Doing Research

Doing Research

A Student's Guide to Finding and Using the Best Sources

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Contents

Introduction

Welcome to **Doing Research**, KPU Library's guide to helping you get started on your research assignment. Whether that assignment is a paper or blog post, multimedia project or poster, you will likely be expected to do some amount of research as part of completing the work. This can be daunting at first, especially if you are new to doing research at the university level, or if you are taking a class in a different discipline or field where the expectations and conventions may be unfamiliar to you.

If you feel you are already an experienced researcher, consider this guide to be a refresher.

Technical requirements: The modules work best in the most recent versions of Chrome or Firefox; Internet Explorer is not supported at this time. If you experience difficulties, check your browser version and update.

A note to instructors: This guide is informed by the Association of College and Research Library's Framework for Information Literacy for Higher Education, a new approach to teaching and learning research skills through a set of integrated core concepts and knowledge practices that emphasize the reflective nature of information discovery, the understanding of how information is produced and valued, and the ethical use of information in creating new knowledge.

Each module has been developed around one of these core concepts (Key Takeaways) and utilizes one or two of the knowledge practices (Learning Objectives) associated with it.

For more information about how the Framework is being implemented at KPU Library, please visit this page.

How to use this tutorial

There are four modules in this tutorial:

1. Get Started on your Research
2. Recognize Types of Information
3. Develop your Search Strategy
4. Evaluate your Sources

The modules are ordered, more or less, as though you are conducting a research project, starting with developing research questions and ending with using sources in your writing. In between, you will learn how to figure out what kind of sources to look for, where to find them, and how to evaluate them.

Some instructors may assign one module or all of them, depending on the requirements of your class.

Each module consists of:

- written text
- activities to try out your skills and test your understanding
- short quizzes (linked in a Moodle site) that will be marked and contribute towards a badge acknowledging your completion [STILL UNDER DEVELOPMENT].

The modules should take roughly 20 minutes each to complete. You will be able to revisit the text and activity portions as many times as you like; however, you will only have one opportunity to do each quiz.

Use the arrows at the bottom of each page to move forward and

backward through the modules. Or, use the Contents menu in the top left hand corner to go to a particular section.

Upon completion of each module, you will receive certification that will be attached to your Moodle profile, visible to instructors and others in the Moodle community [STILL UNDER DEVELOPMENT].

Any questions?

Please contact librarian Celia Brinkerhoff at celia.brinkerhoff@kpu.ca.

https://media.kpu.ca/embed/secure/iframe/entryId/0_e7rambof/uiConfId/23448622/pbc/21734

Acknowledgements

Doing Research: A Student's Guide to Finding and Using the Best Sources was initially conceived as a quick adaptation of the *Choosing and Using Sources: A Guide to Academic Research* by The Ohio State University Libraries. Over time, it developed into its own project suited to a different purpose and an audience of Canadian students. My thanks to the librarians at OSU Libraries for their generosity in sharing their excellent guide.

Members of the Kwantlen Polytechnic University English Department were helpful in shaping the development of the content and establishing learning objectives for each module; specifically Jennifer Williams, Elizabeth Gooding, and Julia Grandison were enthusiastic in their support of the project. Several KPU librarians were also generous in providing feedback and ideas for activities.

Many thanks to Rajiv Jhangiani, Caroline Daniels, and Karen Meijer-Klein for their help with this project and to Todd Mundle for the time to work on it. Where indicated, supplementary videos were created by Graeme Robinson-Clogg through the generous support of a BCcampus Open Education Grant. And many thanks to David Hauck, who lent his image-editing skills.

PART II

PART 1. GET STARTED ON YOUR RESEARCH

Key Takeaway

Research is a process of *strategic exploration*, one that begins with learning how to ask the right question.

Learning Objectives

By the end of this module, you should be able to:

- Differentiate between a search topic and a research question
- Identify the features of a reference article that can aid in further research

Navigation: How to move around this tutorial

This module should take roughly 15 minutes to complete.

Use the arrows at the bottom of each page to move forward and backward through the modules. Or, use the Contents menu in the top left hand corner to go to a particular section.

It's useful to think about this early stage of your research project as a process of exploration, one that will help you develop a research question that is going to be searchable. If a topic is completely new to you, you will likely want to find some background information in order to understand the context of your topic and how it relates to a larger picture. This exploratory process will also help you with any specialized terms associated with your topic that you might use in developing a search strategy. And sometimes, this initial exploration will also lead you to realize that your question might not be searchable, or that you are going to have to modify it a little. That's ok. A little work up front will save you time later.

Even if you already have some familiarity with a topic, some additional background work can help to bring a fresh perspective to your understanding of it.

Figure 1.1 Research as strategic exploration. Image by Pixabay.

Tip: Review your assignment

Before you get started on your research, make sure you understand the requirements of your assignment. Pay attention to the kinds of information sources you need and how you will be expected to incorporate them into your own work.

