APPENDIX I

Writing Research Papers

<u>Doing Library Research</u>

All college libraries and most public libraries have a computerized system for accessing

information and locating books and periodicals. Many libraries offer printed guides for using

their system, and some provide a comprehensive step-by-step manual for doing research.

The following **flowchart** prioritizes the specific steps for planning and executing a research

project. Consider checking off each step as you complete it.

<u>LIBRARY RESEARCH FLOWCHART</u>

Step 1:   <u>TOPIC SELECTION</u>
Whenever possible choose a topic that interests you and about which you want to learn more.

Step 2:   <u>RESEARCH BACKGROUND INFORMATION IN GENERAL AND SPECIALIZED ENCYLOPEDIAS</u>
Use these secondary sources or second-hand examinations of the subject.

Step 3:   <u>CONSULT DICTIONARIES TO DEFINE AND CLARIFY TERMS AND VOCABULARY.</u>

You must understand the terminology.

Step 4: **REFER TO BIOGRAPHIES, LITERARY SOURCES, AND INDEXES**

The more you learn about your topic, especially if you're focusing on the contributions of a particular person or persons, the more impressive your research paper will be.

Step 5: **EXAMINE ENCYLCOPEDIA BIBLIOGRAPHY FOR ADDITIONAL INFORMATION RESOURCES**

You can enhance your project by using primary and secondary sources—books and periodicals.

Step 6: **LOCATE AND REVIEW RELEVANT RESEARCH SOURCES OTHER THAN REFERENCE BOOKS**

You can readily access important information using electronic bibliographies and doing an online computer search to find information on Internet. Most libraries are computer-linked to Online Public Access (OPAC).

Step 7: **SURVEY PERIODICAL ARTICLES**

You can find a wealth of information especially about current topics in "serials" and periodicals--magazines, journals, and newspapers.

Step 8: **SURVEY MICROFILM**

Past newspaper articles can be quickly reviewed to see if they address the research topic and provide insights about the topic.

Step 9: **SURVEY SCHOLARLY INDEXES**

In advanced courses, instructors may want students to cite the latest studies from technical and professional publications. This step may not be necessary or

appropriate in introductory courses.

Step 10: **<u>TAKE NOTES</u>**

You may have already begun this process during your surveying. Note the sources of your information on binder paper or large index cards so that you can organize it when writing the first draft..

Step 11: **<u>WRITE CITATIONS AND QUOTATIONS ON LARGE INDEX CARDS</u>**

Record source information sources for use in footnotes and the bibliography.

Step 12: **<u>WRITE TO PROFESSIONAL AND GOVERNMENT AGENCIES</u>**

If relevant to your research, you may want to request information the Departments of Justice; Agriculture; Commerce; and Health, Education and Welfare.

Step 13: **<u>ORGANIZE RESEARCH</u>**

Develop an outline or flowchart of your information to facilitate writing..

Step 14: **<u>MAKE AN OUTLINE</u>**

Include the points you want to make.

Step 15: **<u>WRITE FIRST DRAFT OF REPORT</u>**

Include citations and quotations from source material.

Step 16: **<u>REVISE & REWRITE FIRST DRAFT</u>**

Carefully edit and proofread, checking for grammar, spelling, syntax, and content mistakes. Emphasize clarity. If you don't understand what you are writing about, you cannot communicate the information effectively.

Step 17: **<u>WRITE FINAL DRAFT</u>**

Incorporate changes and revisions with an emphasis on clearly and persuasively communicating information and ideas.

Step 18: **<u>PREPARE BIBLIOGRAPHY</u>**

There are different formats for listing citations -- Use the format specified by your instructor.

Step 19: **<u>FINAL READTHROUGH MAKING CORRECTIONS AND REVISIONS</u>**

Polish what you've written!

Topic Selection

Basic principle: Whenever possible, choose a research topic that interests you because this will motivate you to do superior work. Choosing a complex or highly specialized research topic could have the opposite effect because the challenges you encounter might undermine your interest, enthusiasm, and motivation. This is especially true if you are enrolled in an introductory course such as General Science 101. Use your best judgment and be realistic during the topic selection process. Keep your objectives in mind. You want to:

- ❑ **learn more about your chosen subject**
- ❑ **learn how to do effective research**
- ❑ **get a good grade.**

Researching Background Information

When doing research, it is important to distinguish between *primary sources* and *secondary sources*.

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<u>Primary Source:</u>

Information derived from the person or persons who did the original research,

developed the original idea, achieved or expressed the original insight, or

experienced the original event.

