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Researching
SOCIOLOGY
on the Internet

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Researching Sociology On The Internet

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Preface

This guide is written for students who are generally familiar with the World Wide Web and the Internet, but do not have much experience using the web to study sociology. Part I of the guide provides you with the answers to some simple questions about the Internet and the World Wide Web. Basic tasks such as communicating, searching, and learning are covered in some detail with a focus on how to use the Internet to place the study of sociology into a broader context. Addresses for the web sites mentioned in the text are included at the end of each section. Part II focuses in more detail on parts of the World Wide Web that cover sociology. Research methods, socialization, culture, social groups, families, deviance, inequality, institutions, social dynamics and social change are all discussed. Within each of these fields, students are introduced to specific web sites as starting points for Internet research. In addition, there are sections on applied sociology and careers in sociology.

If you are a student, this guide can help you to prepare for class and complete course assignments. The Internet is not a replacement for using the resources in your school library, but it can help you to find those resources more effectively. It can also help you find material that is not locally available. You can use the Internet to keep up to date on current news reports that cover areas of the world or topics that are covered in your textbook or in class lectures. Accessing this kind of information can help you to be a better student in several ways. You will be able to ask better questions in class and you will remember things better if you link what you are learning in the classroom to what is going on in the world around you. Using the Internet to supplement your study of sociology can be a successful active learning strategy. You will also develop better skills as a critical thinker, because you will find many competing viewpoints on the web. Evaluating these sites will strengthen your ability to interpret arguments and compare contrasting views.

If you are a sociology instructor, you may be looking for ways to incorporate this guide into your course. There are at least eight ways you can use the information in this guide to enhance classroom instruction.

1. **You can provide students with an assigned web site and related critical thinking questions.** This is a good way for students to begin to become comfortable with the web. It can also be a way to more actively engage students in the learning process.
2. **Read a specific document on the web and evaluate it in light of what has been taught in the classroom.** This activity asks students to apply critical judgment to the materials they find on the web. Since you will be providing the web address, it requires little of the student in the way of web-expertise, but helps them develop the evaluation skills that are necessary for becoming a critical thinker.

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PART I. GUIDE TO USING THE INTERNET

Introduction

You probably already use the Internet. It is mentioned on the news and in newspapers and magazines every day. It is either the greatest boon to modern civilization or the greatest curse. As a student of sociology, you probably have an opinion on this debate. This guide does not attempt to resolve that issue, but it does provide you with basic information concerning what is out there on the Internet and how you find it. Once you know how to locate information, you will be able to find out more about any of the topics discussed here. If you know little about the Internet, this guide is your first step. If you are already an experienced net surfer, this guide may give you some new ideas about how to use the web to enhance your education. The Internet does not render traditional methods of communication and education obsolete; instead it supplements and amplifies them. In order to use the net you will need to develop new skills and refine ones that you already have.

The **Internet** (or just "net") is a "network of networks." It is a standard method by which computers can communicate with one another regardless of whether they are large or small computers and regardless of the operating system they use. It is a kind of universal language for computers. At first the primary use of the net was for electronic mail, transferring files, and operating computers remotely. More recently, additional functions have been added to make it easier to exchange information and ideas over the net. The most important of these is a way of transferring pages of information containing text, multimedia, and links to other pages. These **hypertext** pages are retrieved and displayed by programs called "**browsers**." Collectively, these pages make up the part of the Internet called the "**World Wide Web**" (or just "web"). Although the **Net** refers to the interconnected networks and the **Web** refers to the interlinked hypertext pages, most people do not distinguish between the two consistently. In this guide I will use the terms interchangeably.

A reasonable way of visualizing the Internet is to think of a series of nodes (computers or whole computer networks) that are connected to one another. Each node is connected to only a few other nodes so getting information from one node to another one means that the information travels through many other nodes before reaching its destination. This roundabout approach makes it simpler to add a new node since only a few connections need to be added and it also means that information has many different paths that it could take in getting from one node to another. If one path is broken, the information is just rerouted along another set of paths. The network does not care what kind of information is being moved. It could be an email file, a picture, a sound file, or a video.