This page on analyzing your assignment from the KPU

Learning Centres can help you figure out what you need to do for your assignment.

1. Narrowing a Topic

Defining your research question is a process of working from the outside in: you start with the world of all possible topics (or your assigned topic) and narrow down until you have focused your interest enough to be able to state precisely what you want to find out, instead of only what you want to "write about."

Going through this process can be the hardest part of doing research, but once you have a question that is realistically scoped (not too broad, not too narrow) it will guide the rest of your work.

The Process of Narrowing a Topic

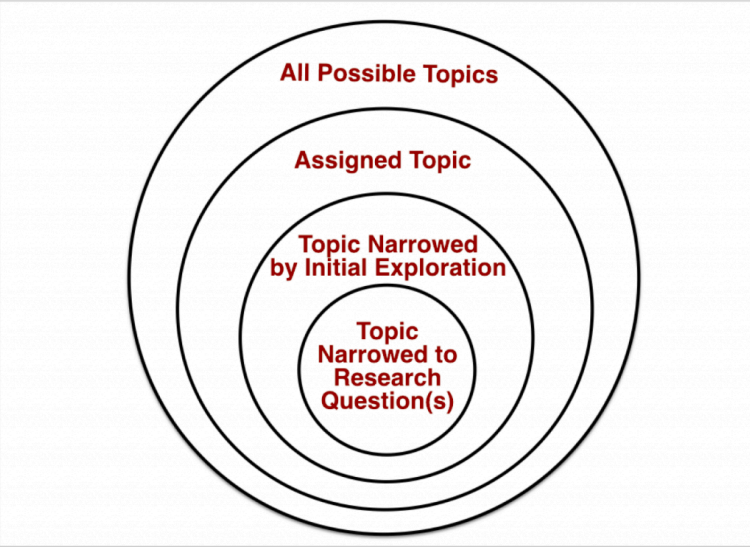

Image by Ohio State University Libraries.

ACTIVITY: Which topic is narrower?

Now it's your turn. Practice thinking about narrower topics with these 3 examples. Click the arrow to show the next question.

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https://kpu.pressbooks.pub/doingresearch/?p=29

TIP: Use some of the 5 Ws to help narrow your topic to a searchable question

Your assignment is to write on the topic of higher education. You decide you want to write about the high cost of tuition, but that is still too broad.

Start by asking some or all of the following questions.

Question	More specific focus
Who?	first year students, mature students, part-time students
What?	graduation rates, degree completion, attrition, dropout
When?	last 10 years
Why or how?	financial burden, employment, student debt

From asking these questions, you might come up with a research question like this:

"How does the high cost of tuition impact the degree completion of mature college students?"

But Avoid Getting too Narrow

Be careful about getting too specific with your research question. Not every question that you come up with will be searchable.

For the above question about college tuition, the important questions to ask would be who? and what? Trying to find information on the impact of rising tuition in a particular city or province will be too restrictive, and the location may, in fact, be irrelevant to the search; a large-scale study across Canada or North America would likely yield applicable information.

The bottom line is, you will be working toward a **balanced research question** that is specific enough to guide you in your research, but not too restrictive.

ACTIVITY: Find the balanced topic

Now it's your turn. Practice thinking about balanced topics with these 3 examples. Click the arrow to show the next question.

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https://kpu.pressbooks.pub/doingresearch/?p=29

2. Background Reading

As you are exploring your topic and figuring out ways to narrow it down to a searchable question, it is a good idea to do some initial reading. For one thing, you might not know much about your topic yet. For another, such reading will help you learn the terms used by professionals and scholars who have studied your narrower topic. Those terms might become your keywords or search terms later on, so keep them in mind.

Getting your words right

It's important to understand that the search terms you use will have a direct correlation with the kinds of sources you find. And spending some time early on in your research learning relevant terms will save you time later on.

For instance, if you were going to do research about the risk of bird flu to humans, initial background reading would teach you that professionals and scholars usually use the term **avian influenza** instead of **bird flu** when they write about it. (Often, they also use H1N1 or H1N9 to identify the strain.) If you didn't learn that, you would miss the kinds of sources you will eventually need for your assignment.

Take a look at the Google search results using the terms "bird flu" and human risk vs. "avian influenza" and human risk. Compare the kinds of sources listed.

(Click on the thumbnail image for a larger view. Use your browser's back-button to return to the page.)

Comparing Google search terms

If you were to follow the linked results, you would see that the sources on the right come from government agencies and scientific journals, whereas the sources on the left come from news outlets or consumer health websites.

A note about Wikipedia

Wikipedia is a popular place to start your research and will likely be one of the top results in a Google search of your topic. While Wikipedia articles are edited and must be supported with external links and references to other, legitimate sources, it is not a good idea to rely solely on them. That's because you can't verify who

has written the article, and whether the author has any credibility or expertise on the subject. Content on Wikipedia has the potential to change quickly, so your source might disappear and will be difficult for your reader to find later.

