

The Internet - Your Research Library

THE INTERNET: RESEARCH LIBRARY AT YOUR COMPUTER FINGERTIPS

Many people who are now comfortable using the Internet remember very different experiences before the computer became a staple in the home. When doing research, it meant spending hours at the library. You could either find books or periodicals on the shelves or submit a special request to access special files and records stored under lock and key. If you needed to look up something that the library did not have on hand, then it was possible to ask the librarian to do some research for you. The library has been relying on computers for years before people had their own personal computers.

Things have sure changed! You can now do an astonishing amount of online research by using a variety of search techniques explained in this report. Not only is a world of information available online, you can access the same information the librarian used to obtain for you many years ago. You can read websites, log into library sites around the world, obtain research articles and reports, and generally obtain a wealth of information on every topic under the sun.

Research, by the way, is not something only students find useful. Everyone needs to do research at some point in his/her life even if he or she is not a student. Homeowners may need to research how to shop for insurance or new appliances. Senior citizens might need to research the newest Medicare regulations and determine how they will impact health coverage. Businesses do research to define competition, markets, and meet product and service research and development needs. Of course, the student is still out there writing research papers and theses or trying to find the best science project for a class project that will net him or her an "A+" as a grade.

This report will tell you how to access much of the various kinds of information available on the Internet. You will learn how to identify information resources and then search the Web in pursuit of information and statistics that meet your needs. By using a methodical approach for online research, you will be able to easily access the appropriate sources for research. In other words, with your computer and Internet access, you have a personal research library right in your home or office. You don't have to trudge down to the library except on rare occasions.

In the following sections, you will learn how to use your Internet as a research library. It will review how to access the Web, the kinds of research information available, and how to do an efficient search. It's a great world when you can sit in the comfort of your home and have a world of information at your computer fingertips!

DOT-WHAT?

There you sit with the keyboard under your fingers and a topic you want to research. You type in a keyword or question reflecting the information you need and thousands of results are listed. Studies have shown that many people never go more than three pages deep into the initial search results. Even if true, that does not automatically mean that what you see on your screen is what you *really* need in order to do the right research.

The vastness of the Internet can be overwhelming. But its very vastness is what makes it such a powerful research tool. You can literally browse the Web and find information posted from around the world. The information can be accessed directly by reading websites not requiring access permission or by joining organizations that maintain online records. Chances are that your local library is one of those sites. Your library card will often give you the right to log into the library's website and access online catalogues, articles, and research reports.

But here is the great news. If your local library doesn't have a site or doesn't have the information you need, you can access government information sites, university websites, articles written by credible individuals, or a number of other online sources. The power of the Internet to provide the research information you need is unlimited if you know how to go about finding the useful and reliable sources.

A report on using the Internet for research would not be complete without discussing the need to evaluate information as to its credibility. One of the drawbacks to the Internet, which can be overcome, is the fact that anyone can post information without regard as to whether it is true or not. So you want to find those sources you can rely on for accuracy and develop the skill to verify information as to its credibility.

The first thing to understand when doing Internet Research is recognizing the URL, which is the extension in the Internet address domain name. When you do an inquiry using a search engine, a variety of sites will be listed in the results pages. Looking at the extension can often help you zero in on the kinds of sites you wish to access.

- **.net** – indicates personal websites developed by individuals
- **.com** – indicates businesses selling goods or services
- **.org** – indicates a non-profit organization
- **.gov** – indicates a government site
- **.edu** – indicates an educational institution

In the beginning, anyone developing an Internet website probably had a .net extension, which led to the .com used for businesses. But it is clear that those simple days are over as the Internet has grown to become a

vast storehouse of information for individuals, businesses, agencies, institutions, governments, and charities. They all have something to tell you, and it is your job to narrow your search to those particular sites that will provide the information you want and need.

CHOOSING THE ENGINE TO DRIVE YOUR RESEARCH

The complexity of the Internet is no more apparent than in the variety of Internet search engines now available. The search engine is what goes out on the Web and looks for the sites that match your query. Each search engine uses keywords as the basis for doing a Web search. Some sites are geared more towards personal research, while others, like [Google Scholar](#), search for peer-reviewed scholarly materials.

