

INTRODUCTION TO INFORMATION LITERACY



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Introduction to Information Literacy



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This text was compiled on 06/07/2025

TABLE OF CONTENTS

Licensing

1: Information and its Sources

- 1.1: Introduction - How Information Empowers You
- 1.2: Using this Book
- 1.3: Helpful Learning Tips
- 1.4: Citing this Book
- 1.5: Artificial Intelligence
- 1.6: Information Disorder, Truth, and Trust
- 1.7: Web Evaluation Skills- A "Bleak" Track Record
- 1.8: Information Cynicism
- 1.9: Information Hygiene and Info-Environmentalism
- 1.10: Types of Information Sources
 - 1.10.1: Chapter Scenario
 - 1.10.2: Information Sources- Primary, Secondary, Tertiary
 - 1.10.3: Critical Thinking
 - 1.10.4: Information Sources- Traditional Formats
 - 1.10.5: Information Sources- Media
 - 1.10.6: Information Sources- Online
 - 1.10.7: Critical Thinking
 - 1.10.8: Information Sources- Bias
 - 1.10.9: Critical Thinking
 - 1.10.10: People as Sources
 - 1.10.11: Popular, Professional, and Scholarly
 - 1.10.12: Scholarly Articles as Sources
 - 1.10.13: Conclusion

2: Ethics and Citation

- 2.1: Ethical and Legal Use of Information
 - 2.1.1: Contributing to the Conversation
 - 2.1.2: Why We Cite Sources
 - 2.1.3: Plagiarism and Academic Integrity
 - 2.1.4: Conclusion
- 2.2: Citing Sources
 - 2.2.1: Citation Styles
 - 2.2.2: When to Cite Sources
 - 2.2.3: MLA Style
 - 2.2.4: APA Style
 - 2.2.5: Citation Steps for Any Style
 - 2.2.6: Citation Generators
 - 2.2.7: Conclusion

3: Getting Started with Research

- 3.1: Quantitative or Qualitative
- 3.2: Fact or Opinion
- 3.3: Publication Formats and the Information Lifecycle

- 3.4: News as a Source
- 3.5: Data as Sources
- 3.6: The Research Process
- 3.7: The Purpose of Research Questions
- 3.8: Choosing a Topic
- 3.9: Narrowing a Topic
- 3.10: Background Reading
- 3.11: Research Questions
- 3.12: Influence of a Research Question
- 3.13: Developing Your Research Question

4: Searching for Information

- 4.1: Sources and Information Needs
- 4.2: Sources to Meet Needs
- 4.3: Planning Your Sources
- 4.4: Research Questions
- 4.5: Identifying the Main Concepts
- 4.6: Avoiding Confirmation Bias
- 4.7: Brainstorming Related Terms
- 4.8: Creating a Search Statement
- 4.9: How Can AI Help With Research?
- 4.10: Conclusion

5: Using the Library

- 5.1: Finding Materials in the Library
 - 5.1.1: Chapter Scenario
 - 5.1.2: Using OneSearch- Your California Community College Library's Search Tool
 - 5.1.3: Finding Your Books
 - 5.1.4: Filters and Advanced Search Options in OneSearch
 - 5.1.5: Critical Thinking
 - 5.1.6: How Libraries Organize Materials
 - 5.1.7: Dewey Decimal Classification (DDC)
 - 5.1.8: Library of Congress Classification (LCC)
 - 5.1.9: Practice
 - 5.1.10: Critical Thinking
 - 5.1.11: Conclusion
- 5.2: Using Library Databases
 - 5.2.1: Chapter Scenario
 - 5.2.2: Library Databases- What's Inside Them?
 - 5.2.3: Critical Thinking
 - 5.2.4: Choosing a Library Database
 - 5.2.5: Specialized Library Databases- Videos, Ebooks, and More!
 - 5.2.6: Scholarly Articles, Magazine Articles, and Newspaper Articles
 - 5.2.7: You Found Some Resources! Now What?
 - 5.2.8: Preparing to Use a Database- What Do You Need to Find?
 - 5.2.9: Full Text? HTML, PDF, and EPUB
 - 5.2.10: Conclusion

6: Evaluating Sources

- 6.1: Thinking Critically About Sources
- 6.2: Evaluating for Relevancy
- 6.3: Evaluating for Credibility
- 6.4: A Source's Neighborhood
- 6.5: Author and Publisher
- 6.6: Degree of Bias
- 6.7: Recognition from Others
- 6.8: Thoroughness
- 6.9: Combining the Factors

7: Open Education and Fair Use

- 7.1: What is Open Education?
- 7.2: Challenges with Open Education
- 7.3: Creative Commons
- 7.4: Public Domain
- 7.5: What Is Fair Use?
- 7.6: The Four Factors
- 7.7: Common Examples of Fair Use

Index

Detailed Licensing

Detailed Licensing

Licensing

A detailed breakdown of this resource's licensing can be found in [Back Matter/Detailed Licensing](#).

CHAPTER OVERVIEW

1: Information and its Sources

- 1.1: Introduction - How Information Empowers You
- 1.2: Using this Book
- 1.3: Helpful Learning Tips
- 1.4: Citing this Book
- 1.5: Artificial Intelligence
- 1.6: Information Disorder, Truth, and Trust
- 1.7: Web Evaluation Skills- A “Bleak” Track Record
- 1.8: Information Cynicism
- 1.9: Information Hygiene and Info-Environmentalism
- 1.10: Types of Information Sources
 - 1.10.1: Chapter Scenario
 - 1.10.2: Information Sources- Primary, Secondary, Tertiary
 - 1.10.3: Critical Thinking
 - 1.10.4: Information Sources- Traditional Formats
 - 1.10.5: Information Sources- Media
 - 1.10.6: Information Sources- Online
 - 1.10.7: Critical Thinking
 - 1.10.8: Information Sources- Bias
 - 1.10.9: Critical Thinking
 - 1.10.10: People as Sources
 - 1.10.11: Popular, Professional, and Scholarly
 - 1.10.12: Scholarly Articles as Sources
 - 1.10.13: Conclusion

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1.1: Introduction - How Information Empowers You



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Information comes in many forms including music, books, video clips, social media posts, friendly advice, and much more. The different ways that you can gain information and learn something are numerous. However, not every source of information is useful for every need. If you need medical advice, information from a family member isn't the same as a doctor.

Also, not every piece of information is delivered with good intent. The world is filled with inaccurate and even intentionally misleading information. You may find yourself needing to fact check an author or identify fake news. This book is focused on helping you identify where useful information comes from, how to recognize suspicious or unreliable information, and how to conduct research that will help you in your classes, in your career, and throughout your life.

It will also introduce you to the ethics of using information. The ultimate goal is to empower you to take charge of your own learning.

Our Journey...

Chapter 1: Learn about different types of information sources and how to identify the information you need in different situations.

Chapter 2: Learn how to develop research questions and begin the research process.

Chapter 3: Learn about specific search techniques for finding information.

Chapter 4: Learn about library resources and different internet sources.

Chapter 5: Learn how to evaluate a source of information to ensure it is of good quality.

Chapter 6: Learn how to use information ethically.

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1.2: Using this Book

LibreTexts is easy to use, but this page provides a few tips on how to get around and make the most out of this book.

When you open the book, you will see a list showing the Introduction and each Chapter. Each week of your course will have an assigned reading, linking directly to the chapter or page that your reading begins on. You will need to read the assigned reading to see how far you are supposed to read to.

At the top-right, there is a red PDF button and a blue Downloads button.



Under PDF: You can download the full book or a specific chapter as a PDF document.

Under Downloads: You can download the full book PDF. You can also buy a print copy if you want. This is not required for the course. Standard mail takes 14-15 days to ship, but there are quicker shipping options.

Page Navigation

When you open a chapter, you will see content or a list of sub-sections if the chapter has them. You can click on the blue text for these sections to open them. You can also click on the white arrows (to the right and left sides of the screen) to navigate to the next or previous page. Some pages may be blank. These pages are chapter headings, with other pages below them. You can simply continue to the next page.