What you can do with a Wikipedia article is look at the external links, the references, and the suggestions for further reading and try to follow up with those, either in the Library's collection or elsewhere on the internet.

Try a Library encyclopedia or dictionary instead

Although you will likely start your background reading with a quick Google search, you should visit the library and its collection of reference materials early in your research. The library has access to many encyclopedias, dictionaries, and handbooks, both in print and online.

You will find a list of KPU's reference books here. You will also find links to individual reference books when you do a search using Summon. (Think of Summon as the library's search engine; it's the main search box on the homepage.)

Image by Pixabay.

Encyclopedias and **handbooks** will provide:

– a broad overview of your topic

– sub-topics and related issues

– controversies and criticisms

– key thinkers or researchers in the area
– references, recommended articles, and links to further reading

Dictionaries will offer a definition of your term and related terms that will be important as you develop your search strategy.

ACTIVITY: Use an encyclopedia article

The article below is from the Encyclopaedic Dictionary of Psychology and was found using the library's Summon search tool.

Click on the hotspots to see what information the article provides on the general topic of "eating disorders."

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https://kpu.pressbooks.pub/doingresearch/?p=33

After this background work, you are now ready to start developing the research question you will try to answer for your assignment.

3. Developing Your Research Question

By now, it should be clear that finding a research question is a process of exploration and refining: exploring a topic will lead to developing a question, and further refinement will help you to focus that question to something that is not too broad and not too narrow.

ACTIVITY: Watch, think, and learn

Take a minute to watch this short video on how to develop a research topic. Think about the steps the student takes starting from a wide open topic, to something too narrow, and finally, to finding a balanced topic that is searchable.

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Steps for Developing a Research Question

The steps for developing a research question, listed below, can help you organize your thoughts.

Step 1: Pick a topic (or consider the one assigned to you).

Step 2: Write a narrower topic that is related to the first.

Step 4: Do some background reading, using the Library's reference books. Do some initial research in a library database.

Step 5: Readjust your topic if you get too few, or too many, search results.

Step 6: List some potential questions that could logically be asked in relation to the narrow topic.

ACTIVITY: Summing up Module 1

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Well done! You have completed the text and activity portion of Part 1 Getting Started on your Research. You are welcome to review any part of this module at any time.

PART III

PART 2. RECOGNIZE TYPES OF INFORMATION

Key Takeaway

Information creation is a process that results in a variety of formats and delivery modes, each having a different value in a given context.

Learning Objectives

By the end of this module, you should be able to:

- Identify the various information types in order to match a research need with an appropriate source
- Describe the process of peer review in order to select quality sources for your research

Navigation: How to move around this tutorial

This module should take roughly 15 minutes to complete. You will be able to revisit the text and activity portions as many times as you like; however, you will only have one opportunity to do the quiz, linked in Moodle, at the end of each part.

Use the arrows at the bottom of each page to move forward and backward through the modules. Or, use the Contents menu in the top left hand corner to go to a particular section.

Once you have your research question, you will need to locate the information sources appropriate to your question and the requirements of your assignment. Taking a minute to understand how information is created and delivered through a variety of formats will help you in selecting the best sources.

With so many sources available, the question is usually not whether sources exist for your project, but which ones will best meet your information needs.

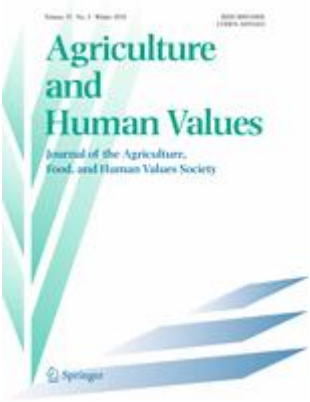
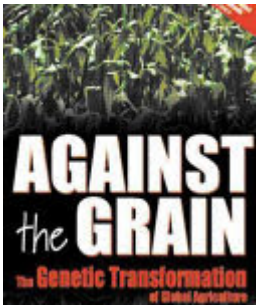
Image by Pixabay.

4. Types of Information Sources

Consider a topic such as the **safety of genetically modified food.** Wading into this large and controversial area, you will quickly discover that information about it comes from a wide range of sources: blogs and opinion pieces, natural medicine websites, scientific research articles, government and NGO sites, as well as books, newspapers, and magazine articles.

Each of these types of sources has different content, written by people with varying levels of expertise, and written for different audiences. And each of these types of sources will have a different value for you, depending on the context and requirements of your research need. Some assignments will require that you use scholarly, academic sources that have to undergo a lengthy editorial process and therefore take longer to appear. Other assignments may allow you to use less formal, popular sources of information that may be more timely.

Newspaper	
Encyclopedia, Wikipedia	
Website	
Magazine	
Government/NGO	

Scholarly article	
Scholarly book	
Social media post, blog	

5. What Kind of Information Do You Need?

Click the arrows below to learn about which types of information sources best meet various research needs.