SEARCH ENGINES THAT DRIVE YOUR QUERY

Following is a list of some of the more popular search engines available for doing online research.

- [About.com](#)
- [Ask Jeeves](#)
- [Dogpile](#)
- [Exalead](#)
- [Excite](#)
- [Google Scholar](#)
- [Google](#)
- [Hotbot](#)
- [Infomine](#)
- [Metacrawler](#)
- [Public Record Search System](#)
- [Scirus](#)
- [Yahoo](#)

In addition to these sites, there is an index site found at <http://lii.org/>, called the Librarians' Internet Index, that provides easy access to a number of websites sorted by categories such as business, government, media, and reference.

Clearly there are a number of search engines you can use. Some, such as Yahoo and Dogpile, are geared towards the everyday user. Others are designed to find scholarly, peer-reviewed websites that can be used in formal research documents and papers. Peer-reviewed information is that which has been reviewed by recognized experts in the field and approved by them as reliable and truthful.

TYPES OF RESOURCES FOUND ONLINE

If you think of the Internet as simply providing access to a lot of websites that may have been developed by individuals or businesses, then you are underestimating the true power of the Web as a research tool. The Internet is composed of a lot of websites, but those sites also give you access to the same kind of publications found during those treks to the library you used to make. The types of resources found online are extensive.

- Newspapers
- Magazines
- Internet websites selling products and services
- Scholarly journals
- Books
- Reports (research, government, educational)
- Articles
- Trade publications
- Statistical data
- News sites
- Reference materials
- Directories

With so much information available, how on earth do you know how to begin finding the information you need? You could spend hours and hours just browsing the Internet and not find what you are looking for even after all of that effort.

If you think about it, even when going to the library and looking up resources the traditional way through a card catalogue, you still needed a strategy and basic familiarity with the library setup. The research library called the Internet is no different. You need a basic search strategy and an understanding of what you are looking at when the information is provided so you'll know if you have found what you really wanted to find.

The reason people spend hours and hours searching the Internet is often because they don't have a plan.

DEVELOPING A SEARCH STRATEGY

As mentioned, there is a variety of information available on the Internet. In essence, people do research for two overriding reasons. First is the need for personal research that is useful for everyday activities. Second is the need to do scholarly research for school or work.

THE BASIC SEARCH

If you enjoy using the Internet, then you probably already know that it has information about every possible topic. You can research general information, products, or services. Your research might be directed towards finding out how to shop for a particular item or how to complete a form. You might want to read about the latest research on the best diet

products or want to know how your local Congressman is voting on certain topics. In other words, doing a basic search to find information for personal purposes is one of the primary uses of the Internet.

Doing a basic search on the Internet is not difficult, but it quickly becomes apparent that knowing how to refine results is important. You simply can't read thousands of pages of search results, but it may be that you have not managed to enter your query in a way that leads to those first three pages becoming a listing of the best sites for your purposes.

Narrowing your search begins by learning how to use search keywords that bring up the most helpful sites. There are four ways to search for relevant material.

- Search by subject
- Search by keyword(s)
- Boolean logic search
- Truncation search

Search by Subject

When you search by subject, you are actually searching a database of Web pages indexed under a particular topic. For example, the Librarians' Internet Index has a list of subjects such as Arts & Humanities or Media.

Assume you choose Arts & Humanities, which includes history, literature, music, and other related topics. When you select the subject heading, a variety of related topics are listed such as "aesthetics," "dance," or "philosophy." You can then choose the topic that looks most promising and will provide you with a list of relevant websites where you can begin to do your research. The indexed sites usually have a box where you can input keywords if you don't see the subject of interest on the main page of the search engine. There is also an advanced search option where you can enter additional phrases or words to narrow your search.

Search by Keyword

Keyword searching refers to inputting specific keywords into a query box on the opening screen. The keywords are used by the search engine to crawl the Web and find and rank websites of interest.

As the Internet has become more and more sophisticated, the process used by the search engines to rank websites has become more sophisticated also. This has led to the need to understand the way keywords influence your search results.

This is where developing a search strategy can be so helpful. The basic steps to developing a keyword search are the following.