The guide is divided into two sections. The first part answers "Frequently Asked Questions" (FAQs) about the Internet and the World Wide Web and describes how you can use the net as a student. The addresses of the web sites (the Universal Resource Locators or URLs) are listed at the end of each section. The second part of the guide focuses specifically on how to use the net to enhance your understanding of sociology and provides useful information for researching specific topics within content areas such as research methods, socialization, culture, social groups, social control, social inequality, institutions, social dynamics and social change.

Frequently Asked Questions

Where did the Internet come from? The history of the Internet and the World Wide Web is interesting because it developed from a few simple requirements for a robust network. It grew amazingly fast into a global information network linking millions of people and millions of pages together.

What do I need to get on the Net? This short section gives you some pointers to getting started on the web. Since there are differences in computers, software, and methods of connecting to the Net, it may not meet your exact needs, but it should help you to ask knowledgeable questions.

What kinds of information will I find on the Web? This section talks about the different kinds of files on the Web. Some can be viewed directly with your browser software (probably Netscape or Internet Explorer), but others require special programs. The file types and the special programs you may need are summarized here.

Is it safe? News media enjoy running stories on the dangers of the Net. This section provides a brief introduction to potential hazards on the Net including viruses, cookies, java programs, and communicating with strangers.

Is the information on the Net reliable? The simple answer is, "Some of it." This chapter gives you some basic tools to help you develop critical skills. Just as you cannot believe everything people tell you and you cannot believe everything you read in the paper, you cannot believe everything you read or see on the Web.

Where should I start? When you connect to the Net and start your browser, a start page is loaded. This section talks about start pages and **portals**. If you just want to explore the Web, you might try one of the Web Rings that links sites related to sociology or the Virtual Library of Sociology.

Where Did the Internet Come From?

The Internet was born thirty years ago in the midst of the Cold War. With the increasing threat of nuclear destruction, the U.S. military wanted to be able to operate computers remotely and wanted to be able to communicate over its computer network even if large parts of it were destroyed. This meant that the network had to be decentralized and it had to be possible to route information dynamically. Out of these requirements ARPANET began in 1969 with four nodes. It grew slowly at first. Nodes were added and at each node additional computers (hosts) were connected. By 1984 there were 1,000 hosts by 1989 there were 100,000 and by 1992 there were 1,000,000. Today there are about 72 million hosts.

One of the important reasons for connecting computers was to allow people to access them remotely. Powerful computers were expensive and it was easier and less expensive to let researchers run programs on those computers remotely. Communication between people at the various nodes to ask for assistance or schedule time on a computer took the form of electronic messages (which were much cheaper than phone calls). As the net grew and the cost of computers dropped, the ability to run programs remotely became less important than the ability to send and receive electronic messages. **Email** quickly became one of the principal uses of the developing networks. As useful as electronic messages are, they are not very flexible if you want to circulate information among a group of people and allow them to discuss a topic. Two approaches to this problem were developed that expanded on the basic idea of email. The first was the **mailing list**, a computer program that would forward the same message to a list of addresses. If you subscribed to the list, you would receive any message that was sent to the list. The lists were not limited to serious topics. One of the first ones was SF-LOVERS for fans of science fiction. The second innovation was **electronic bulletin boards**. You sent your email message to the bulletin board where it remained for a period of time. Anyone who saw it could reply to you directly or could post their own message. The first bulletin board system was USENET, which began operating in 1979. There are separate bulletin boards (called newsgroups) for different topics. True to the decentralized concept of the Internet the USENET bulletin boards are located on many different computers, which communicate with one another to keep their copies of the messages up to date.

Electronic mail and bulletin boards have proven valuable and have spread beyond the Internet. Bulletin board systems based on home computers with modems offered email to local subscribers and in 1983 many of these were linked together into a loose network called FidoNet. FidoNet was based entirely on communication over phone lines. Commercial information systems such as CompuServe, America Online and Prodigy also offered email. Within the last few years virtually all of them have connected to the Internet so that the number of different (and incompatible) email systems is shrinking.

As the net grew, ways of using it expanded as well. One advantage that centralized commercial systems such as America Online had was the ability to allow people to communicate in real time by typing messages that were instantly distributed to others who were logged in. They could also play interactive games against one another in real time. A simple messaging system for sending a message to a single location was present in early versions of the Internet, but allowing several people to send messages at the same time was not really possible until the development of **Internet Relay Chat** in 1988.