</div>

Examples of primary sources: A person's diary, an interview; an autobiography, a scientist's presentation of research findings.

<div style="border:1px solid black; padding:1em;">

<u>Secondary Source</u>:

An examination, analysis, or commentary on a primary source of information.

</div>

Examples of secondary sources: A discussion, description, or summarization of another person's research or ideas found in books, encyclopedias, magazines, periodicals, journals, biographies, dictionaries, atlases, microfilm, and literary reviews.

Remember: Unless you are directly interviewing someone or are presenting your own scientific or survey research results, most of the library research you do will involves secondary sources.

Using Encyclopedias

Encyclopedias represent the most accessible *secondary source* of information about virtually any

subject. There are **two types of encyclopedias:**

- ❑ *general* -- provides background, overview, and history on virtually every subject

- ❑ *specialized* -- provides in-depth expert examinations of topics and research

These encyclopedias have *Library of Congress (LC)* call numbers and are generally shelved in the reference room of the library.

Examples of *general encyclopedias* include:

Encyclopedia Britanica: modern editions (after 1974) consist of a 10-volume <u>Micropedia</u> (briefer entries) and a 19-volume <u>Macropedia</u> (larger articles of more than 1,000 words.

World Book Encyclopedia: easy to understand and extensively illustrated resource oriented toward younger students, but, nevertheless, highly informative and useful in acquiring an overview of many subjects.

Encyclopedia Americana: 30-volume comprehensive encyclopedia alphabetized by subject and indexed. Emphasizes American issues, society, and culture. **Americana** also publishes a yearbook that examines key events during the preceding year.

Examples of *specialized encyclopedias* include:

McGraw-Hill Encyclopedia of Science and Technology

Encyclopedia of Religion

International Encyclopedia of Social Sciences

Encyclopedia of Psychology

(**Note:** A wide range of specialized encyclopedias can be found in most college libraries. The librarian can direct you to where they are shelved. As a general rule*, you should look up your topic in at least three different encyclopedias*.)

Specific procedures

❑ **Use the *encyclopedia index* to locate references to your research topic.** If you have difficulty understanding or finding the encyclopedia topic reference, ask the librarian to assist you.

❑ **Scan the material before reading it carefully.** Scanning allows you to get an overview of the article and quickly determine if the content is relevant to your research. The short articles in the **Encyclopedia Britanica Micropedia** can be especially useful during the background information gathering process. Simpler articles in the **World Book Encyclopedia** can provide a quick and accessible overview of the subject matter.

❑ **Begin taking notes after concluding that certain material will be useful in your research**. Don't copy sentences exactly as they appear. Put the information in your own words and always cite the source of this information. If you want to copy something exactly as it appears, you must put the copied material in *quotation marks* (or *indent* long quotations). **Important:** Copying an author's words without a footnote or simply changing a few words (i.e., "cosmetic" changes) without indicating the source is considered **plagiarism**, and instructors take a very dim view of this practice. (This information is usually found on the second page of the reference book.) When instructors encounter plagiarism, they are likely to give you a failing grade. (**Please note:** many instructors are now using virtually infallible computer programs specifically designed to help detect plagiarism.) You must either use quotation marks or indent to indicate where you found the citation or information in parenthesis. Information you read, "digest," and then express in your own words is *not* plagiarism as long as you indicate the source of the material in your bibliography. (A bibliography is the complete list of works consulted when researching a topic.)

❑ **Consult a biographical source if your research deals with the contributions of a person or persons** (e.g., Madam Currie). Examples include **Current Biography, Webster's Biographical Dictionary, McGraw-Hill Encyclopedia of World Biography, American Writers: A Collection of Literary Biographies, The Atlas of American Women, Who's Who in America.** These books are located in the library reference section.

Using Dictionaries to Understand and Define Terms

While doing research, you must understand the terms being used in the source material. Reading technical language without comprehending what the words mean can have a negative impact on your research and cause you to become overwhelmed and discouraged, especially if your research deals with a topic about which you know very little. (In some instances, you may be able to figure out the meaning of a specialized, technical, or scientific term *from the context or the sentence* in which the term is used may explain or suggest the meaning.)

Dictionaries are classified using criteria: that include the number of entries, the extensiveness of the definitions and illustrations under each entry, and the degree of specialization. The classifications include:

Compact abridged (condensed) dictionaries are usually described as "desk resources" that provide the correct spelling of a word, its meaning, and its proper usage.

General dictionaries elaborate on the definitions of words and also contain less common words.