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https://kpu.pressbooks.pub/doingresearch/?p=45

ACTIVITY: Match the resource with the research need

Think about which kind of resource would be best suited for each question.

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https://kpu.pressbooks.pub/doingresearch/?p=45

6. Popular and Scholarly Articles

For some of your research assignments, you will be expected to use “scholarly” articles. These may be called “academic” or “journal” articles, or more specifically, “peer reviewed” articles. In a later tutorial we will learn how to focus your searches in order to find these.

For now, it is useful to learn to recognize the difference between these types of publications so that whether you are searching in a library resource or on Google, you will be able to make some judgment about the kind of information source you are looking at and whether it will be appropriate for your assignment.

	Popular Articles	Scholarly Articles
Author	Journalists Professional writers	Scholars Faculty members Researchers Professionals in the field
Audience	General public	Other scholars or professionals
Visual Appearance	Often include color, photos, advertisements	Mostly text, but may include a few graphs or charts
Length	Tend to be short	Tend to be lengthy
Language	Can be understood by the average reader	Use professional jargon and academic language
Content	Gives a broad overview of issues of interest to the general public	Covers narrow topics related to specific fields
	Rarely gives full citations for sources	Includes full citations for many credible sources
Recommended For:	Enjoyable reading material	Sources for academic work
	Finding topic ideas	Professional development
	Learning basics or different perspectives for your topic	Learning about new research being conducted

Some key differences between popular and scholarly articles. Image by adstarkel.

Trade or professional articles

Depending on your area of study, you may also be asked to consider a third type of publication that is written for professionals and people within a particular field of work. These articles target a specialized audience, may report on primary research but from an applied or summary perspective, and may have advertisements of interest to people in that profession.

7. Producing Information

The process of information creation follows a timeline. As soon as an event occurs, social media and online news sources are the first to provide coverage. Magazines and newspapers will follow shortly after, and journal articles and books take even longer to get published.

Knowing this will be important in your research: if you choose a very recent event to write about, you will likely not find information about it in a book or scholarly article. You may, however, need to expand your topic to look for a similar or related event, or broader treatment of the subject, which you can still use to support your writing.

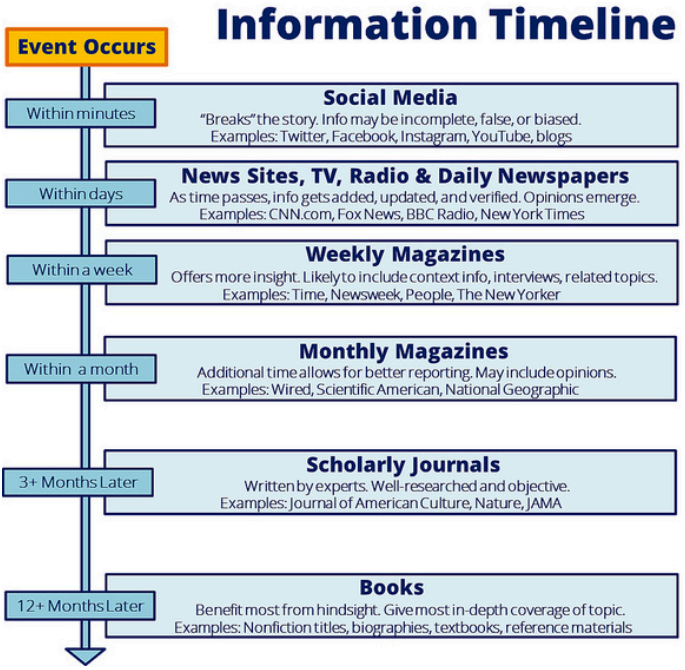

Image by adstarkel.

ACTIVITY: Explore the timeline

The following timeline details how the media covered an important news event in 2012. Maximize the screen for best viewing.

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https://kpu.pressbooks.pub/doingresearch/?p=49

8. Understanding Peer Review

Your assignment may require that you include information from "peer reviewed" articles. These articles are published in scholarly or academic journals after they have gone through a lengthy editorial process which usually involves the author making many revisions. The reviewers themselves are experts in the same field, and judge the strength of the article on the originality of the research, the methods used, and the validity of findings. The highest standard of peer review is "double-blind," meaning that both the identity of the authors as well as the reviewers are kept anonymous in order to ensure that bias and subjectivity do not influence the process.

But be careful! Not all of the content in an academic journal is subject to peer review. There may be other content such as letters, opinion pieces, and book reviews that have been edited, but not necessarily gone through a formal peer review process.

ACTIVITY: Watch, listen, and learn

The following video describes the process of peer review.

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ACTIVITY: Summarize the peer review process

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https://kpu.pressbooks.pub/doingresearch/?p=50

But how can you, the researcher, recognize a peer reviewed article?

Fortunately, the library's Summon search and most of our databases have a filter or limit which will help you find the right type of information. Various databases will use different terms: look for "academic" or "scholarly" or "peer reviewed."

There are other clues you can look for.