Each Chapter and Section within a Chapter will start with a Learning Objectives box. This box is blue and has a short statement about what you should learn from that section.

The book may include embedded videos. If they are within your assigned reading then it is expected you will also view those videos. Each video includes a separate hyperlink to the video in case the embedded video does not work in your browser. All videos include captions which can be enabled in the video itself.

Note

Some sections will include a note like this, pointing out important context or information for you!

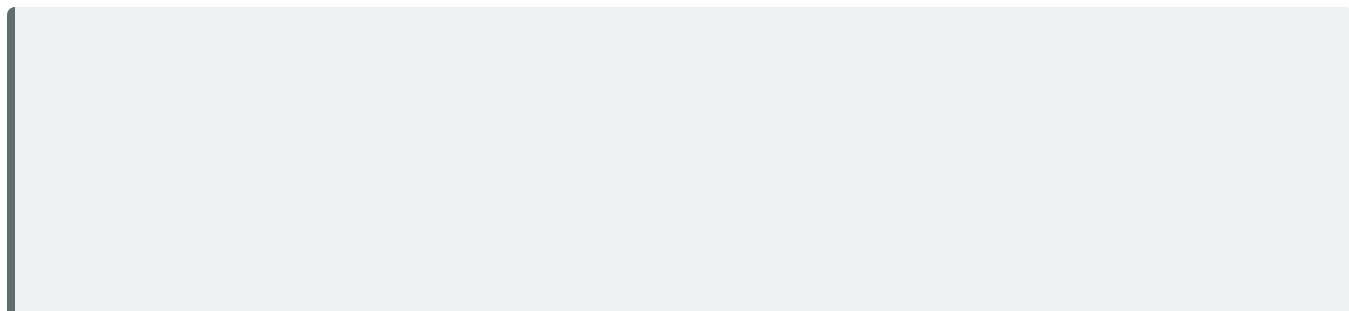
Scenarios and Critical Thinking Pages

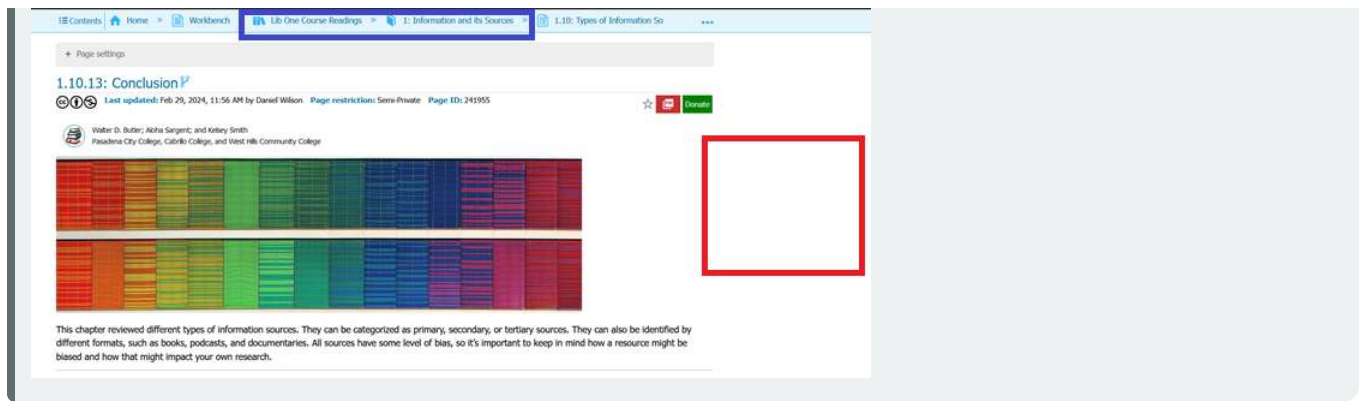
Some chapters of this book open with a Scenario. These Scenarios provide examples to introduce the key problem or situation that the chapter will address. They are not assignments or anything you need to complete. They provide some context in which the following information may be useful.

Some pages of this book are Critical Thinking pages. These pages just prompt you to think about the information you just read and consider how it might be applied in real life or the classroom.

End of a Chapter

When you reach the end of a chapter, you won't see another 'next page' arrow on the right (shown below, circled in red). To navigate to a new chapter, you can click on the book table of contents link (shown below circled in blue as 'Lib One Course Readings') or the link to return to the start of this chapter (shown below in the blue circle as 'Information and its Sources').





Footer Information

Each page has information at the bottom of the page (shown below). This contains information about the page and its license. You don't need to do anything with this information, though it does include a rating option for liking/disliking the page.



If you run into an issue using the book, contact your instructor to let them know and get help!

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1.3: Helpful Learning Tips

This page contains an easy-to-reference list of tools and tips to help you make the most of your time in the class.

Learning Tips

- Reading on its own is not necessarily studying. You may often need to read a section over once and then review it again purposefully looking for the key points of the section.
- Taking notes as you read can help you to retain information as well as provide you with a shorter list of key points to study later.
- Saying information aloud as you read it can help you remember it.
- When reading about different related topics, it can help to draw a map of how they are related.
- Remember not to cram all your study time together. You remember information better when you space it out over time, reviewing the information multiple times over days or weeks.
- If you have trouble finding time to study, it can be helpful to make a schedule. Even planning out 15 minute periods where you can read or review information can help!
- Because LibreTexts provides content as a web page, if you need to stop and pickup at a specific page later on you can just bookmark or save the web URL for that page.

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1.4: Citing this Book



It's important to cite your sources. You will often be required to cite sources when writing essays, discussion boards, or even when making presentations. Citation helps to not only support your argument and show that you know what you're talking about, but it also helps to give credit to the hard work of those people who created the information you quote or reference in your work. It also enables your readers to look up more information on the topic!

In classes, you may be asked to cite sources in different formats (most commonly MLA or APA). This page provides basic references (for this book) in the most common citation

formats.

(Image source: [Pexels.com](https://www.pexels.com/photo/hands-writing-on-paper/)(opens in new window), CC0)

American Psychological Association (APA 7th edition)

Instructions: You will cite this as an electronic book/ebook. Remember to format using a hanging indent.

Wilson, D. (2024). *Lib one course readings*. LibreTexts. <https://human.libretexts.org/@go/page/241886>

Modern Language Association (MLA 9th edition)

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Wilson, D. "Lib One Course Readings". *LibreTexts*. Day and month of access. Year of access, <https://human.libretexts.org/@go/page/241886>

Chicago (Notes & Bibliography style)

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A Note on In-Text/Paranthetical Citations of this Book

LibreTexts does not include page numbers for the pages of this electronic book. Instead of using page numbers when you reference information from this book, use the section or chapter heading at the top of the page you are referring to.

APA requires a page number when using a direct quotation, but otherwise does not require the page number. For APA you would need to provide the section title at the top of the page and the paragraph number that the quote came from (just count the paragraphs down from the top):

✓ Example 1.4.1

APA Example: (Wilson, 2024, Citing this Book, para. 2)

MLA requires the section title provided at the top of the page:

✓ Example 1.4.1

MLA Example: (Wilson, Citing this Book)

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1.5: Artificial Intelligence



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What is Generative AI (Artificial Intelligence)?

A Friend

AI is best treated like a friend. You can bounce ideas off of AI apps, but it's not okay to just copy content from them.

Artificial Intelligence can be defined as "technology that enables computers and machines to simulate human intelligence and problem-solving capabilities"¹. This does not mean that the AI tools we see being created today are truly thinking like people, but rather that they imitate some of the creative and problem-solving skills that humans have. Generative AI, is a special type of AI tool. Generative AI is used to create content such as text, images, audio, video, and more. Some people even use it to write letters or essays.

Can you spot the problem with using AI to write an essay? Using AI improperly can:

- Prevent you from learning skills and information you'll need later in the class
- Hurt your grade in your class
- Violate ethical standards and laws

That last one can have the quickest repercussions. Using AI to create an entire writing assignment is plagiarism, or theft of information. It violates ethical standards and can result in a zero for an assignment or worse. Many teachers have techniques and/or tools for identifying AI work.