Much of the software for the net was developed by people in their spare time and was made freely available for use by anyone else. The problem on the Internet was that you could only get a file if you knew exactly where it was. In 1990 a program called **Archie** was released that allowed people to search archives of hundreds of computers to find a particular program file.

The watershed year for the Internet as we know it today was 1991. A strong method of encrypting information was released (Pretty Good Privacy) which is closely related to the methods used today to encrypt commercial transactions. Encryption scrambles the text of the message so that, even if it is intercepted, it cannot be read. A new way of distributing textual information was introduced by researchers at the University of Minnesota called **Gopher**. Gopher exploded on the net as people began to make various kinds of information available. Since it distributed text only, it was well suited to slow computers and slow Internet connections. Not so well suited at the time was a more complex system that allowed text and graphics files to be distributed and combined into a single page. Developed in Switzerland, it involved a way of formatting a document to contain text, graphics, and most importantly links to other documents. The links could be to documents or images located anywhere on the Internet. Because of this feature, the system was called the World-Wide Web (WWW). The only problem was that many people in 1991 still accessed the Internet via terminals that could not display graphics. Gopher grew rapidly for several years because it was designed around the limitations of existing equipment.

In 1992, the number of hosts on the Internet reached 1,000,000. The following year a graphical browser for the Internet was developed at the University of Illinois called **Mosaic**. The web caught up with and surpassed Gopher in that year. Universities and government agencies moved rapidly to the web. The US White House and the United Nations came online with the US Senate and House following in 1994. That same year the first shopping malls and cyberbanks began to appear and Pizza Hut sold its first online pizza. To advertise their green card lottery services an Arizona law firm sent an email advertisement to thousands of people thereby introducing "**spam**" (the email equivalent of junk mail) to the net.

Since 1994, the number of web sites has grown dramatically. Several of the people who developed the Mosaic web browser left the University of Illinois to found Netscape, while Microsoft started shipping a web browser

with its Windows 95 operating system. Competition between Microsoft and Netscape resulted in browsers absorbing the functions of many separate programs (for example email and newsreaders). Limitations in the original web standards were removed by adding capabilities for multimedia (streaming audio and video, virtual reality modeling) and interactivity (Java and Shockwave programming). Although the capacity of the net has increased steadily, the growth in the number of users and the **bandwidth** (number of bits moved per second) for each user has grown at least as fast.

The Internet is big, but because it is decentralized, we can only make educated guesses about how big. The number of hosts on the net was about 72 million by early 2000. Estimates of how many people are online around the world vary from about 150 to 200 million. The total number of pages on the web has been estimated recently to be about one billion.

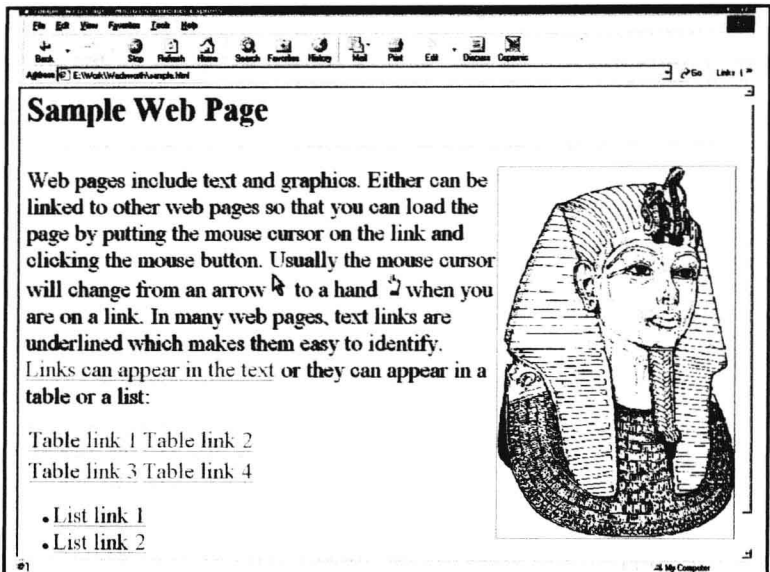
What Do I Need to Get on the Net?