Tip: Clues to help you decide if it is peer reviewed

Author's credentials and affiliations	Look for the author's degrees, as well as the university or research institution they are affiliated with.
References	Any peer reviewed article will have a lengthy list of sources used by the author.
Submission guidelines	Somewhere on the journal's homepage will be a link for submitting an article for review. You may have to dig around a little!
Journal publisher	Is the journal published by a scholarly society? A university press?

ACTIVITY: Summing up Module 2

Pick the correct statement.

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Well done! You have completed the text and activity portion of Part 2 Recognizing Types of Information. You are welcome to review any part of this module at any time.

PART IV

PART 3. DEVELOP YOUR SEARCH STRATEGY

Key Takeaway

Research is an *iterative process* that involves asking increasingly complex questions whose answers will lead to revised questions or new lines of inquiry.

Learning Objectives

By the end of this module, you should be able to:

- Develop a search strategy in order to use research tools more efficiently
- Implement key features of library search tools to improve search results

Navigation: How to move around this tutorial

This module should take roughly 15 minutes to complete.

Use the arrows at the bottom of each page to move forward and backward through the modules. Or, use the Contents menu in the top left hand corner to go to a particular section.

You've developed a research question. You have an idea of what kinds of sources you need and what is required by your assignment. Now it's time to consider how you will build a search strategy that will allow you to use the library's resources most efficiently.

It is useful to understand that the research process is *iterative*, which means the results of initial searches will help shape and improve your subsequent searches. You will likely perform a sequence of searches several times and use various tools, including Google and library resources, before getting a set of results that will meet your needs.

A good search strategy should consist of the following:

1. keyword searching
2. examining the results of initial searches
3. using filters or limits
4. citation tracking

Image by Pixabay.

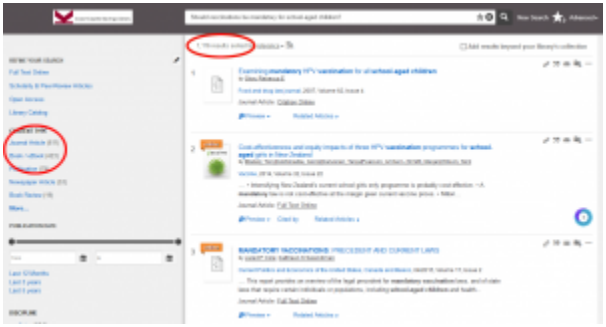
9. Strategy #1: Start with Just the Keywords

The first strategy in effective research is to start with a basic keyword search of your topic. Keep the focus on just the main concepts, or keywords, of your question. Typing a complete sentence or question into a search box, whether you are in Google or one of the library's research tools, will not give you as comprehensive or relevant results as just entering the two or three keywords that best reflect your question.

See what happens when you enter your search question, in natural language, directly into the library's Summon search:

The question is **"Should vaccinations be mandatory for school-aged children?"**

(Click on the thumbnail for a larger view. Use the back button in your browser to return to the page.)



Search results from natural language query

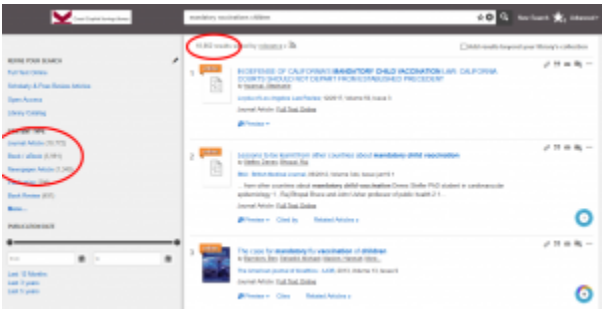
Only a little over 1,000 results come back, which is not as many as you might expect considering that Summon searches everything the library has in its collection. Furthermore, the results are rather evenly split between journal articles and books.

Now, repeat the search again, but with just the keywords that are central to the question you are researching. Removing the non-essential words in the question would leave you with something like this:

~~"Should~~ vaccinations ~~be~~ mandatory ~~for school-aged~~ children?"

The search below was done using **mandatory vaccinations children**.

(Click on the thumbnail for a larger view. Use the back button in your browser to return to the page.)



Search results using keywords

This search results in over 15,000 items, with many more journal articles. That's because in the first search, Summon is looking for items in which ALL of the words of the search query are present. In the second search, only those three terms need to occur in the results. Furthermore, the words left out of the question are not essential to the overall strategy of the query.

10. Check your Bias

Remove bias

Avoid any words which may imply a bias in the results: negative, positive, good, bad, benefits, harms, effects, and so on. Remember, you are searching for a balanced treatment of the question, and including biased or leading terms could skew the results of your search.

Consider what would happen if you included the term “anti-vaxxer” in your search. You would most likely end up on websites with inaccurate information.

ACTIVITY: Focus on the keywords of a research question

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11. Strategy #2: Examine your Results

In the previous section we looked at search results using the library's Summon search tool and found a range of items coming from scholarly journal articles, books and ebooks, newspapers, and more.