Issues with Generative AI

Some AI writing tools such as ChatGPT have known issues where the written information can be completely incorrect, biased, or include totally fake citations². Many of these tools also have licenses that legally prohibit you from copying and using the content in different ways. These tools also copy other people's writing or art in order to "create" their content and many people view this as theft.

However, that doesn't necessarily mean you have to avoid all AI tools! AI can be used ethically to help you in your daily life and even sometimes with assignments. **So what can you do?**

1. Read your course Syllabus. A syllabus lays out the rules and expectations for a course. Many teachers are included AI statements that will provide information on what types of AI they will and will not allow in their class.
2. Read the instructions for each assignment. Assignment instructions may mention tools that are allowed or expected to be used.
3. Avoid using AI to complete an assignment (unless explicitly instructed to do so). Focus on using AI to help you. For example using:
 - Goblin.Tools to help you create to-do lists or judge the tone of your writing so that you can improve on it.
 - ChatPDF to analyze a scholarly article and summarize information from it.

- Bing Chat to brainstorm ideas for an essay topic or get suggestions for related topics.
- Grammarly to get suggestions for correcting your grammar while writing.

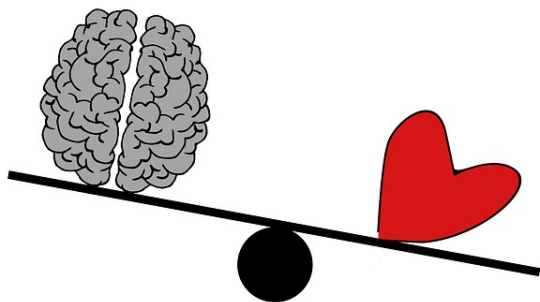
Remember that AI can be a useful tool, but it is no substitute to learning how to do things yourself! Your course assignments are created to help you learn and you learn by doing.

Sources

1. IMB.com (n.d.). *What is AI?* IBM.com. <https://www.ibm.com/topics/artificial-intelligence>(opens in new window)
2. The Writing Center (n.d.). *Generative AI in Academic Writing*. University of North Carolina at Chapel Hill. <https://writingcenter.unc.edu/tips-and-tools/generative-ai-in-academic-writing/>(opens in new window)

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1.6: Information Disorder, Truth, and Trust



“We tend to think that we have rational relationships to information, but we don’t. **We have emotional relationships to information**, which is why the most effective disinformation draws on our underlying fears and worldviews....We’re less likely to be critical of information that reinforces our worldview or taps into our deep-seated emotional responses” (Wardle, qtd. in Vongkiatkajorn; emphasis added).

Background

In an information environment shaped by pervasive algorithms, the attention economy, engagement, and polarization, how do we determine truth? How do we know which sources of information to trust? These questions are becoming increasingly difficult to answer, and even more so as “disinformation that is designed to provoke an emotional reaction can flourish in these spaces” (Wardle).



Indeed, in 2016, Oxford Dictionaries selected post-truth as the Word of the Year, defining this as: “relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to emotion and personal belief.”

Trust

A 2020 study from Project Information Literacy confirms that the way information is delivered today—with opinion and propaganda mingled with traditional news sources, and with algorithms highlighting sources based on engagement rather than quality—has left many college students concerned about the trustworthiness of online content. Students reported that it was difficult to know where to place their trust when credible sources are buried by a deluge of poorer-quality content and misinformation. One student noted that “it’s not that we’re lacking credible information. It’s that we’re drowning in like a sea of all these different points out there” (Head et al. 20).

“This is happening at a time when falsehoods proliferate and trust in truth-seeking institutions is being undermined. Even the very existence of truth itself has come into question....People no longer know what to believe or on what grounds we can determine what is true” (Head et al. 11, 36).

Essential Definitions

First, it is important to establish a shared vocabulary and terminology so that we can better understand and discuss these concepts. Claire Wardle, a world-renowned expert in this field, has used “information disorder” as an umbrella term for the various types of false, misleading, manipulated, or deceptive information we have seen flourish in recent years. She also created an **essential**

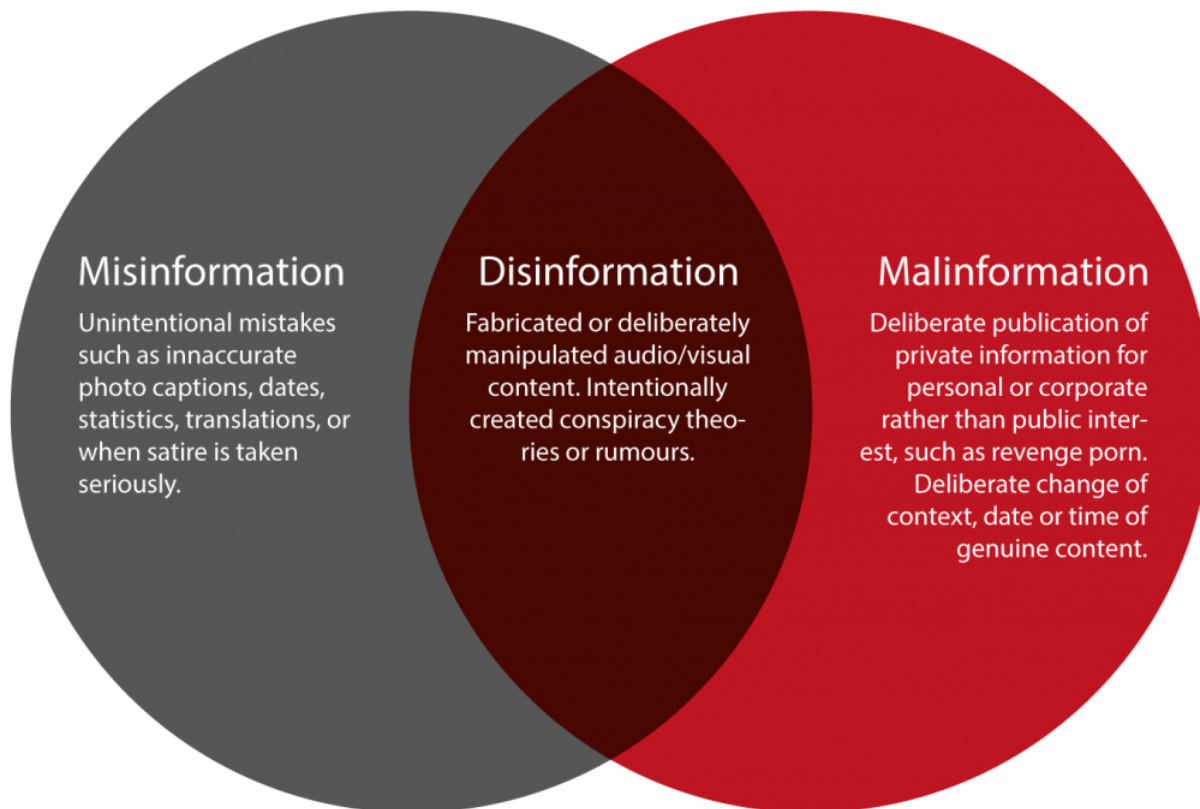
[glossary for information disorder](#), with definitions for related words and phrases. For example, you will find helpful definitions for terms like algorithm, bots, data mining, deepfakes, doxing, sock puppet, and trolling.

The graphic below illustrates the scale and range of intent behind false information, from unintentionally inaccurate to deliberately deceptive and harmful. For a much more detailed explanation of each form of information disorder, from “satire” to “fabricated content” to “false context,” see [First Draft’s Essential Guide to Understanding Information Disorder](#).

TYPES OF INFORMATION DISORDER

FALSENESS

INTENT TO HARM



Text version of this Venn diagram

Sources

“[First Draft’s Essential Guide to Understanding Information Disorder](#)” by [Claire Wardle](#) is licensed under [CC BY-NC-ND 4.0](#)

Head, Alison J., Barbara Fister, and Margy MacMillan. “[Information Literacy in the Age of Algorithms](#).” *Project Information Literacy*, 15 Jan. 2020. Licensed under [CC BY-NC-SA 4.0](#)

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Image: “[Line Mind](#)” by [ElisaRiva](#) on Pixabay

“[Oxford Word of the Year 2016](#).” *Oxford Languages*, Oxford University Press.