Specialized dictionaries provide an in-depth examination of a word or concept.

Subject dictionaries provide information about a topic in a particular field.

Almanacs provide a compilation of statistics, data, and both general and specialized information about a broad range of subjects.

Examples of **general dictionaries** include**:**

Webster's Third International Dictionary: unabridged, contains more

than 460,000 entries, 200,000 usage examples, 3,000 pictorial illustrations, and 2,752 pages.

Random House Dictionary of the English Language: unabridged and contains more than

315,000 entries.

Roget's International Thesaurus: an indexed and cross-referenced listing of synonyms.

Software Incorporated Thesaurus: Included in many word-processing programs.

Examples of **specialized dictionaries:**

Oxford English Dictionary (OED): 12 volumes with supplements that explain the history of

how and when words became part of the English language.

Brewer's Dictionary of Phrase and Fable: explains many hard-to-understand words and

phrases in literature.

Examples of **subject dictionaries:**

Concise Oxford Dictionary of English Literature

Oxford Companion to American Literature

Oxford Companion to the Theater

Oxford Companion to Music

Oxford Companion to Classical Literature

Black's Law Dictionary

Black's Medical Dictionary

International Dictionary of Medicine and Biology

Examples of *almanacs***:**

World Almanac and Book of Facts: deals with economics, sports, weather, and current events. This book was first published in 1893 and is published annually.

Statesman's Year-Book: statistical data and facts about the world's governments. Published annually.

Statistical Abstract of the United States: U.S. government statistics dealing with politics, social issues, and economics.

Dictionaries are usually shelved in specific sections of the library. They can also be located by their Library of Congress (LC System) identification. For example, the LC Call Number for the **Encyclopedia Americana** in all libraries is ref (reference book) AE 5.E333 and for the **McGraw-Hill Encyclopedia of Science and Technology** is ref Q121.M3. Books in public libraries (as opposed to college or university libraries that use the LC Call Number) are often grouped using a different method called the Dewey Decimal System. (Libraries usually provide a pamphlet that explains their systems and offers guidance about how to find the books.)

Biographical Information

Biographical sources provide invaluable information about people who have had a significant positive or negative impact on society (e.g., Winston Churchill, Joseph Stalin). Newspapers and magazines are excellent sources of information about contemporary persons (still alive). The **Biography Index** (alphabetically organized by name) can help you find what's written in periodicals and current books. Other valuable biographical sources include:

Who's Who in America -- information about living prominent Americans published every two years. Those featured provide information about themselves. Because "facts" are not

checked for accuracy, you must use judgment in citing this information.

Current Biography -- short articles that provide professional and personal information about living people representing different nationalities and professions.

McGraw-Hill Encyclopedia of World Biography -- comprehensive background information about well-know people (both living and dead) from many countries.

Webster's Biographical Dictionary -- noteworthy historical figures, both living and dead, representing a wide range of races, nationalities, and professions.

Additional biographical sources can be found in the reference area in most college libraries. If you encounter difficulty, ask the librarian for help in locating these resources.

Literary Sources

When writing a term paper, report, or essay, literary sources can be invaluable. These sources can be used to:

- ❑ access a description of the plot of a particular book
- ❑ find help to understand the content (e.g., symbolism, characters, theme)
- ❑ locate an essay about a poem, book, or an author
- ❑ review literary criticism of a particular work

The most comprehensive sources for finding this information are:

Readers' Guide to Periodical Literature

Humanities Index

Social Sciences Index

Examples of specific research sources include:

<u>Book Review Digest</u>

<u>Contemporary Authors</u>

<u>Contemporary Literary Criticism</u>

<u>Twentieth Century Literary Criticism</u>

<u>Critical Survey of Poetry</u>

<u>Critical Survey of Short Fiction</u>

<u>Critical Survey of Long Fiction</u>

<u>American Writers: A Collection of Literary Biographies</u>

<u>Granger's Index to Poetry</u>

<u>British Writers</u>

When searching for books, periodicals, and journals in the library's computerized electronic bibliography, there are different ways to access the information you want. You can use a **keyword** (e.g., dyslexia or abortion), and the computer will search its bibliographic records to find this term and link it to related library resources. You may also decide to limit the focus of your search to periodicals, books, or journals published, for example, after 1991.

Cooperative Library Databases

In many libraries, you can access resource material that's not actually shelved in the library. Computerized electronic bibliographies permit local, county, and college libraries to create a database of materials found in all member libraries. If the material you need isn't in your local library, it may be available at a member library. You can go to that library or it may be possible to request that the material be sent to your library. Ask if the library is linked to a cooperative.