You will need four things to begin using the net: a computer (or access to one at your university computer center), a connection to a network, a browser, and a computer account (for email).

You can access the net with almost any **computer** made today. The net is accessible via IBM/Microsoft machines, Apple Macintosh computers, unix workstations, and large mainframe systems. If you have your own computer, you are set. If you are a student at a university, there are probably computer labs where you can use a computer. Increasingly public libraries are also providing access to the net, so you might be able to access the net there.

Secondly, you need a **connection** to a network that is connected to the net. There are several kinds of connections and new options are being added. Many computers come with a modem that allows them to access a network over a telephone line. Modem connections have the advantage that you can use them to connect to the net wherever there is a phone jack. They have the disadvantage that they are the slowest way to connect. Your university probably provides much faster ethernet connections in computer labs, offices, some classrooms, and even dormitories. Ethernet connections are significantly faster and do not use your telephone line. Other options such as cable modems, satellite systems, and digital subscriber lines are available in parts of the country.

Thirdly, you may need a **browser**. A browser is a software application that allows you to retrieve and display web pages. Most computers come with them already installed. The two dominant programs are Netscape Communicator¹ by Netscape and Internet Explorer² by Microsoft. Both browsers have the ability to access email and news groups, although there are dedicated programs for those functions as well that you may find more useful. When you start the browser, it will look much like a word processing program. You will see formatted text and graphics and you will be able to scroll up and down the page. The thing to remember is that the documents



you view in the browser are not on your computer but somewhere else. On most web pages, underlined text identifies links to other documents. If you click your mouse on some underlined text, your browser will load the page defined by the link. Web pages use a cryptic addressing system called a **universal resource locator (URL)** that specifies a particular domain address and a particular file at that domain. Because the addresses are cumbersome to type (and the browser is very picky about spelling), you should **bookmark** pages you want to return to (check your browser's help files for instructions on how to bookmark a site).

You may discover that you need some additional programs to view some pages. These programs are referred to as **plug-ins** because they work within your browser. For example the Adobe Acrobat® plug-in allows you to view pages that have been specially formatted. Several plug-ins give you the ability to play video and sound files while others let you maneuver within a three dimensional virtual space (VRML). Any of these programs can be downloaded once you are on the net. Sites that have content requiring these programs usually provide a link that you can use to download and install the software.

Finally, you need a computer **account**. Your university computer center probably has information about how to get a student account. You can also get an account with an Internet Service Provider (ISP). The account allows you to log on to the network and provides storage space for email messages that people send you until you retrieve or discard them. Internet providers

include national firms such as America Online and AT&T as well as local firms that serve a single region.

What Types of Media Are on the Web?

As originally conceived, web documents consisted of formatted text and images. Soon other kinds of media were added to web pages. First sound and pre-formatted documents, then animations and virtual spaces, and finally video were added. Unfortunately web browsers could not handle these content types directly so **plug-in** programs that could handle the new content types either within the browser window or in a separate window were developed. As new content types were introduced, so too were new formats so that more than one plug-in program is needed for each content type. A new series of plug-ins tries to deal with multiple content types in an effort to reduce the confusion somewhat. Currently on the web you will find all of the following types of media:

HTML Text. These are the standard files used on web sites. They are formatted using "Hyper-Text Markup Language" (HTML) which means that the file contains text and codes (markup language) to tell your web browser how to format the text and where to set up links to other documents.

Pre-Formatted Text. In contrast to html documents, pre-formatted documents are not interpreted by the web browser, but are displayed exactly as they are presented without markup codes. In general, browsers will not try to format documents that have a file extension of ".txt" which is the most common way of identifying ASCII documents. These documents are displayed in your browser using a fixed pitch font (such as Courier) whereas HTML documents are generally displayed using a variable pitch font (such as Times Roman). ASCII is mostly used for older files that have not been converted to HTML and for programs (where indenting and line breaks help to make the program more legible).

