

## Navigating the World of Research

### A. Utilizing Key Words in Your Search

Making a list of the words that are important to your topic will help you find the information necessary for developing your purpose, research question(s), thesis and supporting evidence. Also, it is important that as you exhaust a particular keyword search, you mark off your words so that you do not accidentally re-search (not research!) your research. These words and phrases are called keywords because they “unlock” the passages that will lead you to useful information.

**Where will I use keywords?** You’ll use them when you search in online databases, when using search engines to search the web, and when you use the indexes of print resources.

**Where do I find keywords?** Generally start with your research question. As you read, you should highlight, underline, or jot down important words and phrases that are specifically related to your subject area. General keywords will ultimately be narrowed to more specific words, terms and phrases that relate directly to your topic. Your purpose and thesis statement, and even your research questions should all contain keywords that essential to your topic.

**When should I begin to list keywords?** As soon as you start reading you should start a list of keywords and phrases. You might try setting up 3 columns, one for key phrases, a second for keywords, and a third for synonyms (words that mean the essentially the same as your keyword) or related terms.

Sample Research Question: “To what extent are state and federal tax dollars used to support cultural enrichment for all citizens regardless of socio-economic status?”

Key Phrases	Key Words	Synonyms/Related Words
public funding for the arts	citizens	state/federal funding for arts
cultural enrichment	arts	cultural arts/fine arts
working poor		working class/minimum wage earner
tax dollars		income tax, state taxes, federal taxes
		Americans
		cultural opportunities

**Research Tip:** It is important to have an organized “place” to keep an ongoing keyword list. This is yet another reason to keep a research notebook.

### B. Using Online Databases

Online databases will provide you with much of the research you need to complete your Extended Essay. These databases contain hundreds of thousands of articles, journals, newspapers, and essays in full-text at your fingertips that you can print straight from your computer or here at school. Some useful ones are the following:

[Academic One File](#) | [GaleGroup](#) | [Michigan Electronic Library \(MEL\)](#) | [Electronic Collections Online \(ECO\)](#) | [JSTOR](#)

When searching with your keyword list, use Boolean logic to maximize your search results. This will help minimize search time and provide you with exactly what you need. In particular, GaleGroup, offered through the MISD, offers an expanded version of databases you can specify to your subject-area need.

### C. Selecting Resources: Information Timeline

Now that you have spent some time searching databases online, you must begin to determine that **different types of resources** (the web, newspapers, magazines, journals, books, etc.) may be more appropriate than others for your field of study. You need to be aware of what kind of information is in each type of resource and who the intended audience is. Use the timeline below to learn more:

Information Timeline					
Present	Day	Week	Months	Years	
Web	Newspapers	Popular Magazines	Scholarly Journals	Reference Sources	Books

#### The Web

<b>Time Frame:</b>	Immediately - several years after the event
<b>Audience:</b>	General public - scholars, researchers, and students
<b>Authorship:</b>	General public - scholars, researchers, and students
<b>Content:</b>	General overview through detailed analysis
<b>Length:</b>	One screen with few links; Many screens with several links

#### Why consult a World Wide Web page?

- Immediate coverage of an event can provide up-to-the-minute analysis
- Access to information that is not available in print format because of currency
- Sometimes more detailed coverage if event/topic is current
- Possible additional resources from linked web pages
- Statistics
- Graphs

**Research Tip:** Be sure you know how to appropriately evaluate web resources. Although information errors and misinformation existed long before the web came into existence, it is much easier to stumble upon false information in an online environment.

## Newspapers

<b>Time Frame:</b>	One day - one week after the event
<b>Audience:</b>	General Public
<b>Authorship:</b>	Reporters
<b>Content:</b>	Summary or overview of the event; basic factual information covering who, what, where, when, and how
<b>Length:</b>	Brief

### Why consult a newspaper?

- Statistical information
- Local news coverage
- Immediate news coverage
- Photographs
- Editorials

**Newspapers**, like journals and magazines, are a type of periodical. **Periodical databases** allow you to find articles from newspapers. A search of a periodical database results in **citations** to full-text newspaper articles. Check out the periodical databases listed on our media homepage.