Vongkiatkajorn, Kanyakrit. “[Here’s How You Can Fight Back Against Disinformation](#).” *Mother Jones*, 9. Aug. 2018.

Wardle, Claire. “[Information Disorder, Part 1: The Essential Glossary](#).” *First Draft*, 9 July 2018.

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1.7: Web Evaluation Skills- A “Bleak” Track Record

“At present, we worry that democracy is threatened by the ease at which disinformation about civic issues is allowed to spread and flourish” (Wineberg et al., “Evaluating Information”).

How are we doing when it comes to recognizing disinformation and navigating the information disorder landscape?

Web Evaluation Skills: Students



In 2016, a few months before the U.S. Presidential election, an influential study on Web literacy was completed by the Stanford History Education Group. Their report—titled “[Evaluating Information: The Cornerstone of Civic Online Reasoning](#)(opens in new window)” —was concerned with the spread of disinformation online, and how this might threaten our democracy. The study asked nearly 8,000 students (in middle school, high school, and college) to perform five Web evaluation tasks. The results were quite shocking:

- **80%** of students couldn’t distinguish “sponsored content” from news articles on websites
- **67%** of students failed to recognize potential bias in online information
- **65%** of students took online images at face value
- Almost **all** struggled to evaluate information on social media.

In 2019, as yet another U.S. Presidential election approached, the Stanford History Education Group conducted a similar [study of civic online reasoning](#)(opens in new window), this time with a sample of 3,446 high school students. The results?

- **52%** of students believed a grainy video shot in Russia constituted “strong evidence” of voter fraud (ballot stuffing) in the U.S.
- **Two-thirds** of students couldn’t tell the difference between news stories and ads (“Sponsored Content”)
- **96%** of students did not consider how bias impacts website credibility (for example, ties between a climate change website and the fossil fuel industry).

These studies conclude by describing student’s ability to reason about the information as either “bleak” or “troubling” (Wineberg et al., “Evaluating Information”; Breakstone et al.).

However, as we will see below, this trouble is **not** just limited to students.

Web Evaluation Skills: “Experts”



In 2017, the Stanford History Education Group conducted a study, “[Lateral Reading: Reading Less and Learning More When Evaluating Digital Information](#)(opens in new window).” Here, they assessed the Web evaluation skills of presumed **experts**: Stanford undergraduates, History professors, and professional fact-checkers. This fascinating study confirmed that even Stanford students and professors with PhDs in History struggled to identify credible sources on the Web.

For example, in one task, the participants were presented with two websites that provided information on bullying, and they were given up to ten minutes to determine which was the more reliable site. One of the websites (American Academy of Pediatrics) was from the largest professional organization of pediatricians in the world, while the other site (American College of Pediatricians) had been labeled a hate group because of its virulently anti-gay stance. The result?

- Only **50%** of the historians identified the reliable website
 - Only **20%** of the undergrads identified the reliable website
 - **100%** of the fact-checkers were able to quickly identify the reliable website
-

Sources

Breakstone, Joel, et al. “[Students’ Civic Online Reasoning: A National Portrait](#)(opens in new window).” *Stanford Digital Repository*, 14 Nov. 2019. Licensed under [CC BY-NC-ND 3.0](#)(opens in new window)

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Wineburg, Sam, Sarah McGrew, Joel Breakstone, and Teresa Ortega. “[Evaluating Information: The Cornerstone of Civic Online Reasoning](#)(opens in new window).” *Stanford Digital Repository*, 22 Nov. 2016. Licensed under [CC BY-NC-ND 3.0](#)(opens in new window)

Wineburg, Sam, and Sarah McGrew. “[Lateral Reading: Reading Less and Learning More When Evaluating Digital Information](#)(opens in new window).” *Stanford History Education Group Working Paper No. 2017-A1*, 6 Oct. 2017, [dx.doi.org/10.2139/ssrn.3048994](https://doi.org/10.2139/ssrn.3048994).

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1.8: Information Cynicism



Skepticism vs. Cynicism

“While skepticism is healthy, cynicism—real cynicism—is toxic” (“Astroturfing: Last Week Tonight with John Oliver”).

As defined by the Oxford English Dictionary:

- **Skeptical:** Not easily convinced; having doubts or reservations
- **Cynical:** Believing that people are motivated purely by self-interest; distrustful of human sincerity or integrity

When it comes to information you encounter in your personal, professional, or academic research, a skeptical approach can be productive. For example, information skeptics might take a moment to fact-check, verify, or investigate a source before using or sharing it.

However, when skepticism turns to cynicism and deep distrust, research can become unproductive. Information cynics may feel powerless to identify reliable and useful sources. That is, while learning to question **everything**, they have begun to believe **nothing**—even highly-credible sources of information.

“Without feeling empowered to sort fiction on the web, a lot of students are merely cynical and believe they can’t trust **anything**” (Caulfield, qtd. in Young; emphasis added).

Sources

“Astroturfing: Last Week Tonight with John Oliver.” *YouTube*, uploaded by LastWeekTonight, 12 Aug. 2018.

“Cynical.” *Lexico*, Oxford.

Image: “Painting on wall of girl blowing question marks” by Matthew Paul Argall is licensed under CC BY 2.0

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1.9: Information Hygiene and Info-Environmentalism



Information Hygiene

The term **information hygiene** refers to the “metaphorical handwashing you engage in to prevent the spread of misinformation” (Caulfield, “It Can Take”).

This idea has gained prominence in recent years, and particularly during the COVID-19 pandemic, as we have witnessed a massive outbreak of misinformation, disinformation, hoaxes, and conspiracies surrounding this coronavirus. The World Health Organization (WHO) and other experts have even referred to the COVID-19 pandemic as an “**infodemic**”—an epidemic of information. In their February 2020 Novel Coronavirus Situation Report, the WHO noted that the COVID-19 outbreak and response “has been accompanied by a massive ‘infodemic’—an over-abundance of information—some accurate and some not—that makes it hard for people to find trustworthy sources and reliable guidance when they need it.”

This is a stark example of the real-world impact that our online information can have. In this case, false information that we view, “like,” and share can actually help to shape the public perceptions about the pandemic, as well as our responses and decisions about how to behave. Can you think of any other recent examples that demonstrate the **real-world impact** of disinformation?



So, the message here is that, in addition to actual hygiene, we also need to focus on information hygiene and “flattening the curve of dangerous falsehoods online by taking proactive steps to reduce their spread” (“Practice Information Hygiene”). Fact-checking, which we will discuss in the next chapter, is an example of good information hygiene. Much like hand sanitizer or hand washing, it isn’t a cure, but rather a prevention for the spread of misinformation (Caulfield, “Misinformation”).

Info-Environmentalism

The idea behind “info-environmentalism” is that if our information environment is polluted, we shouldn’t abandon it—instead, we should help to clean it up. That is, if we are frustrated with the content posted on platforms like Facebook or YouTube or with low-quality Google search results, why not clean it up by posting as much reliable information as we can?

Of course, a big part of this movement will involve putting pressure on the platforms themselves to act responsibly. But because the Web is a collectively-maintained and produced environment, we, as consumers and creators, can also participate in the process through direct action. Here are some examples of actions you might take to improve the information environment (Caulfield, “Info-Environmentalism”):



- Minimize your own “misinformation footprint” by being more thoughtful about what you post and share on social media. Do a quick fact-check first.
- Shift your focus from arguing points to explaining things to others.
- Edit and improve Wikipedia articles.
- Create explanatory YouTube videos.
- Post pages on blogs or wikis that provide helpful guidance on important issues.
- Post better answers on question-and-answer websites like Quora or StackExchange.
- When you do share information, use evidence and cite your sources.