If so, request specific instructions about how to access this system on the computer.

Microfilm

Microfilm and **microfiche** represent two important sources of current information that you can easily access when doing library research. Newspapers and magazines take up a great deal of space and deteriorate over time. For this reason, libraries purchase photographic microfilm reproductions of the original printed material. This material is located in the microfilm area or microfilm room. To access this material, you must use a microfilm reader. A special printer allows you to make "hard copy" prints of the material. The librarian can show you how to use **Facts on File** or the **New York Times Index** to find the information you want. (Instructions printed on the reader will tell you how to load the microfilm.)

Surveying Scholarly Indexes: Journals, Periodicals, and Magazines

Journals, periodicals, and magazines represent another important source of research information. Because most libraries cannot realistically subscribe to every magazine and journal, they must be selective.   Current issues of periodicals in your library can usually be found on open shelves that are accessible to browsing. These magazines are typically arranged in alphabetical order. Many periodicals and journals are highly specialized and focus on a particular field of study (e.g., criminal justice or learning disabilities). Your library has a directory of the periodical titles they carry that is organized alphabetically and by subject. The index (content) for specific periodicals is also listed, and t his will help you locate articles (by author and subject) in your research area.

The **Readers' Guide to Periodical Literature** is an index of approximately 180 non-technical 20th century periodicals. Each entry includes a complete reference to a periodical article and lists

the author, article title, periodical title where the article appears, volume number, pages, and date.

Once you know how to gather information for your library research, you can begin taking notes. Several practical research methods can help you avoid wasting time on material that is not relevant and taking unnecessary notes.

Examining Books

Before delving into a book that appears to address your research topic, do an initial examination of its content. Unless your topic is very narrow, it's not reasonable to read every book in the library that deals with the subject. By pre-examining a book, you can determine what you want to read, scan, or discard. This pre-examination can usually save hours of unproductive labor.

Issues you should consider during this examination include:

Title: Does the title suggest the book is relevant to my topic?

Table of contents: Do specific chapters suggest that the book is relevant to my topic?

Preface, foreword, and introduction: Does the book seem to have a focus, range, and perspective that will contribute to my research? Is it too simple, too advanced, or "just right"?

Special features: Is there an index that will help me find information quickly? Does the book have useful illustrations, charts, tables, statistics, and background information?

Bibliography: Does the book provide a good list of other sources I can consult for additional information?

Taking Notes

The procedure for taking notes from reference material is essentially the same as the procedure for taking notes from textbooks. You must write down what's important and make sure you

understand what you're recording. Eliminate unnecessary words, and do not copy the author's words unless you are prepared to quote the material using quotation marks or indenting if the passage is longer than three lines.

To help you organize information and save time when writing your paper, **make certain you record the actual source from which you are taking notes** (e.g., **Encyclopedia Americana**, Vol. 3, pp. 21-29.) Record this information in standard form because this will make the task of preparing your footnotes and bibliography easier and less time consuming.

When doing library research, consider the author's credentials, purpose, sources, and style. For example, you may read a journal article about constitutional issues relating to the separation of church and state. The author of the article may have a strong bias in favor of a certain interpretation. You should make note of this bias when summarizing the article in your research paper. Is the author qualified to be considered an authority *(author's credentials)*? Is the information an opinion or fact *(author's purpose)*? Where did the author gather the information *(author's sources)*? Is the presentation persuasive, reasonable, and well-documented *(e.g. author's style)*?

Remember: *You must be able to read and understand your own notes!* Abbreviations are fine as long as you can understand them. Use your own words whenever possible. This process of translating the author's words into your own will help you digest and understand the issues.

Consider putting your notes in a special binder that has a divider for each of the relevant steps described in the flowchart. Using a binder will help you to get organized, keep track of your progress, plan, and work more efficiently. If you decide to eliminate a step (e.g., **Step 9 Survey**

Scholarly Indexes or **Step 12 Write to Professional and Government Agencies)**, there will

fewer steps in your personal flowchart.

Writing Quotations and Citations on Index Cards

It is usually easier to write citations and quotations on large index cards. These cards can then be

rearranged as the research paper evolves. You may initially plan on using certain information

the paper's introduction and then decide that the quotation fits better in the middle or at the end

of the paper. Being able to shuffle and reorder your citations and quotations as you write will

make your research project more manageable.