## Popular Magazines

<b>Time Frame:</b>	1 week-1 month after the event	<b>Examples:</b>	
<b>Audience:</b>	General public	Time, Newsweek, National Geographic	
<b>Authorship:</b>	Journalists		
<b>Content:</b>	General overview; summary of the event, covering who, what, when, where, how, and beginning to analyze why		
<b>Length:</b>	1 to 5 pages, generally		

### Why consult a popular magazine?

- Statistical information
- General overview of a current event; more detailed analysis than a newspaper
- Public opinion
- Photographs

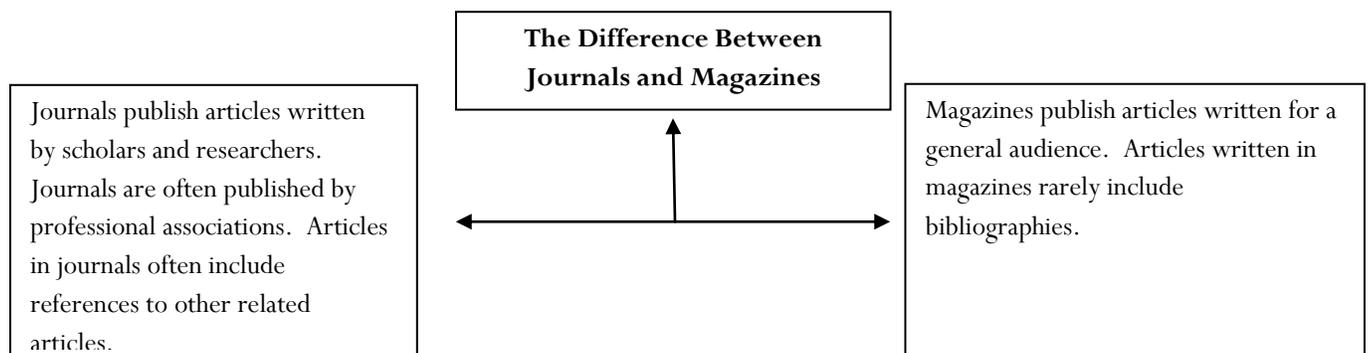
Periodicals (also called **serials**) are publications printed in intervals and that continue to be printed for an indefinite period of time. **Journals**, **magazines**, and **newspapers** are types of periodicals.

## Scholarly Journals

<b>Time Frame:</b>	Several months-years after the event	<b>Examples:</b> Journal of Child Development, Journal of the American Medical Association, American Quarterly
<b>Audience:</b>	Scholars, researchers, students	
<b>Authorship:</b>	Journalists	
<b>Content:</b>	Research, theories, study, experimental results, analysis	
<b>Length:</b>	Many pages, usually over 5	

### Why consult a scholarly journal?

- More in depth examination of a subject
- Articles written by professional in the discipline
- Peer- reviewed prior to publication
- Additional resources from footnotes and bibliography
- Statistics
- Graphs



**Research Tip:** Try the beta version of **Google Scholar** (<http://scholar.google.com>). From one place, you can search across many disciplines and sources: peer-reviewed papers, theses, books, abstracts and articles, from academic publishers, professional societies, preprint repositories, universities and other scholarly organizations. Google Scholar helps you identify the most relevant research across the world of scholarly research. Google Scholar orders your search results by relevance, so the most useful references should appear at the top of the page. This relevance ranking takes into account the full text of each article as well as the article's author, the publication in which the article appeared and how often it has been cited in scholarly literature. Google Scholar also automatically analyzes and extracts citations and presents them as separate results, even if the documents to which they refer are not online. This means your search results may include citations of older works and seminal articles that appear only in books or other offline publications.

## Reference Resources

<b>Time Frame:</b>	Several months-years after the event	<b>Examples:</b> Dictionary of Art, Encyclopedia of the American West, American Decades, Encyclopedia of the Confederacy, Encyclopedia of Latin American Culture
<b>Audience:</b>	General public—specialists	
<b>Authorship:</b>	Scholars and specialists	
<b>Content:</b>	General overview	
<b>Length:</b>	Varies among sources	

### Why consult a reference resource?

- Detailed background information, overview
- Compilation of articles on particular/specialized subject
- Wide coverage contained within one or more volumes
- Multiple viewpoints often portrayed - especially in a compilation of articles
- Authored by experts in particular disciplines
- Statistics
- Additional resources - bibliographies

## Books

<b>Time Frame:</b>	At least one year to several years after the event
<b>Audience:</b>	General public—scholars, researchers, students
<b>Authorship:</b>	Scholars and researchers
<b>Content:</b>	Detailed analysis; sometimes a compilation of articles from several scholars
<b>Length:</b>	Numerous pages—often over 100

### Why consult a book?

- Detailed analysis of a subject
- Multiple viewpoints often portrayed - especially in a compilation of articles
- Additional resources found in footnotes and bibliography

## D. Finding Book Reviews

When you need to know about the critical reception of a book, there are several sources to consult. There are several journals—*Library Journal*, *Choice*, *Booklist*, and *Publishers' Weekly*—that serve as tools for individuals involved in the purchasing of books (like librarians for libraries). While the reviews may still be useful, they are often very short and may not contain as much critical evaluation as other sources. Also, some of the periodical databases include citations to book reviews from journals in specific disciplines, like *The Journal of American History*. These are excellent reviews to consult because experts in the fields most often write them. *The New York Times Book Review* and the *TLS* (Times Literary Supplement) are standards in the field and are indexed by the majority of the online periodical databases.