HTML documents do not give you complete control over how your document will look on some else's computer. HTML does not support some common formatting features (notably tabs). Browsers do not always wrap text around images in the same way and the sizing of table rows and columns can differ for different browsers and for different versions of a particular browser. For these reasons you will find some documents on the web that are not written in HTML. These pre-formatted documents use other ways of composing a document. Currently the most common alternate format is Adobe® Acrobat. Acrobat allows you to take a document from a word processing, spreadsheet, or presentation program and preserve all of the original formatting. The only drawback is that the new file cannot be interpreted directly by your browser. Adobe provides Acrobat Reader³, a free program that can read Acrobat files. The reader will display the Acrobat file in the browser window.

Images. Image files come in several varieties and most web browsers support them without needing any plug-in programs. The most common types on the web include GIF, JPG, and TIFF. Each has some differences that make them more appropriate in certain circumstances. GIF and TIFF files preserve every pixel in the original file (so they are referred to as "lossless"). In most cases they will require larger files than JPG, which preserves most of the information (so they are referred to as "lossy"). Typically you will not notice the difference between the two, except that the JPG image will load much faster. TIFF files are usually used to provide high-resolution images that can be used by news media or for presentations.

Sound. There are many types of audio files on the web. Standard audio files contain a digital encoding of sound. They can be very large, on the order of 20K to 60K per second. For that reason these formats are usually used to record short theme songs, snappy quotations, and sound effects. You will run across three types on the web, each associated with a different computer type: AU (UNIX), AIFF (Macintosh), and WAV (Windows). Increasingly, the web seems to be standardizing on WAV files.

MIDI files store the instructions for creating a melody or tune. MIDI files are much smaller, but require a sound card in your computer that uses the instructions to create the sounds, much like a player piano plays songs by following coded instructions on a roll of paper. The drawback of MIDI files is that they will sound somewhat different depending on the software and hardware that is used to play them.

Recently, a method has been developed of compressing sound files by discarding some of the details so that the files are smaller and the download times are shorter. These compressed audio files are called MP3 and are used extensively to record music. There are whole web sites devoted to programs that are used to play these files and to listings of music that has been encoded. Microsoft's [Windows Media Player](#)⁴ and Real Network's [RealJukebox](#)⁵ can play these files.

The sound files just mentioned all have to be downloaded to your computer's hard drive before they can be played. This means that they cannot be used for live sound such as that of a radio broadcast. Streaming audio files, in contrast, begin playing as soon as part of the file has arrived. This feature makes it possible to send live broadcasts over the web, and allows you to listen to longer programs. The dominant format for streaming audio is RealAudio. It is supported by the [RealPlayer](#)⁶ by Real Networks. The Windows Media Player by Microsoft also supports the RealAudio format.

Virtual Spaces. Virtual spaces create a world that you can explore by using a set of controls on the bottom and sides of your browser window. You can view the world from any angle, up close or far away. They are still in the formative stages. They usually involve large files and your movement through the world may not be smooth unless the world is simple and your computer has lots of memory and a fast processor. You will need a plug-in

program to experience virtual spaces and there are several for each of the major browsers. A number of virtual worlds that recreate archaeological sites and great architectural structures are available on the web.

Video. As with sound, the first file formats for video compress the images into a single, very large file. There are three major formats: MOV (Apple QuickTime[®]), AVI (Microsoft Audio Visual), and MPEG. The biggest drawback to these formats is that you have to wait for the entire file to download so live broadcasts are not feasible and the amount of video you can download is limited by your available hard disk space.

Streaming video works like streaming audio. You begin watching the video while it is downloading. The entire file is not stored on your computer, so you are not limited by your available hard disk space. The major plug-ins for viewing video are RealPlayer by RealNetworks and the Windows Media Player by Microsoft.

Program Files. These are binary files containing machine language instructions designed to work on your computer. Web browsers will usually ask if you want to run the program directly or save it on your hard drive. Usually you will save the program and then run it to install the program. Download these programs only from reliable sources to avoid the possibility of getting one that contains a virus.

Is It Safe?