If you were to examine just a few of the top results, you would quickly see related and more specific terms that might help in subsequent searches; for example, **vaccine exemption** and **vaccine hesitancy** provide slightly different perspectives on the topic and correspond to disciplinary approaches. Articles about vaccine exemption would examine the issue from a legal perspective (an individual's right vs. population health), but articles about vaccine hesitancy might examine it from a philosophical or psychological perspective (opinions, trust in government, or misinformation). Similarly, you might find additional synonyms or alternate terms (**immunization**, **herd immunity**) that will help make your searches more complete.

As a researcher, asking yourself how these narrower and alternate terms relate to what you want to find out will be an important part of your search strategy.

> ***Tip: Results ranked by relevance***
>
> Summon and most of the library's databases will return search results ranked in order of relevance. After

performing a search, always examine closely the top few items for more precise search terms, synonyms, or other related pieces that you might add to the next search.

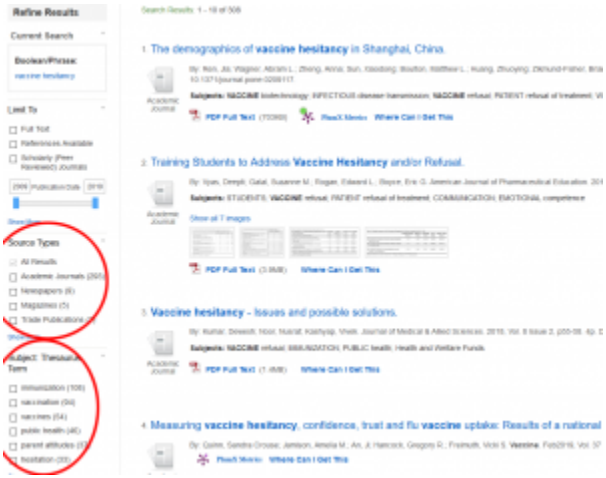
12. Move to a Database

Move to an article database

Moving your research over to one of the library's databases will bring a more focussed set of results.

Our earlier keyword search showed us that vaccine hesitancy might be a useful concept for finding information about what motivates some people to refuse vaccinations for their children. Doing a search with the term "**vaccine hesitancy**" in Academic Search Complete, the library's largest multi-disciplinary database, yields the following results.

(Click on the thumbnail for a larger view.)



Database search results

The majority of articles using the term "**vaccine hesitancy"** come from academic journals, indicating that it is a concept or term used by researchers or scholars in a variety of fields, but not so much in the popular or mainstream press. A close look at the subject terms also provides an indication of how the results are focussed: some will concentrate on public health, others on parental attitudes, and others on immunization more generally. This kind of strategy tells you how the issue is approached by different perspectives, and what might be most relevant for your own research.

See this page for a list of article databases the library subscribes to.

13. Use the Library Catalogue

Try the library catalogue

A search of the library catalogue will yield books/ebooks, as well as videos in the collection. Again, results are ranked by relevance. Examining the first few items in the list will give you further ideas for searching. You may find books whose entire contents will be useful to your search, or you may find edited works, with a single chapter relevant for your research.

ACTIVITY: Watch, listen, and learn

The following brief video introduces you to searching the library catalogue, including using subject terms and filters.

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You can access the library catalogue directly by selecting it from the library's homepage, above the Summon search box.

ACTIVITY: Analyze the details of a book

The image below was taken from the catalogue record for a book on vaccines and children. Click on the hotspots to see what kind of information about an item is available in the catalogue. Use this to further inform your search.

An interactive or media element has been excluded from this version of the text. You can view it online here:
https://kpu.pressbooks.pub/doingresearch/?p=352

14. Strategy #3: Add some Filters

An effective search strategy makes use of the specialized features within the library's search tools to focus on the kinds of resources you need. Unlike a Google search, Summon, library databases, and the catalogue have filters and limits that allow you to further refine your results list in a few ways.

Recall in the second module you were introduced to the idea that information comes in a variety of sources; part of your strategy should be to ensure you are getting the content you need. Does your assignment require that you use only certain kinds of sources? Is there a date restriction? Can you use a video?

> ***Tip: Use a filter or limit***
>
> After an initial search, look for these tools to further refine your search

What do you need?	Filter/Limit
Scholarly journal? book/ e-book? newspaper article? video?	Content type or source
Recent? last 10 years?	Publication date
Focussed on a specific subject	Subject headings, discipline, or topic

ACTIVITY: Selecting the best limits

Click on the arrows to answer the 4 questions below.

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15. Strategy #4: Citation Tracking

A final strategy is to examine the works cited by the authors of the initial sources you find.

Image by Pixabay.

Consider that scholarship is a conversation among researchers on a particular subject, with everyone offering evidence, theories, and criticism to advance what is known and what *may not* be known about a topic. Your task is to understand what connections are being made between these viewpoints, how you will integrate them in your own work, and what conclusions or advances you might be able to add.