Sources

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Image: “[Wash Your Hands\(opens in new window\)](#)” by [United Nations COVID-19 Response\(opens in new window\)](#) is in the [Public Domain, CC0\(opens in new window\)](#)

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SECTION OVERVIEW

1.10: Types of Information Sources

1.10.1: Chapter Scenario

1.10.2: Information Sources- Primary, Secondary, Tertiary

1.10.3: Critical Thinking

1.10.4: Information Sources- Traditional Formats

1.10.5: Information Sources- Media

1.10.6: Information Sources- Online

1.10.7: Critical Thinking

1.10.8: Information Sources- Bias

1.10.9: Critical Thinking

1.10.10: People as Sources

1.10.11: Popular, Professional, and Scholarly

1.10.12: Scholarly Articles as Sources

1.10.13: Conclusion

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1.10.1: Chapter Scenario

Scenario: Information Sources

It's your first essay assignment of the semester. Your professor says you not only have to find **reliable** sources, but that you have to use a **variety** of resources: books, magazines, newspapers, journal articles, and media resources. There's no explanation why they are requiring this, and you're left scratching your head trying to figure out not just **where** to find these resources, but **why** they make a difference.

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1.10.2: Information Sources- Primary, Secondary, Tertiary

Information Creation & Context

We can group information sources into three basic categories: primary, secondary, and tertiary. When we make distinctions between these three categories of sources, we are relating the information itself to the **context in which it was created**. Noting this relationship between creation and context helps us understand the big picture in which information operates, and prompts us to consider whose **voices** we are including in our research, and whose voices may be left out.

Primary Sources

Primary sources are **first-hand** observations or experiences of an event. They can also be the **original** sources of information before they have been analyzed, such as statistical data sets. Examples of primary sources include:

- Eyewitness reports (interviews, photographs)
- Speeches, diaries, memoirs
- Empirical research
- Original documents, historical newspaper articles
- Literary works (novels, plays, poems), artworks
- Tweets

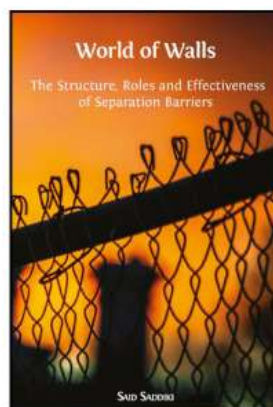


Eyewitness photograph: Protesters speak on the steps of San Francisco City Hall for a “Families Belong Together” rally.

Secondary Sources

Secondary sources are created after an event occurred and offer a **review or an analysis** of the event; they provide an **interpretation** of the primary source or data without offering new data. Examples of secondary sources would be:

- Biographies, nonfiction books
- Editorials
- Literary criticism and reviews
- Periodicals (such as scholarly journals, magazines, or newspapers)
- Retweets



Nonfiction book titled "World of Walls: The Structure, Roles and Effectiveness of Separation Barriers". This book analyzes the consequences of the construction of physical and virtual walls.

Tertiary Sources

Tertiary sources are **compilations** of information coming from secondary and primary sources; these can be lists or collections, and are generally reference material that can help you find, or direct you to, secondary and primary sources. Examples of tertiary sources include:

- Encyclopedias, dictionaries
- Indexes
- Databases, catalogs
- Most textbooks



Wikipedia, an online encyclopedia, is an example of a reference source (tertiary)

Note: These categories may differ between subject areas.

Sources

Creation & Context section adapted from “[Primary, Secondary & Tertiary Sources](#)(opens in new window)” by Teaching & Learning, [Ohio State University Libraries](#),(opens in new window) licensed under [CC BY 4.0](#)(opens in new window)

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1.10.3: Critical Thinking

? Critical Thinking: Source Types

Let's think about these categories a little more. When conducting research, it is often suggested that we begin looking at tertiary sources, then secondary, and finally primary. But when resources are created, it starts with primary, then secondary, and finally tertiary. Why do you think this relationship exists between research and creating resources? Are there any other ways that you can see information sources being created or to conduct research?

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1.10.4: Information Sources- Traditional Formats

As we saw in the chapter scenario, information sources are often identified by traditional formats: is the information found in a book, a scholarly journal article, or a magazine or newspaper article? Outside of these typically being classified as secondary sources (particularly in the humanities), these traditional formats have a few other commonalities: they all tend to be trustworthy; they go through some sort of publication and review process; and they all are fixed formats—that is, they can't be updated without creating a whole new version or edition of the resource. They can also be available as print (physical) or digital (online). **So, what makes them different or unique?**

Books



You are probably familiar with this type of information source and it might just be the first kind of resource you think of when you think of libraries. Books are different than the other resources in a few ways: They can explore and present a topic in breadth and depth much easier than a magazine or newspaper. You may find some special magazine issues or journal issues that are devoted to a theme, but the coverage will still be limited compared to a book's possibility. Books can be written by a single author or multiple authors; they can be compiled by an editor to represent different viewpoints or writings from various authors all exploring the same topic from different angles. Because of all of this, though, the information found in books may not be the most current information available.

Academic/Scholarly Journal Articles



Sometimes also called “peer-reviewed” articles, these go through a rigorous review process before they are published. They reflect research that is considered primary or secondary depending on how the research is conducted: In the humanities (such as English or History), these are considered secondary sources, but in the sciences (such as Biology) and social sciences (such as Anthropology), original research articles are considered primary sources. Unlike books, these journal articles tend to focus on specific questions about a topic; they don't explore or present a topic as broadly or deeply as a book, but the information they present can be much more current than a book. Also, because they are so focused, they might be seen as more specialized than a book's coverage, and they will generally be written to an expert audience. This means that they are not written for the average person to read, but for those who are already familiar with the concepts surrounding the topic. Their target audience are others who have some expertise in a specific subject area—even though undergraduates are often required to use them too. Another thing to consider is that access to journal articles can be tricky. If your library doesn't have access to a particular journal, either through a database or direct subscription, getting access on your own could be expensive and complicated (though as a community college student, you're not usually expected to pursue resources beyond your college library).

Magazine Articles



These are a bit different than your academic/scholarly journal articles. Magazines tend to use a lot of colorful images designed to grab a reader's attention, while scholarly journals feature graphs, charts, and tables with very little color, designed to convey information. Magazine articles will be written so that the average person can understand what is being discussed in the article. The articles tend to be much shorter than a scholarly journal article. Magazine articles can feature interviews and will look at current events or trends, but they won't be seeking answers to research-based questions. Instead, their focus is on what might hold popular interest.

Newspaper Articles



Newspaper articles typically describe current events. In contrast to magazine and scholarly journal articles, newspaper articles tend to be very short. Newspapers are typically published daily, and therefore provide the most up-to-date information about an event. Their authors are journalists who may engage in investigative reporting, but they do not conduct original scholarly research. While these articles are often proofread and reviewed for accuracy before publication, they do not go through an extensive peer review process.

Sources

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Image: “[Book](#)” by [mavadee](#), adapted by [Aloha Sargent](#), from [Flaticon.com](#)

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Image: “[Newspaper](#)” by [Freepik](#), adapted by [Aloha Sargent](#), from [Flaticon.com](#)

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1.10.5: Information Sources- Media

Media can refer to many things, but here it describes information sources that do not align to our traditional formats (books, magazines). These are usually visual in nature (such as film), or perhaps audio (such as music). Sometimes, we don't realize media resources are an option when doing research, but they can be very helpful, and for some cases can be even stronger resources than our traditional formats. Here are a few examples of media resources you might encounter as you conduct your own research projects.

Documentaries



Documentaries are films that provide us with a deep look at a specific topic. Non-fiction in nature, documentaries can advocate for a cause—which means we must be careful to notice any possible bias. They can be journalistic in nature where they report on an event, happening, people, and/or other subjects in detail. They can share an experience someone went through. Documentaries may also be entertaining, so that they are interesting to watch.

Radio Programs (Broadcasts and Interviews)



Radio programs can be a strong information source, especially if you're looking for interviews with specific people. They also report out on current events, but unlike our traditional formats where the information is printed and can be referenced later easily, radio broadcasts are usually one-time events. Fortunately, some of the programs are captured in library databases through transcripts, and other times, you might be able to find recordings of them online.