As long as you take sensible precautions, the net is safe. Growing up in contemporary society, we are accustomed to interacting with strangers in public settings. Since we access the net from the privacy of our homes or offices, it is easy to forget that the net is a public place. Information on the net does not travel directly from your computer to the computer you are contacting. It travels a circuitous route through many other computers. Each step along the route involves making a copy of your information, sending it to the next computer along the way, and then deleting the copy. Unless the information is encrypted, someone else can view it. Online vendors now generally encrypt all sensitive information (such as name, address, credit card number) and web browsers use an icon (usually some kind of padlock) to let you know that the information is being encrypted. On the other hand, it is rare for email messages to be encrypted. Unless you are encrypting your message, don't include information that you don't want others to see.

Another security concern involves information that you provide to a company or vendor when you register at their web site, which means providing your name, email address, and possibly other information. Usually registration involves storing some information on your computer (a file called a cookie). Web pages use cookies to recognize when you return to their site. This allows them to customize their pages according to your interests (and to try to pick advertising that you would be more likely to find interesting). Cookie files are also needed when you customize a web page (for example,

you set up a special version of Yahoo! called My Yahoo!). When you are at a shopping site, cookies are used to keep track of your selections until you complete your purchase. You can set your browser to notify you when a web page tries to store information on your computer, and you can set your browser to refuse all cookie files.

Your name and email address are probably already available on the web unless you have had your account for a short time. Your university may include some information about you in a publicly accessible directory unless you specifically request that they not do so. You should be very careful with your social security number or credit card numbers. Before providing any information, make sure that the web site indicates how it will use the information. There are currently no U.S. laws protecting your privacy when you provide information to a web site. Legislation may be proposed in the future and the European Union has put strong restrictions in place that may eventually become a model for the U.S.

A third area of concern involves computer viruses and other attacks on your computer as a result of your connection to the net. Again, taking reasonable precautions will protect you or will minimize the damage if your computer is infected. The most important precaution (and the one you are most likely to ignore) is to keep up-to-date backup copies of important files on your computers. You do not need to backup software programs since you have the original distribution disks, but you should backup text, graphics, and spreadsheet files that you have created. Computers are very reliable, but they all fail eventually. If you lose valuable information or work, it will be no consolation to know that a hard disk crash rather than a virus caused it.

A computer virus is a small program that copies itself to the hard disk on your computer (and often to any floppy disk inserted in the computer). It typically hides itself by attaching to programs already present on your hard drive, particularly the system files that load whenever you turn your computer on. Some viruses simply put silly messages on your screen, others slow your computer down, and others deliberately damage or erase files. Software that detects viruses is readily available and should help you to avoid infection. Since a virus is a program, you generally cannot be infected from a text, graphic, or spreadsheet file. As computer software has become more complex, it has become possible to embed macro commands (small simple programs) into these files. Software manufacturers have taken steps to prevent these macro commands from being used to insert viruses, but no one can guarantee the continued effectiveness of these measures.

Your computer can be a target for hackers if you are linked through an ethernet connection or a cable modem and you leave your computer turned on. Make certain that you have set the security features in your operating system to restrict access to your disk drives. If you want others to be able to access files on your computer (such as your web pages), put them in a subdirectory and restrict access to that subdirectory.

You will meet people on the net via email, electronic conferences, chat rooms, via web pages, or through personal ads that people place on the net (just like those found in newspapers). Remember that you do not have many of the cues that you subconsciously use to size people up. They control every statement that they make to you ("slips of the tongue" are much less likely) and they control how much or little you know about them (via their web page or the fact that you do not have acquaintances in common). They even control every aspect of their appearance since they can send you a copy of anyone's picture. You cannot be overly cautious in these situations and no one who is being honest with you would expect you to do otherwise. Be careful about divulging personal information about yourself. If you do decide to meet someone in person that you have met on the net, take a good friend along and meet only during the day in a busy, public setting.

Is the Information on the Net Reliable?

The quality of the information on the net varies just as it does everywhere else. The constitutional protections of freedom of the press and freedom of speech are not restricted to truthful or accurate statements. You should assume that anyone can say or write anything on the web. Offensive and sexually explicit material does exist on the net. If you wish to block your access to such material, programs exist that will prevent your browser from retrieving pages from known sources of such material. Since we do not all agree on what is offensive, these programs may require some fine-tuning on your part.