In practical terms, as a researcher, this means paying attention to the reference lists or bibliographies of the works you find in your initial searching. This is known as **citation tracking** and is an important strategy to use to find additional resources.

There are a couple of ways to do this:

1. Follow the authors and works mentioned in the introduction or literature review section of your first article
2. Use the links that Summon, library databases, and sometimes Google Scholar provide to locate any articles that cite your article, as well as other recommended or related works. Look for: **Cited By**, **Recommended**, or **Related** articles

ACTIVITY: Click on the hotspots

The image below is taken from the introduction of an article on populism, found in one of the library's databases.

(Source: Moffitt, B., & Tormey, S. (2014). Rethinking populism: politics, mediatisation and political style. *Political Studies*, 62(2), 381–397. https://doi.org/10.1111/1467-9248.12032)

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16. Library Research Tools and When to use Them

Throughout this module, we have referred to various library research tools, but we have not discussed when to use them. Learning which tools to use at the various stages of your research is also another strategy for finding the sources best suited to your assignment, and will decrease the amount of time you spend looking.

(Click the tools below for an image of their search interfaces.)

Tool	What's in it?	When should I use it?
Summon	Everything the library has in its collection: • books/ebooks • journal/magazine/ newspaper articles • government documents • reference books • videos	Start here when you are new to your topic or assignment. Summon is great for seeing the breadth of what is available on your subject.
Catalogue	Almost everything the library has in its collection, except articles • books/ebooks, • government documents • videos	Use this when you know you are looking for a book or ebook, or when you are looking for a specific title. You will NOT find journal articles here. The catalogue does not have the full-text of items, but many books will have a table of contents.
Article Database	Specialized or multi-disciplinary • peer reviewed journal articles • some trade/ professional publications • some newspapers	Use a database when you know you need peer reviewed journal content. Learn which databases are focussed on particular subjects.
Google Scholar	• scholarly journals articles • conference proceedings • research/ government publications	Can't find what you're looking for in the article databases? Use this to go beyond the library's collection to see what else is available on Open Access websites or authors' own sites. Ask the library how to maximize access. NEVER pay for articles!

ACTIVITY: Which research tool is best?

Pick which tool would best serve the research need. Click the arrow to answer the next question.

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17. Summing up Part 3

ACTIVITY: Summing up Module 3

Pick the correct statements.

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Well done! You have completed the text and activity portion of Part 3 Developing your Search Strategy. You are welcome to review any part of this module at any time.

PART V

PART 4. EVALUATE YOUR SOURCES

Key Takeaway

Evaluating a source of information involves *asking critical questions* about its suitability within the context of the research need.

Learning Objectives

After this module, you should be able to:

- Identify indicators of authority to determine the credibility of information sources
- Evaluate the relevance of a source for a particular research need, based on considerations of currency, accuracy, and purpose

Navigation: How to move around this tutorial

This module should take roughly 15 minutes to complete.

Use the arrows at the bottom of each page to move forward and backward through the modules. Or, use the Contents menu in the top left hand corner to go to a particular section.

At this point in your research, you've likely found several sources of information that might work for your assignment. Now it's time to take a closer look at these sources and make sure they are the best ones for your research purposes. This is true of information you find in a general Google search as well as the library resources. Whether you are considering a blog post or a journal article, you will need to pay attention to several factors, including not just the expertise of the author, but also the purpose, quality, and relevance of the information before deciding whether or not to use it in your assignment.

The bottom line is that most experienced searchers view the information they find with a *degree of skepticism* as well as an *open mind*.

Image by Got Credit.

18. Checklists

There are many checklists available to help guide you through this critical process of evaluating your sources; you may have heard of the CRA(A)P test, RADAR, or something similar. All of these lists are really just devices to help novice researchers remember the criteria by which they should evaluate the information they find.

The following list is meant to be a starting point for you to develop your own internalized set of questions.

Click the arrows below.

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19. Question Authority

In terms of evaluating a source of information, the expertise or credibility of its author is extremely important. This is the case not only for your university assignments, but also your personal information needs; in general, we want to know that our sources are reliable and our information sound.

But this idea of authority can be complicated. Within the academic publishing world, determining someone's expertise is somewhat straightforward in that advanced degrees, a publishing record, and an affiliation with an institution of higher learning or research are the conventional indicators of authority.

Outside of the scholarly community, there are other indicators of an author's credibility; other communities may recognize authority or expertise by means of specific credentials or practical experience. For example, we generally rely on articles in the mainstream press because professional journalists are supposed to abide by a code of ethics and have a lengthy publishing record. We see a registered physical therapist to address a sports injury.

When it comes to verifying an author's credibility within the scholarly literature, library research tools can help us to make a quick determination of authority. Recall that in the last module we looked at using the scholarly or peer reviewed limits in Summon and databases to find results that are published in academic journals.