**Research Tip:** If you cannot find reviews in a periodical database, try an advanced Google search on the title of a book and the phrase term “book review.”

## E. Using the Internet More Efficiently and Effectively

Web pages mean the "**free web**," web sites anyone can access, not the web-based research databases that are purchased by school districts or university and public libraries. Fee based Internet resources typically require a user password for access. If your school does not subscribe to any online databases, check your public library. To access the paid online services of your public library you will need a library card—then you should be able to access their databases from your home or at school as long as you can sign in with your patron ID number.

### **The web is a very interesting medium for research:**

1. Anyone can publish information or misinformation.
2. There is no complete list of web sites.
3. There are no official organizers, catalogers, or evaluators.
4. Sites constantly change; new sites are constantly created; sites often disappear.
5. Finally, there are no standards for web search tools.

### **When you use the web for research, don't assume:**

"I can find it faster."      "The information is more current."      "The information is just as reliable."

**Searching is not evaluating.** Given the nature of web information, it's vital to evaluate the web pages you dig up. See the attached handout below on validating online resources. Continue reading this section to learn how to get the best results from search engines that you probably use already use.

### **1. Filtered Directories of Websites and Web Pages**

**Internet Public Library** (<http://www.ipl.org/>) | **Librarian's Index to the Internet** (<http://lii.org/>) | **Open Directory** (<http://www.dmoz.org/>)

The above sites are best used for browsing subjects to find quality web sites without having to worry much about the authenticity of the sites that they filter.

### **Search Tips:**

- When using a directory's keyword search option, note the subject categories your search retrieves.
- Use Boolean logic to keyword search whenever possible.
- Check off the keywords you've used so you do not repeat your searches.

Directories organize web sites by categories (i.e. subjects). People who work on directories decide in which category a web site should be listed. Since directories are built and maintained by people, directories include far fewer web sites than search engines. However, directories are the best place to begin browsing a subject, and most directories focus on including quality web sites.

### **2. General Search Engines**

[Google Scholar](#) | [Google](#) | [All the Web](#) | [AltaVista](#) | ...but not Yahoo!

The above sites are best used for finding specific sites or specific information, not for collecting information. Ironically, many novice researchers will start "research" with search engines, even though they are the least helpful and most time-consuming way to research. First, there are some absolute truths that you must know about search engines that will make your job enormously difficult, even though they have some practical uses.

The perils of search engines include the following:

1. Little filtering of any kind—outside Google scholar—has been done for you.
2. Sites searches will always return to you in the thousands, if not millions.
3. Results often appear in popularity of hits rather than true relevance
4. You mostly cannot conduct Boolean searches with multiple keywords to reduce that number.
5. The links will provide you mostly with websites rather than take you directly to relevant research

### Search Tips:

- Use more than one search engine (see how little they overlap!)
- Explore each search engine's various search options (such as Google's image search\_or advanced search)
- Don't assume the first hit is the best one
- If you don't find what you are looking for in the first 25 hits, modify your keywords and search again.

Search engines use software (called spiders, webcrawlers, or bots) to automatically collect the words on millions of web pages. These words are fed into a searchable database. So when you search a search engine, you are **not** actually searching the Web—you are searching a database of words from web pages, collected by that search engine's spider in the recent (or not-so-recent) past. Relevancy software determines in what order hits are listed. Many search engines also provide a search directory.

Search engines allow you to search for **keywords**, not for context. For example, a search for "sole" will turn up pages about fish, shoes, and "sole" as a synonym of the adjective *single*. It's up to you to provide the search with context. Think of related keywords that would narrow the search results. A search for "recipe for sole" will not turn up web sites about Nikes and Adidas.

**Research Tip:** Here's an important note about advanced searching. Most search engines feature advanced search features. These usually allow you to:

- Search by file type (this enables you to find images, sound, video, etc.)
- Use Boolean logic with multiple search boxes, if you can!
- Limit by date, language, domain (.gov, .com, .org and others)
- Search within specific websites or see who links to specific pages.