Record direct citations or quotations carefully if you are planning on inserting this material into

your report. There are different research style manuals that are generally acceptable. (Your

instructor will indicate the required format or style manual.) Whenever you take ideas directly or

indirectly from someone else, you must indicate in parentheses the author's name and page

numbers within the text of your report. For example:

      In his book Variety of Men, C.P. Snow commented that "Einstein's father was a bad

businessman." (Snow, 1966, p. 94)

The entry in the bibliography would be:

   Snow, C. P. (1966). <u>Variety of Men</u>. New York: Scribner.

      A longer quoted passage included without changes must be indented. For example:

   In discussing memories of the past, B.F. Skinner, a person considered by many to be

the "father of behavioral psychology" wrote:

> The psychotherapist learns about the early life of his patients almost exclusively from
> the patient's memories, which are known to be unreliable, and he may even argue that what
> is important is not what actually happened but what the patient remembers. In the
> psychoanalytical literature there must be at least a hundred references to felt anxiety...
> (Skinner,1971, p. 13)

The entry in the bibliography would be:

Skinner, B.B. (1971). <u>Beyond Freedom and Dignity</u>. New York: Knopf.

If the cited work has more than one author, include all of the authors in parentheses on its first citation. For example:

"Between 1792 and 1750 B. C., Hammurabi, king of Babylon, gave the world a list of 282 laws." (Wallechinsky, Wallace, & Wallace, 1978, p.xvii).

Because this book has three authors, subsequent citations are written as (Wallechinsky et al., 1978, p. xvii). **Please note:** Roman numerals indicate that a quotation is found in the introduction.

Bibliography entry:

Wallechinsky, Wallace, & Wallace, A. (1978). <u>The</u> <u>Book of Lists</u>. New York: Bantam.

Please Note: Authors are listed alphabetically in bibliographies and the titles of books and other

research resources are either underlined or italicized. For example:

Davidson, J. D. (1991). <u>The Great Reckoning</u>. New York: Summit Books.

Snow, C.P. (1966). *Variety of Men*. New York: Scribner.

The "author" of a reference book is usually the editor of the book. You would indicate this by writing **ed.** after his or her name.

<u>Remember:</u> If you incorporate more than five words in sequence written by another person, you must use quotation marks (for short citations of no more than one sentence) or indent (for long citations) to indicate that the words are not your own. You must use parentheses in the context of your paper to indicate the source of this material (e.g., author's name and page) and cite the *source* in the bibliography using the format modeled above. Ideas you **paraphrase** (put in your own words) must also be cited. Be careful to cite the source of this paraphrased material in the bibliography at the end of the paper. (Your instructor will indicate which format is to be used. If your instructor has not indicated the required format or style manual, be certain to ask for clarification.)   "Borrowing" another's words or thoughts without using quotation marks (or indenting) and without using a context reference is considered **plagiarism** (stealing the intellectual property of others.)

Carefully note the sources of your information, quotations, and citations as you review books, encyclopedias, magazines, journals, newspapers, and microfilm and as you take notes. This procedure will help you avoid plagiarism and simplify the process of making up your bibliography. The flowchart system combined with a research binder that has dividers (and a portfolio for index cards) for each step will help you keep organized and save you time when you

begin to write your first draft.

You can leave out parts of the quotation by placing three dots (...) to indicate a deletion, and you can also end a quotation at any point. If you end in mid-sentence, you should indicate that the remainder of the sentence has been left out by using three dots.

Preparing a Bibliography

Bibliography listings should be in alphabetical order based upon either the author's last name or the title of an unsigned article. For example, an author whose last name is <u>Adams</u> would precede an author whose last name is <u>Alton</u> or an unsigned article entitled "Alternative Political Choices." **Please note:** There are different style manuals and formats for bibliographies. Your instructor will indicate which format he or she wants you to use.

EXAMPLES:

- **Books – One Author**

  Snow, C.P. (1966). <u>Variety of Men</u>. New York: Scribner.

- **Books -- Two or Three Authors:**

  Jones, J. and Wilson, W. (1987). <u>An Incomplete Education</u>. New York: Ballentine.

- **Books -- Four or More Authors:**

  Abrams, M.H., et al. (1968). <u>The Norton Anthology of English Literature</u>. New York: Norton.

- **Signed Magazine Article:**

  Pearson, Mark. (Spring 1993). "The Private Parts of Paradise." <u>Wilderness</u>: p. 20-27

- **Unsigned Magazine Article:**

  "Buffaloed." (Nov. 29 1993). <u>Time</u>: p. 67

- **Signed Encyclopedia Article:**

  Hartmann, Ernest, (1988 ed.). "Sleeping." <u>World Book Encyclopedia</u>.