1. Think of your question or even write it down
2. Identify the words or phrases that are essential to the information you are seeking

3. Identify related terms, including synonyms
4. Enter the keywords from the phrase or the synonyms into the query box on the search engine screen
5. Review the listing results, and if not satisfactory, then enter a different synonym or related phrase and try again

Google is one of the most popular search engines. It has a sophisticated query routine that uses Universal Search technology. When you do a query, the listing obtained includes web pages, images, news articles, blog postings, and so on. You can then use a link on the page to limit the search to only those kinds of results you want to access, such as Web or images.

When you are using the Internet to do research, you should input your keywords so that the most important words appear first. This will give you a better chance of getting a listing on which the first pages of results are related to your primary keyword.

ADVANCED SEARCH

For many people, doing the basic search using keywords or accessing index sites will produce the desired results. But there are times when your query must be refined in order to dig deeper into the Internet. The Boolean operators, truncation, and stemming can be used to locate the information you need.

Boolean Operator Search

The Boolean operators are those words that connect keywords, and they can have an impact on your results. The connecting words are "or," "and," and "not." How the operators are included in your query phrase determines whether you are expanding or limiting your search in order to refine the results.

In the Google search engine, the word "and" is assumed, but this is not true for all of the other search engines. When you use the actual or implied word "and" during a query, the results will be all records that include all of the keywords. So if you query "animals and plants" ("animals plants" in Google), you will only get results that include both animals and plants in the information provided. You will not get results that only contain the word "animals" or only contain the word "plants." The results must include both.

The Boolean operator "or" used in a query will list results that include any of the words in the query. So, "animals or plants" input as the query will produce all results that contain "animals," "plants," or "animals and plants." It is easy to see how the simple use of "and" or "or" can change your results.

The third Boolean operator is "not." When you use "not" in front of your keyword, the results will exclude all results containing that particular keyword(s).

Truncation Search

With a truncation search, you are allowed to use a special symbol at the end of the keyword to broaden the results. In the two most typical cases, a search engine may allow you to use (*) or (!) as the symbol. The wildcard symbol signals the search engine to look for all variants of the keyword entered.

For example, if you enter "book*" as your query, the results will include "book," "books," "bookkeeper," and so on.

It should be noted that Google does not allow the use of wildcard symbols. Google uses automatic stemming, which means that the search engine will look for all word variations. So if you enter "book," you will get results for "books" and "booked" also.

Each search engine has different rules for its query function. When you use a particular search engine for doing your research, the first thing you should do is to read the "help" function and become familiar with the techniques that will get you the right results.

Most search engines have an "advanced search" query function. The advanced search pages let you search the Internet beyond the basic query or keywords. When you enter keywords in the query box, another screen appears that lets you enter additional delimiting information. This may include language, file formats, numeric ranges, links, keyword options, URLs, and so on.

So, if you use the Internet for research, don't get discouraged if the first results are not adequate. Search engines are prepared to do complex searches based on narrowly restricted directions.

NEED A STATISTIC?

The Internet is a remarkable research library that can produce everything from easy reading to complex statistics. Finding statistics on the Internet is a task that a variety of people, not just college students, find themselves facing. Clubs, businesses, agencies, grant writers, students, researchers, and a number of other people may need to find statistics to support their activities, write research papers, lobby representatives, promote a cause, or include in a newsletter.

We live in a society that thrives on numbers, and that means there is plenty of statistical data available. The Internet contains a wealth of statistical data from around the world. Need a number? No problem!

- Regional, city, state statistics
- Federal statistics
- International statistics
- Research statistics published by trade or medical organizations

- Government debt and spending statistics

At the following site is a comprehensive list of federal, regional, city and other websites where you can access a massive amount of statistics.

http://library.csun.edu/Find_Resources/Government_Publications/stathtml.html

For statistics related to a particular research study or topic, you will have to do an Internet search using the strategies discussed earlier. Trade associations, universities and colleges, and medical research websites make great places to do statistical data research. Many of them require you to join as a registered member in order to access their databases.