Television Programs (News and Educational Programming)



News and educational programming can be useful sources when doing research. News programs provide details about current events, and may also broadcast interviews. Educational programming might include documentary-style delivery of information, but it can also be instructive. In some cases, there may be dedicated channels that provide specialized content such as Discovery, The History Channel, and C-SPAN.

Sources

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Image: “Movie” by [Freepik](#), adapted by [Aloha Sargent](#), from [Flaticon.com](#)

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1.10.6: Information Sources- Online

The traditional and media formats may also exist online or in digital formats; these can be found through websites or in library databases. But there are other types of sources unique to the online environment that you might want to consider—or not consider—using. Below are just a few of them.

Wikis



Wikis are a type of website that typically allow a community of users to create pages about different topics. The most popular one, and one that you are probably familiar with, is Wikipedia. These websites are usually very simple in appearance and they are unique because they tend to support the idea of a community contributing to sharing information. With this idea, though, is the possibility for information to be shared without review or checked for reliability.

Blogs



Blogs can house primary source material as they are often like online diaries for individuals. In contrast to wikis, blogs are typically written by a single person, and that individual is typically sharing their perspectives or experiences about a specific topic. These can be insightful, but they are usually very opinion driven. And just because someone has a blog about a topic does not make them an expert about that topic.

Podcasts



Podcasts continue to grow in popularity, and over half of Americans have listened to at least one podcast (Winn). If you have not experienced a podcast, they are similar to radio programs, except that you don't have to listen to them live to enjoy them—they can be downloaded or streamed at a time convenient to the listener. You can listen to them in your car or from a capable device, like a smartphone. They can be focused on a specific subject area, contain interviews, or be a fictional series show. But just like blogs, podcasts can be hosted by anyone—and can be driven by opinions and biases.

Sources

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1.10.7: Critical Thinking

? Critical Thinking: Which Resources?

If you have an assignment that requires you to write an essay about the effects of climate change on polar bear populations, what types of resources would you expect to be helpful to use and why? Which resources may not be as helpful?

If you have an assignment that requires you to write an essay about the top 10 music singles in 2019, what types of resources would you expect to be helpful to use and why? Which resources may not be as helpful?

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1.10.8: Information Sources- Bias

Bias has been mentioned a few times in this chapter. Some sources may seem more susceptible to bias than others, but all of them carry some level of bias. So what is bias? According to the Oxford English Dictionary, bias is:

An inclination, leaning, tendency, bent; a preponderating disposition or propensity; predisposition *towards*; predilection; prejudice.

In other words, bias is a point of view that may influence how information is conveyed. This does not necessarily mean that the information in and of itself is incorrect, but the information may be presented in such a manner that it be interpreted to mean something else or be aligned to specific values. Bias is not always intentional—it can creep into resources without the creators realizing it. So, sometimes, we have to be extra careful when choosing resources and evaluate if there is a bias that is strongly influencing the trustworthiness of the resource that we use.

The image below comes from an organization that evaluates various media organizations or news-based organizations and places them on a scale of how they lean in social affairs: either to the “Right” or “Left,” where “Right-leaning” media organizations will have more conservative views about societal topics, and “Left-leaning” media organizations will have more liberal views about societal topics. You can read more about bias in the media here: [Media Bias](#).

AllSides™ Media Bias Chart

All ratings are based on online content only — not TV, print, or radio content.
Ratings do not reflect accuracy or credibility; they reflect perspective only.



AllSides Media Bias Ratings are based on multi-partisan, scientific analysis.
Visit [AllSides.com](https://allsides.com) to view hundreds of media bias ratings.

Version 3 | AllSides 2020

This image shows media outlets with bias leanings. On the left are resources such as CNN and MSNBC. On the right, examples include Fox News and the Daily Wire. In center, examples include the Associated Press and BBC.

[Text description of this infographic](#)

Sources

“bias, adj., n., and adv.” *OED Online*, Oxford University Press, Sept. 2020.

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1.10.9: Critical Thinking

? Critical Thinking: Bias

How does bias impact the presentation and interpretation of information? What can you do to mitigate that?

How do you recognize when a resource has bias?

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1.10.10: People as Sources

People as Sources

People don't just create the sources we use. They are actually sources themselves. Most of us use people as sources all the time in our private lives, such when we ask a friend for a restaurant recommendation or ask whether a movie is worth watching. But you probably aren't using people as sources very often in your assignments—unless you are a journalism major, of course.

In fact, research indicates that employers such as Battelle, Nationwide Insurance, Microsoft, the FBI, the Smithsonian, the Port of Los Angeles, SS&G Financial Services, and Marriott International have been dissatisfied with their new hires' inability to gather information by talking with real people. They've found new hires unwilling or unprepared to ask the experienced employee down the hall or the expert across town for information to solve a problem. For instance, the study linked to above quotes one employer as saying about new hires:

Here's something we're targeting in interviews now—the big thing is they believe the computer is their workspace, so basic interactions between people are lost. They won't get up and walk over and ask someone a question. They are less comfortable and have some lack of willingness to use people as sources and also have a lack of awareness that people are a valid source of information...

So getting some experience using people as sources is likely to help you not just with a current research assignment but with your work in the future.

Important: Who's an "Expert"?

Experts aren't only researchers with Ph.D.s doing academic work. The question when trying to decide who can be a source is really always, who can speak with authority about any part of the subject? And the answer to that question is always contextual, a kind of "it depends."

People can speak with authority for different reasons. According to the framework for information literacy, they can have subject expertise (say, having done scholarship in the field), societal position (maybe a public office or other relevant work title), or special experience (say, living or working in a particular situation of interest or having participated in an historical event).

For instance, people who have had firsthand experience living or working with a situation (say, a survivor of school shooting if your topic is on that subject) you are studying can have a unique perspective unavailable elsewhere. And it's that up-close, firsthand view of the situation that gives them the authority that you and your audience respond to.

Of course, such sources have to be evaluated just like any other. Could they be biased? Like any source, yes. We just have to keep that possible bias in mind as we use the information from such a source. That's part of exercising the critical thinking that research assignments are famous for producing.

Potentially biased or not, sometimes a source's firsthand experience can't be beat. And recognizing what they offer can help us open up to diverse ideas and worldviews that we would otherwise miss. Don't be surprised if this kind of source takes you off in completely new directions with your assignment, ones that turn out to be much more interesting than those you were following before. For many researchers, finding sources that really open up a topic like that is one of the most rewarding—and fun—things about doing research.

Some Examples of People as Sources

Comparing types of research questions with types of potential information sources.

Research Question	Potential Person as Source	Potential Person as Source
How are tools originally developed for medicine, geology, and manufacturing used to explore paintings and sculptures?	An art conservator who uses those tools that you read about in the newspaper or other source	The person who invented one of the tools on the floor of the factory where he works
Why do most people who qualify for food at foodbanks not ask for food?	A local food bank director	A person (perhaps a fellow student) who qualifies but does not ask for food at a food bank
How and why do city and county governments brand themselves?	An official in such a city or county who has been involved in branding decisions	The director of a company that designs branding for cities and counties

You can interview a person as a source on the phone, in email, with Skype, or face-to-face. You'll need to:

- Pay attention when reading other sources so you can identify whom to contact and know what they could have to offer.
- Prepare by learning enough about your topic so you can ask appropriate questions, know what your expert has done in relation to that topic so you don't seem ignorant of their contribution, and know how to contact them. You might also want to do a practice interview with a friend.
- Contact your source to see if they are willing to talk with you and when that would be convenient. Then follow through.

Use good interview techniques, such as trying to put them at ease, using active listening techniques to encourage them to talk, asking follow up questions, and thanking them at the end of the interview.

Citing People as Sources

Like other sources, people should be cited in your research final product, depending on the citation style you're using. For instance, in APA style, interviews, e-mail, and other personal communication should not appear in the reference list but should be in your main text only like this: (A. Authorslastname, personal communication, July 29, 2018).

See [Purdue Online Writing Lab](#) (OWL) for information on how to handle interviews and other communication with people in other styles.

