet at least three times a week
- expressed little frustration at finding information online
- had used at least one popular search engine
- had an interest in specific health conditions (to help focus the sessions)

We asked them what online searches for health information they had recently performed, and then asked them to find this information on both general health sites and sites for specific conditions. We suggested sites that included a variety of search features so we could compare how successful they were with each of the designs.

To be sure that the guidelines worked, we used them to design the internal search engine for a new site that was tested at several points before launch. Three usability tests of the site design had five to six participants each. The first test used very rough on-screen wireframes, while the final test used a prototype of the near-final visual design. Search was simulated with static screens in the first test and was working in the final tests. Participants for these tests shared the following characteristics:

- interest in the health condition that was the subject of the site
- use of the Internet at least three times a week
- use of the Internet to research this condition

Across all of this research and usability testing, we worked with almost fifty participants, which gave us a lot of confidence in the guidelines (and provided a good model of iterative testing as part of the design process).