GOOGLE SCHOLAR

Google Scholar is a fairly new creation that recognizes the fact that most search engine queries only access those results available to the general public. But there is a wealth of information available in places not available to the general public and that is highly specialized. For example, there are academic papers and professional organizations that frequently publish online papers, articles, and research studies. In addition, almost all colleges and universities have private sites that hold online versions of library holdings and serve as an online storage house for information.

Google Scholar accesses those sites that are not produced by the general search engine results listings. When you do a search, you are accessing articles, journals, and other scholarly publications. In some cases, what you will get when you click on the search result link is an abstract or a summary of the full document. You can then read the summary and decide if you want to pay an access or subscription fee.

Google Scholar also has a feature called 'cited by,' which appears as a link. When you click on the link, search results will include various articles, studies, reports, and documents that have referenced the original result you are viewing.

The Google Scholar search engine does not claim to produce comprehensive scholarly results. In fact, some university sites that describe ways to use the Internet for research caution readers that Google Scholar is a basic scholarly research search engine and is most appropriate for beginners in the research field. If you need more in-depth research results, the best step to take is to join library sites where search results indicate whether the right kinds of materials are available or not.

By the way, when doing scholarly research, you will often discover it's possible to get a list of search results and to access the first page of a site or you'll find a listing of available materials at a physical location. You then either pay the fee mentioned earlier or you will have to resort to the old-fashioned research method...a trek to the library that holds the publications you want to read.

You can get plenty of help and information about using Google Scholar at <http://scholar.google.com/intl/en/scholar/help.html>.

SEARCHING THE SEARCH ENGINES

It is important to point out that there are all kinds of search engines and that there are even search engines that search a number of search engines. Confused? It is really quite simple.

When you choose a search engine and use keywords to do a query, the results are those found by just that search engine. But at www.metacrawler.com, you are using a search engine that produces results from many different search engines. Metacrawler.com will give you results from Google, Yahoo, MSN, About, and Ask Jeeves to name a few. Your query produces what Metacrawler finds to be the best results from many different search engines.

EVALUATING RESULTS

If you have gotten the impression that the Internet is a real research library at your fingertips, you are right. If you have also gotten the impression that you can get an enormous amount of information on just about every topic, then you would be correct again.

But how do you know whether the information is reliable or not? That is a more difficult question. You simply cannot believe everything you read on the Internet just because it is on the Internet. Obviously, if you are simply accessing information concerning products or the weather, then it is much simpler to decide if you should trust the information. But if you are planning on using cited material in a research paper, you want to know that the citation is valid.

Following are some basic rules for deciding whether Internet resources are valid or not.

1. Evaluate the author's experience – the author's experience, education, and qualifications impact the validity of the information you are using
2. Determine what kind of site you are using by the URL – a government site with a .gov URL extension can be trusted and cited, whereas you will have to do a more thorough analysis of a .com or .net business site
3. Read to see if there is cited information – verify the sources of information by browsing references
4. Verify information is timely – check the date of online publication

5. Check for proof that the information is reliable – look for footnotes, quotes, references, bibliography, etc.
6. Compare information between sites looking for consistency

IN THE INTERNET “KNOW”

The Internet is a work in progress. It continues to evolve as new technology is introduced. Today, you can do extensive research on the Internet and access an enormous amount of information in a variety of formats. There are not just websites and directories to view; you can also watch video lectures, read user blogs and reviews, listen to audio clips, read maps and get directions, and even chat with fellow researchers. You can even use the Google Earth software found at <http://earth.google.com/> and look at satellite views, maps, and terrains around the planet.

When you use the Internet, you have access to the world’s largest research library.

- Conduct basic and advanced keyword searches
- Use online directories that direct you to relevant sites such as:
 - <http://dir.yahoo.com/>
 - <http://www.about.com/>
 - www.google.com/dirhp
 - <http://lii.org/>
- Search for financial information
- Complete scholarly research
- Access one of the many dictionaries or thesauruses
- Read government sites and find statistical data
- Research weather forecasts
- Do legal research

This is not a comprehensive list by any means, but it clearly shows the versatility of the Internet for research purposes. Any question you have or any research need that arises can often be answered or met on the Internet. The Internet is truly a research library right at your computer fingertips!