- **Unsigned Encyclopedia Article:**

  "Basketball." (1988 ed.). <u>World Book Encyclopedia</u>.

Getting Your Research Organized

You will probably have more information and citations in your notes than you will ultimately use in your paper. If you aren't focused, selective, and well-organized, your paper will ramble. For this reason, it's important to make an outline of what you want to say and what information you want to include. Your introduction should present an overview that alerts the reader to the scope and objective of your paper. Make sure to use a powerful, logical, and well-written introductory sentence that clearly states your purpose. This sentence sets the tone for your paper. The subsequent sentences in your introduction are equally important. To establish credibility, state your objectives clearly. Your language and syntax must also be clear and precise.

As you review and organize your notes and citations, refer to your outline to make certain your ideas are properly sequenced and flow logically. If appropriate, fine-tune your outline, experiment with the sequence, and shuffle and reorder your citation and quotation index cards. You want to impress your instructor with the scope and depth of your research, the quality of your insights, and the breadth of your acquired knowledge. You will have to make many decisions about what to include and what to leave out. If you do decide to leave something out, don't throw the page or index card away! You may change your mind as the paper evolves and ultimately decide to use some of this information.

Supporting the points you make with references from books, encyclopedias, and journals

makes your position, insights, and interpretations more credible and persuasive. The quality of this documentation is also likely to play a major role in determining the grade you receive on your research paper. Your conclusion should be well-reasoned and clearly supported by the information you have presented in the body of the paper.

Writing the First Draft

It's a good idea to write relatively quickly when writing your first draft. Get your ideas, points, insights, and information down on paper without spending a great deal of time editing at this stage. Once the first draft is written, you can revise, reorganize, refine, and polish your work. Putting your thoughts down on paper is critical to avoiding "writer's block." This phenomenon often occurs when you feel so overwhelmed and stressed by all that has to be done that you begin to resist getting started. By "churning" out your first draft without being overly critical of your initial efforts, you can usually avoid becoming blocked.

After writing your first draft, which may take several days, put the work aside for a day. (This assumes that you have enough time to do so and have not put the project off until the last minute.) Putting a writing project aside allows you acquire some "emotional distance." When you come back to it later, you can read what you have written more objectively and critically. Be forewarned that when you first write something, it's common to think that the paper is excellent. Later, you'll discover that your first draft has flaws and deficiencies that have to be addressed and corrected. Your choice of words, writing style, and syntax will undoubtedly require editing and revisions. You will also discover grammar and spelling mistakes. A careful reading may reveal that you have not expressed yourself clearly in certain sections of your paper. Writing a second and third draft gives you an opportunity to "work out the kinks."

Revising and Rewriting Your First Draft

All writers must edit, revise, and rewrite. This systematic process is vital. Each "pass" can reduce the number of typos, spelling, grammatical errors, and redundancies and can enhance clarity. The goal is to produce a polished work that makes you proud and that impresses your instructor with your effort, research methodology, insights, interpretations, and written communication skills

The greatest challenge expository writers (nonfiction) face is to express ideas clearly. As you read over your work, assess objectively if your writing is clear, persuasive, precise, accurate, and logical. Your writing should be well-organized and follow a clear progression, and you should carefully substantiate each key point that you make.

Six key factors will determine your grade on your research paper:

- **first-rate information**
- **top-notch organization**
- **demonstrated insight**
- **clarity**
- **substantiation**
- **effective writing**

Consider reading your paper aloud so that you can actually hear how it sounds. If you conclude that something is confusing, you can be certain your instructor will also find it confusing. Also consider asking someone you respect to read and critique your paper. Don't be defensive if this person suggests that you revise certain sections.

Final Drafts: Polishing the Product

If you follow the procedures described in this Appendix, you will spend many hours in the library scanning and reading a wide range of primary and secondary research sources. You will also spend additional hours taking notes, organizing your material, writing a first draft, editing and revising your work, and preparing a bibliography. Given this major investment of time and effort, it makes sense to eliminate spelling errors, grammar errors, and redundancies and to change the construction of confusing sentences. This final effort could make the difference between getting a good grade or a marginal grade.

Read your final draft several times. Step back and evaluate your work objectively. Fine-tune your writing. Make sure that the ideas flow and the language is clear. Be on the lookout for run-on sentences (sentences with too many thoughts that should be divided into two or more sentences) and sentence fragments (sentences that lack a verb). There is still time to make revisions. Check the spelling of words that don't "look right." Reread your bibliography and make certain you're using the format your instructor has specified.