ACTIVITY: People as Sources

[Open activity in a Web browser](#)

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1.10.11: Popular, Professional, and Scholarly

Popular, Professional, & Scholarly



We can also categorize information by the expertise of its intended audience. Considering the intended audience—how expert one has to be to understand the information—can indicate whether the source has sufficient credibility and thoroughness to meet your need.

There are varying degrees of expertise:

Popular – Popular newspaper and magazine articles (such as *The Washington Post*, the *New Yorker*, and *Rolling Stone*) are meant for a large general audience, are generally affordable, and are easy to purchase or available for free. They are written by staff writers or reporters for the general public.

Additionally, they are:

- About news, opinions, background information, and entertainment.
- More attractive than scholarly journals, with catchy titles, attractive artwork, and many advertisements but no footnotes or references.
- Published by commercial publishers.
- Published after approval from an editor.
- For information on using news articles as sources (from newspapers in print and online, broadcast news outlets, news aggregators, news databases, news feeds, social media, blogs, and citizen journalism), see *News as a Source*.

Professional – Professional magazine articles (such as *Plastic Surgical Nursing* and *Music Teacher*) are meant for people in a particular profession, and are often accessible through a professional organization. Staff writers or other professionals in the targeted field write these articles at a level and with the language to be understood by everyone in the profession.

Additionally, they are:

- About trends and news from the targeted field, book reviews, and case studies.
- Often less than 10 pages, some of which may contain footnotes and references.
- Usually published by professional associations and commercial publishers.
- Published after approval from an editor.

Scholarly – Scholarly journal articles (such as *Plant Science* and *Education and Child Psychology*) are meant for scholars, students, and the general public who want a deep understanding of a problem or issue. Researchers and scholars write these articles to present new knowledge and further understanding of their field of study.

Additionally, they are:

- Where findings of research projects, data and analytics, and case studies usually appear first.
- Often long (usually over 10 pages) and always include footnotes and references.
- Usually published by universities, professional associations, and commercial publishers.
- Published after approval by peer review or from the journal's editor.

Activity: Popular, Professional, or Scholarly?

[Open activity in a web browser.](#)(opens in new window)

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1.10.12: Scholarly Articles as Sources

Scholarly Articles as Sources

Articles in scholarly journals are valued for several reasons. First, they are usually trustworthy because their publication process includes a peer review that helps insure their accuracy and contribution to their disciplines. In addition, they often contain the first reports of new research, which makes their sections on methodology, data, analysis, and interpretation primary sources. Sometimes they instead consist of literature reviews summaries of multiple research studies done in the past on particular subjects of current interest. That makes those articles very helpful secondary sources.

Peer-Reviewed Sources

The most-respected scholarly journals are peer-reviewed, which means that experts in their field other than the author and editor check out each article before it can be published. It's their responsibility to help guarantee that new material is presented in the context of what is already known, that the methods the researcher used are the right ones, and that the article contributes to the field.

For those reasons, peer-reviewed articles are more likely to be credible. Peer-reviewed journal articles are the official scholarly record, which means that if it's an important development in research, it will probably turn up in a journal article eventually.

This article "[Meet Science: What is 'peer review' \(opens in new window\)?](#)" gives a longer explanation of the peer review process, which concludes that it is good but not perfect.

Parts of a Scholarly Article

The articles you use for your assignments must also be **relevant** to your research question—not just credible. Reading specific parts of an article can help save you time as you decide whether an article is relevant.

Video: [Guided Tour of a Scholarly Journal Article \(opens in new window\)](#). Watch this short (2:40) video to see the common parts of a scholarly article. You can enable captions on the video. The common parts of a scholarly article include:

- Title
- Author information (including name and institution/college)
- Abstract
- Introduction
- Literature Review
- Conclusion
- References

Reading a scholarly article usually takes some effort but with practice, you can become a professional at it! This article "[How to read and understand a scientific article \(opens in new window\)](#)" explains how to approach reading a scholarly journal article.

Activity: Parts of a Scholarly Article

[Open activity in a web browser. \(opens in new window\)](#)

Finding Scholarly Articles

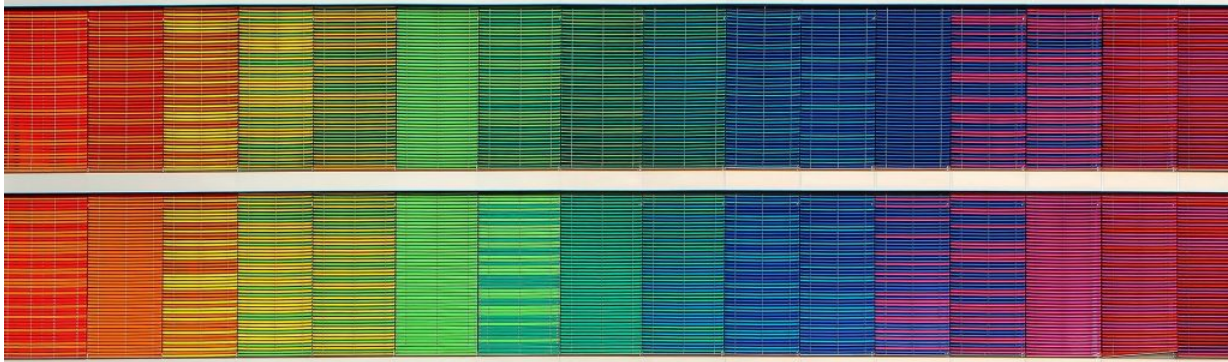
Most scholarly articles are housed in specialized databases. Libraries (public, school, or company) often provide access to scholarly databases by paying a subscription fee for patrons. For instance, many college libraries provide access to hundreds of databases that are made freely available to students. You can search for a journal title in these databases and often view a list of databases by subject.

Databases that aren't subject-specific are called general databases. [Google Scholar \(opens in new window\)](#) is a free general scholarly database available to all who have access to the Internet, and it provides some scholarly articles.

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1.10.13: Conclusion



This chapter reviewed different types of information sources. They can be categorized as primary, secondary, or tertiary sources. They can also be identified by different formats, such as books, podcasts, and documentaries. All sources have some level of bias, so it's important to keep in mind how a resource might be biased and how that might impact your own research.

Sources

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CHAPTER OVERVIEW

2: Ethics and Citation

2.1: Ethical and Legal Use of Information

2.1.1: Contributing to the Conversation

2.1.2: Why We Cite Sources

2.1.3: Plagiarism and Academic Integrity

2.1.4: Conclusion

2.2: Citing Sources

2.2.1: Citation Styles

2.2.2: When to Cite Sources

2.2.3: MLA Style

2.2.4: APA Style

2.2.5: Citation Steps for Any Style

2.2.6: Citation Generators

2.2.7: Conclusion

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SECTION OVERVIEW

2.1: Ethical and Legal Use of Information

2.1.1: Contributing to the Conversation

2.1.2: Why We Cite Sources

2.1.3: Plagiarism and Academic Integrity

2.1.4: Conclusion

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2.1.1: Contributing to the Conversation



As a college student, whenever you complete an academic assignment, be it a research paper, a speech, or any other assignment in which you gather and synthesize information on a topic, you are participating in what is called a scholarly conversation. The term **scholarly conversation** describes the existing body of knowledge about a topic. This body of knowledge may include published books, presentations, research articles, conferences, discussions, online resources, and more. Your assignments are a way to add your own voice to the scholarly conversation—by reviewing what research has been done, drawing connections and conclusions from published information, and adding your own experiences, opinions, and ideas about what previous research has shown.

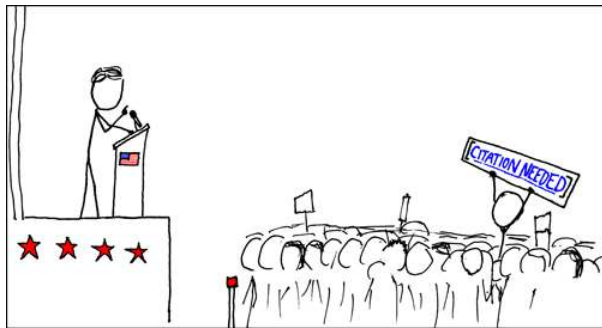
Sources

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2.1.2: Why We Cite Sources



“Academic research leads us to the insight that comes from gaining perspectives and understandings from other people through what we read, watch, and hear. In academic work we must tell our readers who and what led us to our conclusions” (“Ethical Use & Citing Sources”).