While we each recognize pretty quickly what offends us, we do not as readily recognize misleading or false information. In order to use the net effectively you must develop your critical facilities so that you can distinguish reliable from misleading information. The late Carl Sagan referred to this skill as "The Fine Art of Baloney Detection." It takes practice and as you might guess there are web pages that will help you learn about how to evaluate web pages (for example [Internet Detective](#)⁸). Other good pages are [Critical Thinking Resources](#)⁹ at Longview Community College and [A Student's Guide to WWW Research: Web Searching, Web Page Evaluation, and Research Strategies](#)¹⁰ by Craig Branham.

Four characteristics are usually cited as important in evaluating print journalism. They apply equally well to web pages. They include the **source** of the information, the **objectivity** of the author, the **logic** of the argument, and **independent sources** of support for the argument or claim.

Welcome to Internet Detective



an interactive tutorial
on evaluating the quality of Internet

The **source** of the information includes the author and the publisher of the web page or pages. In some cases they will be the same person. The fact that someone is an expert on a particular topic does not mean they are always correct, but it does indicate that they have spent considerable time studying and researching the topic. They are likely to have considered many alternative explanations and are likely to make appropriate judgments regarding relevant versus irrelevant facts. Authority is limited, however. A world-recognized authority on particle physics is not necessarily an authority on anything else. In print journalism, an important role of the publisher is to provide fact-checking and independent verification of the claims made by authors. In professional journals, other authorities review articles before they are published. However, on the net, it is not always easy to determine if there has been any independent evaluation of information. News organizations who depend on their reputations for accurate reporting are likely to have conducted some level of review on the material distributed on their web sites and some technical journals use peer reviews for articles published on the web. In most other cases, the fact that an organization hosts a web page should not be considered as evidence that the material on the page has been reviewed or verified by anyone. In some cases it may be difficult to determine the author of a web page. If there is no information about the author, you should be more skeptical of the accuracy of the material.

Another clue to the reliability of information is the **objectivity** of the author. There are very few topics about which everyone in the world agrees. Look to see if the author is attempting to be objective and present both sides of the issue or is advocating one side. Some web pages are clearly intended

to advocate a particular viewpoint with no effort to consider other sides of an issue. Such pages can be a source of information for the point of view presented, but should not be used as a source of information for other points of view (find other web pages advocating those points of view). Watch out for a tendency in advocacy pages to dismiss counter arguments or to demean people who do not hold the view being presented.

You should also examine the **logic** of the arguments presented by the author. Ask yourself if the argument makes sense. Can you see simple alternative explanations that have been ignored or overlooked? Make certain that the arguments are complete enough for you to see how each step leads to the next one. Watch out for over-generalization where the author convinces you that a claim holds in one case, therefore it must be universally true. Also watch out for "burden of proof" tricks where the author tries to shift the burden of proof to the other side (e.g. "although many claims of visitation by extraterrestrials have been proven false, how could they all be false?"). Other tricks involve dismissing opposing viewpoints by questioning their proponents' motives (*ad hominem* attacks) or criticizing an extreme version of an opposing viewpoint that no one would support (straw man arguments).

Statistics also provide opportunities to mislead. There are several common techniques for misdirection. One involves using raw counts rather than rates. For example, "evidence of our more violent society is provided by the fact that the number of homicides increased 50% from 1970 to 1990." Of course population increased as well. There was an increase in homicide rates, but it was about 20% not 50%. A second trick involves ignoring control groups, "in a large sample, 18% of the people who ate olestra (a fat substitute) complained of some form of stomach distress the following day." True, but almost 20% of the control group who did not eat olestra also complained of stomach distress. Finally, watch out for confusion of correlation with causation. Just because two variables increase over time, it does not follow that one causes the other. They could both be caused by a third factor that was not measured in the study. For example population growth ("The need for gun control is demonstrated by the fact that the number of homicides committed in a city is directly correlated with the number of guns sold.").

Finally, you should consider **independent sources** of information that support or fail to support the claims made on the page. Are you aware of opposing views or information that are not mentioned on the web page? If so, you should be skeptical of the author's authority and doubt his or her objectivity. Check to see if the author provides references for factual claims or arguments. Search the web to look for other web pages that would support or contradict the claims made by the author. You should consider the evaluation of information to be a process not an event. As you find out more and more about a topic, use your new information to reevaluate materials you encountered earlier.