Writing a successful research paper requires that you become a detective who follows leads and collects evidence. Some seemingly promising leads will ultimately prove to be dead-ends. Others will produce key data and invaluable insights. Uncovering key information and successfully distilling and communicating your ideas and conclusions can be systematic and comprehensive, or it can be haphazard and disjointed. It's your choice!

Doing On-line Research

Writing a first-rate research paper requires solid information, substantiation, and documentation. Libraries clearly represent a primary resource for acquiring this vital data. The Internet is another excellent source of research information. There are three key advantages to using the Internet:

- ❑ **You can do much of your research at home or wherever it's convenient if you have access to a laptop computer.**

- ❑ **Information is readily accessible.**

- ❑ **The process of acquiring key information can be faster than doing library research.**

The research capabilities of the Internet include:

- ♦ **Accessing data (facts and figures)**

- ♦ **Accessing articles and reports in journals and scholarly publications**

- ♦ **Downloading files using FTP (File Transfer Protocol) sites**

- ♦ **Accessing databases and library holdings that are stored by government agencies and universities using a system called "Gopher."**

- ♦ **Using Universal Resource Locators (URLs) to access special sites.** These URL numbers and texts can be typed in to access specific sites. For example: To learn about more about search engines, you could type in:

  htpp://searchenginewatch.com/facts/index.html

  This site links you to "Search Engine Tutorials" that will teach you: how search

engines work, how to conduct a search, how information is found, and why certain information is included or omitted.

To avail yourself of the information displayed on web pages or websites (e.g., the World Wide Web: www), you must, of course, first be connected to an Internet Service Provider (ISP) such as America Online, Juno, or Earthlink.

The following flowchart should help you use the Internet more efficiently and productively.

INTERNET RESEARCH FLOWCHART

Step 1: **SELECT A TOPIC**

Whenever possible choose a topic that interests you and about which you want to learn more.

Step 2: **SELECT A TOOL**

Use this tool to find and select websites and information locations.

Two types:

Search directories—an index of websites

Search directories, which are similar to the Yellow Pages, offer a large collection of websites organized by topics and categories. You search for specific topics using keywords (i.e., *nuclear reactors, death penalty*). When you use a search directory, the results do no include all Internet sites. Given the enormous quantity of information available on the Internet, limited search directory results can make projects more manageable, which is a major advantage to students who have limited available time for researching their subject. A disadvantage of search directory

results is that the sites that appear at the top of the list do not necessarily offer the best content. (In some cases, sites that pay higher fees to the directory may be located at the top of the list.) Each directory has its own range of resources and its own search tools and guides. Examples of popular search directories include:

Yahoo (http://www.yahoo.com)

Excite (http://www.excite.com)

Magellan (http://www.excite.com)

Snap (http://www.snap.com)

<u>Search engines</u>—a more comprehensive listing of information sources

Search engines, which are sometimes referred to as *crawlers,* are run by machines, which are usually referred to *robots* or *bots*. Unlike search directories, these engines do not limit their search to websites exclusively, but search for keywords through the entire Internet. Because search engines have access to all sites on the Internet, you are generally assured of getting extensive "hits" on your topic. In many cases, a search engine such a Google may find 5,000 or more sites. Using a search engine such as Alta Vista could produce *millions* of sites depending upon how generic (common) your search words are. (**Please note:** With Google, sites at the top of the results list are likely to contain the words used in the search term.) The advantage of using a search engine is that you have wider access to information about a specific subject. The disadvantage is that you could become overwhelmed unless you deliberately limit the scope of your search.

Examples of popular search engines include:

Google (http://www.google.com)

Ask Jeeves (http://www.askjeeves.com)

HotBot (http://www.hotbot.com)

Lycos (http://www.lycos.com)

Alta Vista (http://altavista.com)

Meta-searches—explores multiple search engine databases concurrently.
These search engines do not maintain their own databases and the results reflect the
quality of the databases searched. An example of a meta-search engine is Dogpile
(http://www.dogpile.com)

**Usenet—provides a system of newgroups where you can post messages and
solicit responses from others who have interest in a specific subject.**   You can
use this system to post a question and ideally elicit useful information. The more
specific your keywords, the more likely you will tap into "threads" (grouping of
posts about a topic) that are useful to your research.