The differences between search engines become more important when we view their advanced search capacity. For the visual arts essays, Google ([www.google.com](http://www.google.com)) is excellent for images (it allows you to limit by black and white or color as well as file size) while Altavista ([www.altavista.com](http://www.altavista.com)) is still better for music. AlltheWeb ([www.alltheweb.com](http://www.alltheweb.com)) does both, but you can't access it via UCS' server. For a comprehensive look at search engines in general, check out Search Engine Watch at <http://searchenginewatch.com/>. This is an excellent online evaluation and reference tool for the latest information about search engines.

## How Do I Effectively Validate Online Resources for Authenticity?

While the Internet is indeed the largest trap for students to find poor and incorrect information, the truth is that all sources are prone to this threat, and many students don't realize it. A reputable scientific experiment conducted with the latest techniques and carried out with mathematical precision may produce terrible flawed or irrelevant data if the study was conducted in the 1940's. Poor logic or information that is opinion rather than fact—such as news commentary shows—are excellent examples of how people gain and assimilate “information” without giving much thought to the motives of others. And the most common—lack of expertise—has a stranglehold over the Internet.

Below are twelve quick questions that will help you clarify quickly if an online source is worth considering for your Extended Essay.

### **Authority:**

#### **1. Who wrote the page?**

Look for the author's name near the top or the bottom of the page. If you can't find a name, look for a copyright credit (©) or link to an organization.

#### **2. What are the author's credentials?**

Look for biographical information or the author's affiliations (university department, organization, corporate title, etc.).

#### **3. Can you verify the author's credentials? Could the credentials be made up?**

Anyone who has visited a chat room knows that people don't always identify themselves accurately.

#### **4. Did the author include contact information?**

Look for an email link, address, or phone number for the author. A responsible author should give you the means to contact him/her.

#### **5. Whose web site is this? What organization is sponsoring the web page?**

Look at the **domain** (.com, .edu, .org, etc.).

Look for an "**about this site**" link.

Also look for a **tilde** (~) in the URL, which usually identifies a personal directory on a web site. Be careful of a web page that has a tilde in its URL.

Internet service provider sites (AOL, Mindspring, MSN, etc.) and online community sites (GeoCities, Tripod, Angelfire, etc.) feature personal pages. Be careful of web pages from those sites, too.

#### **6. Audience and Purpose: What is the purpose of the page? Why did the author create it?**

The purpose could be advertising, advocacy, news, entertainment, opinion, fandom, scholarship, satire, etc. Some pages have more than one purpose. For example, <http://www.dowjones.com/> provides free business information but also encourages you to subscribe to the Wall Street Journal.

## 7. Who is the target audience?

Academic researchers? Kids? Buyers of competitors' products? Trekkers? Political extremists?  
Look at reading level of the page: is it easy to read or challenging? Does it assume previous knowledge of the subject?

### Currency:

## 8. Is there a date at the top or bottom of the page?

But note: a recent date doesn't necessarily mean the information is current. The **content** might be years out of date even if the given date is recent. (The last update of the page might have consisted of someone changing an email address or fixing a typo.)

## 9. Is the information up-to-date?

This takes a little more time to determine. **Compare** the information on the web page to information available through other sources like databases or print resources. Broken links are one measure of an out-of-date page. In general, information for science, technology, and business ages quickly. Information in the humanities and social sciences ages less quickly. However, old information can still be perfectly valid.

### Objectivity vs. Bias:

## 10. Is the author being objective or biased?

Biased information is not necessarily bad, but you must take the bias into account when interpreting or using the information given. Look at the facts the author provides, and the facts the author *doesn't* provide. Are the facts accurately and completely cited? Is the author fair, balanced, and moderate in his or her views, or is the author overly emotional or extreme? Based on the author's authority, try to identify any conflict of interest. Determine if the advertising is clearly separated from the objective information on the page.

### Support for Evidence:

## 11. Does the author support the information he or she uses?

Look for links or citations to sources. Some academic web pages include bibliographies.

## 12. Is the support respectable?

Does the page cite well-known sources or authorities?

Does the page cite a variety of sources?

Do other pages on the same topic cite some of the same sources?

The web page in question should have a mix of internal links (links to web pages on the same site or by the same author) and external links (links to other sources or experts).

### **Official Information Required by the IBO...**

**At bare minimum and regardless of your documenting style, the following is expected from you as IB students: "Internet references should include the title of the extract used as well as the website address, the date it was accessed and, if possible, the author. Caution should be exercised with information on web sites that do not given references or that cannot be cross-checked against other sources. The more important a particular point is to the essay, the more the quality of its source needs to be evaluated" (Extended Essay: First examinations, Diploma Programme Guide 2009).**