But looking a little more closely at the author and the journal, and perhaps doing some quick Google searching, can help us to make a better decision about the author's expertise in a particular area. Having an advanced degree in theoretical physics does not necessarily make someone an expert in evolutionary biology.

20. Who is the author?

Activity: Check the authors

Take a look at the following record for an article from the library's Academic Search Complete database. Click on the purple hotspots.

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Tip: Go one step further

Going a step further to search for your author on **Google Scholar** will lead to their publication record. What else have they written?

You might also do a quick Google search for the journal's homepage. Look for author submission guidelines where a peer review process should be described, as well as the scope and aim of the journal.

21. Consider Currency

To evaluate the currency of your information source, you will first need to know the requirements of your assignment. You may be able to use sources as old as 10 years, or you may need very current information. Currency is also somewhat discipline or topic dependent; research in history or literature may involve using older sources, but in the sciences and technology, currency is extremely important.

And sometimes, our research may involve examining a change in thinking or perspective over time, in which case you may need a variety of sources spanning a certain period.

Learn to ask the following kinds of questions:

- What is the publication or copyright date?
- Is it a reprint of a previous work? a new edition or revision?
- Is there newer information available on the topic?
- How might ideas and perspectives have changed since the work was published?

Activity: Decide whether the following sources are current enough for the topic

Chose the correct answer. Click the arrow to answer all 3 questions. Maximize the image by clicking the plus **+**.

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22. Check for Purpose and Accuracy

Making some judgment as to the purpose of your source will also help you determine whether the information it contains is accurate. Asking why something has been published, what overall purpose its author had in creating and sharing it, is part of the critical assessment you'll need to do in order to decide whether you should use it for your research.

For peer reviewed journal articles, books published by scholarly or professional publishers, government reports, and stories from mainstream news outlets, you can be fairly confident that the purpose behind such publications is to provide unbiased information, or contribute to knowledge about a certain topic. A large part of a formal review process includes careful fact-checking by the reviewers.

But evaluating sources from your Google search requires close scrutiny. Ask why a website exists. Are the authors or creators likely to be using unbiased information? Might they be motivated to spread inaccuracies or misinformation? What evidence do they use to support their claims?

Activity: Watch, think, and learn

Take a minute to watch this short video on how to evaluate sources. Think about the techniques used to determine the underlying purpose and potential bias of a website.

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23. Explore the source

Consider the following example.

You decide to research the topic of whether municipalities should add **fluoride** to public **drinking water**.

A Google search produces a mix of government, health, and consumer advocacy sites, including this one from a popular natural medicine website Natural News[New Tab]. (Keep this tab open to answer some of the following questions about the site.)

1. Start by examining the URL

You might begin with a quick check of the URL (the link) and the domain; this will tell you something about the overall purpose of the site. Which of the categories below does this natural medicine site fall into?

Image by adstarkel.

2. Look around the site

Further evidence of a commercial purpose is clear by the striking presence of advertisements for natural health products and apps, many of which are not related to the topic. Also note the online store. What might this tell you about the intent of the site?

Is it possible to determine the accuracy of the information? The external links provided at the bottom of the article simply refer back to **other articles on the same website**. A check of the two studies referenced **do not** conclude that fluoridated water causes the purported health problems, but conclude that further investigation is needed.

3. Leave the page

Now it's time to find something out about the website and its owner.

Open a new tab or window and do a quick Google search for the website or the owner's name (find this on the About Natural[New Tab] News page). Scan the first few results. How is the website and its owner regarded by other sources, namely the mainstream press and Wikipedia?

Notice that the Wikipedia page for **Fluoridated Drinking Water** includes a link to the controversy[New Tab] surrounding this topic. Go one step further and open the Talk[New Tab] page for this article. What do the comments from Wikipedia editors indicate?

Want further confirmation that Natural News might be less than reliable? Try searching one of these fact-checking sites:

- Snopes[New Tab]
- FactCheck.org[New Tab]

In sum, take a few extra minutes to learn something about the source you are considering.

24. But is it Relevant?

You have found a source that seems current enough and the information seems accurately portrayed. You may even be able to verify that the author has some expertise or authority on the subject. It is current enough to suit the topic, and it appears to be from an academic publisher.

But there is still one more thing to consider. Is it relevant to your search? Is it written at a level you can understand? Who is the target audience? And perhaps most importantly, how will you use it in your assignment?

25. Putting it all together

The following graphic illustrates the process of determining the credibility of sources you find on the internet. It is also a useful reminder of the critical questions you should be asking of all the sources you find in your research, including those you find in the library.

Image from IFLA.

26. Summing up Part 4

Activity: Summing up

Your research question is: **What are the potential harms and benefits of e-cigarettes?**

Decide which of the two sources is better. Use the arrow on the right to move to the next question.

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https://kpu.pressbooks.pub/doingresearch/?p=290

Well done! You have completed the text and activity portion of Part 4 Evaluate your Sources. You are welcome to review any part of this module at any time.

This is where you can add appendices or other back matter.