**Gopher Searches—access sites usually located on campuses or at government
agencies that contain information and archived content. The information is**
categorized by sections, sub-sections, and smaller units in a manner similar to that
used by a library. To search Gopher sites, you will need to use a server that function
in much the same way as a search engine. One such server is called *Veronica.* By
using your Internet Service Provider to access "Gopher Worldwide," you can
procure a list of servers organized by country and organization.

Step 3:   **<u>DEVELOP A SEARCH STRATEGY</u>**

When using the Internet for research, it is important to focus on what you want to locate. Pinpoint the keywords you want to enter by writing down specific words that address your topic *(i.e., nuclear fuel rods)* and other words or terms that may be related *(i.e., nuclear reactors, radioactive waste)*

First use a *search directory* and record sites that address the topic or category that you have selected. You can save sites that prove useful by using a bookmark tool that is usually provided by your Internet service provider.

Explore sites of interest to get an overview of what information is available. Scan these sites and make note of those that could provide useful data. If a particular site appears to be relevant, click on it, read what's applicable to your topic, and if advisable, take notes. Be careful to record important keywords, source material, and information locations that you may want to use later. If you derive information from a site, make a record for reference citations and for inclusion in your bibliography.

When you have completed using the search directory, you can transition to a *search engine* and can configure the key words to narrow the scope of your search.

Hints for focusing your search:

❑ *Put your search words in quotations* to indicate to the search engine that you want to find only sites that contain the words or phrase in the specific order in which it is typed. For example, typing in *French Revolution* is likely to provide information about the French and about revolutions. If, however, you use

quotation marks and type in *"French Revolution 1779"* you will get more

specific and focused information that include these words. You might also try

altering the order of the words:*"1779 French Revolution."* These procedures

could eliminate tens of thousands of sites (or even considerably more!) that are

irrelevant to your project, and by so doing, save you countless hours of fruitless

research. (**Please note:** Always remember to close the quotes after the last word,

and do not put quotation marks around word phrases or sentences.)

❑ *Add a + sign before the words or phrases you type into the search box.* This will

insure that your "hits" include this word or word phrase.   For example:

+" Variety of Men" +book +author (Leave one space between each word or word

phrase, but no space between +sign and the words to which it is attached.)   If you

do not add the quotation marks and plus signs, the search engine would "hit"

every site with the word "book," "variety," "men," "snow," and "author." You

would be confronted with literally millions of "hits!"

❑ *Add a - sign before the words or phrases you type into the search box.* This is

another mechanism for limiting your search. If you want information about

orcas, but not about the movie *Free Willy*, you would type the following in the

search box: orcas +migration –"Free Willy"

❑ *Use Boolean operators such as "and," "or," "not" to limit your search.* For

example, you might type into the search box: "gorillas" not "lowland" or "nuclear

fuel rods" and "nuclear waste disposal" Improved technology in search engines

has in some instances reduced the need for Boolean searches to narrow or expand

the number of "hits" that at search engine returns. For more information about

Boolean searches, you can access the Boolean tutorial at the following URL:

http://florin.syr.edu/webarch/searchpro/boolean_tutorial.html

❑ *Critically evaluate the list of links appear.* Quantity of data is not synonymous

with quality of data. If you are overwhelmed with the number of "hits" you get,

consider using more specific keywords. You must be selective. If you spend all

your time amassing a great deal of information and devote little time to

organizing, writing, editing and proof reading your paper, you are unlikely to get

a good grade on the paper.

❑ *Remember to bookmark the important links while doing your research.*   You

want to be able to return to valuable sites without having to search for them again.

❑ *Apply critical intelligence in evaluating sites.* To attempt to read everything

when researching a topic for a paper is a recipe for disaster. There is usually far

too much information available for any student to read, take notes on, and

assimilate. Unless you evaluate the quality of the information you access on the

Internet and its direct applicability to your research paper, you could easily

become discouraged and demoralized. You want for procure valid information

that will allow you to demonstrate that you understand the issues related to your

topic and that you have done first-rate scholarly research. Particularly in the case

of topics dealing with modern physical science, social science, or current events,

you want information that is current and recently updated. In your deliberation

about what to include in your paper, you want to critically evaluate the source of

the information and the quality of the material. Individuals and organizations

can make self-serving claims that do not hold up to close scrutiny.

❑ *Combine both library and Internet research resources.* We live in a high-tech

society in which the Internet offers instantaneous access to a broad range of

information. Nonetheless, there are also many benefits to doing primary

research in a library using the methods described in Section I of this appendix.

By combining the best of both "worlds," you can usually significantly improve

the likelihood of producing a first-rate research paper.

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