When we engage in conversations with other people, we often say things like, “I heard on the news today that...” or “The cashier at the store said...” When we do this, we not only back up and further support the point we are trying to make, but we also give more credibility to what we are saying by letting others know the origin of the information. It is also a good idea to let others know where our information came from when engaging in a scholarly conversation. A citation is a mention to another source and the phrase “citing your sources” means you’ve communicated the sources of information that you’ve used in your own work.

It is unethical to use somebody else’s information in your own work and not cite where you got that information (see section on [Plagiarism and Academic Integrity](#), next). As long as you give credit where credit is due, using information from others to support your own thoughts, opinions, and research findings is good practice. Not only does it acknowledge the hard work of others, but it also shows that you did your research on the topic, you know what information exists about it, and you can integrate your knowledge into the existing research and contribute to the scholarly conversation.

The following video [1:54] by NC State University Libraries has a great summary of what citations are and why we use them:

Video: "[Citation: A \(Very\) Brief Introduction](#)(opens in new window)"

Note: Turn on closed captions with the “CC” button or use the [text transcript](#)(opens in new window) if you prefer to read.

Sources

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2.1.3: Plagiarism and Academic Integrity

Plagiarism



The [Merriam-Webster](#) dictionary defines the word plagiarize as “to steal and pass off (the ideas or words of another) as one’s own: use (another’s production) without crediting the source.” When you use the words and ideas of others in your own work without citing where you got that information from, this is considered plagiarism. Whether a student purposely tries to pass off information as their own (i.e., copying and pasting text or paraphrasing another source without giving credit) or does so unintentionally (i.e., not knowing how to cite sources), plagiarism goes against the moral and ethical code for students called academic integrity. Academic integrity is the expectation that all students will be honest and responsible and will not plagiarize or cheat and that they will be motivated by more than just getting good grades. Most colleges have consequences for violating academic integrity, which may include suspension or expulsion from the institution.

“As a student, you will be both using other’s knowledge as well as your own insights to create new scholarship. To do this in a way that meets academic integrity standards, you must acknowledge the part of your work that develops from others’ efforts. You do this by citing the work of others. You plagiarize when you fail to acknowledge the work of others and do not follow appropriate citation guidelines” (“Ethical Use & Citing Sources”).

Intellectual Property



When you avoid plagiarism by citing your sources, you are respecting the time and energy other people put into creating their intellectual property. Just like physical property that you can call your own, intellectual property describes an expression of the human mind that can be owned and protected. Once somebody puts their creative ideas into a fixed and tangible format, like in the form of a book, movie, or song, that becomes intellectual property and can be protected. Intellectual property comes in many forms, but the most popular are copyright, patents, and trademarks. Copyright is the most common form of intellectual property that has relevance for college-level research.

Copyright



Copyright is a type of protection for intellectual property that is automatically applied to any creative work that is placed in a fixed, tangible format. That means the email that you wrote to your instructor this morning or the doodle you drew in your notes during English are all protected by copyright because they are both in a tangible format and are creative and original (in other words, nothing exactly like them has ever existed until you created them). Though works can be registered through the U.S. Copyright Office, that is not mandatory and even things you see without the copyright symbol (©) or a copyright notice can be (and should be assumed to be) protected by copyright. Copyright gives you exclusive rights to whatever you created, meaning others cannot legally copy, distribute, display, modify, or perform (e.g., a play or piece of music) without getting your permission to do so. Copyright in the United States lasts the life of the creator plus an additional 70 years.

Fair Use



Fair use is an exception to copyright in which you can use a copyright-protected work without getting permission from the creator. There is no hard and fast way to determine whether or not a use of a copyrighted work is a fair use, but there is a [four-factor test](#) that can help measure how “fair” the fair use is and whether or not the use is an infringement of copyright. These factors are:

1. The purpose and character of your use
2. The nature of the copyrighted work
3. The amount and substantiality of the portion taken
4. The effect of the use upon the potential market.

Fair use weighs heavily in favor of educational uses. So in most cases, using images and/or videos you’ve found online for your presentation for class is not going to land you in hot water. Why is this? Using an image or video that belongs to somebody else without permission for an educational use is not likely to impact the potential market, it is only being shared with the people in your class, and it is being used to educate yourself and others. It is still always good practice to cite where the content came from and try to use openly licensed content that allows people to use it without seeking permission first (see “Creative Commons” section below) whenever possible.

Creative Commons



The world’s first copyright law was enacted in the 1700s, way before the invention of the internet. The internet allows people to share information with the touch of a virtual button, yet our current copyright law restricts this type of sharing unless you get permission from the creator first. While copyright means that the picture of your cat that you took and uploaded online cannot be redistributed by anybody else without your permission, it also means that we can’t use copyrighted music in a slideshow of 50 cat pictures you want to put together and share with friends online.

In 2001, a non-profit organization called Creative Commons saw the need for an improvement upon copyright in the digital age. We needed something that enabled the sharing and remixing of knowledge and creativity, which we are able to do so easily online. They developed tools called Creative Commons licenses that allow creators to define what they want others to be able to do and not do with their work. Creative Commons licenses free everyone from needing to track down creators and ask for permission before using their works, and encourage creativity by permitting adaptations and remixes of Creative Commons licensed works.

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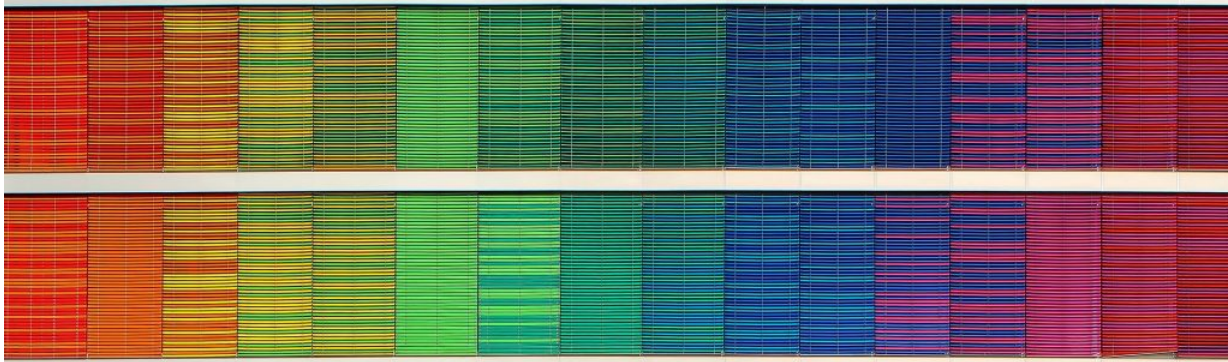
Image: “[Gears In Bald Head Side View](#)” by [Freepik](#), adapted by Kelsey Smith, from [Flaticon.com](#)

“Plagiarize.” *Merriam-Webster*, 1 Nov. 2020.

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2.1.4: Conclusion



This chapter covered the importance of student voices in the scholarly conversation, or the existing body of knowledge on a certain topic, and how students can support their ideas by referencing past research and published works in a legal and ethical manner. This chapter covered *why* citing sources is important and the “Citing Sources” chapter will cover *how* to cite sources.

Sources

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SECTION OVERVIEW

2.2: Citing Sources

2.2.1: Citation Styles

2.2.2: When to Cite Sources

2.2.3: MLA Style

2.2.4: APA Style

2.2.5: Citation Steps for Any Style

2.2.6: Citation Generators

2.2.7: Conclusion

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2.2.1: Citation Styles

Background

The Ethical and Legal Use of Information chapter covered why you need to cite, and how citations allow you to use other people's ideas in an ethical way. As the [video in that chapter](#)([opens in new window](#)) discussed, there are many different citation styles and the one you will use depends on your specific course, instructor, and assignment instructions.

Two Connected Parts

All citation styles include two parts that work together:

1. An **in-text citation**, which is a brief notation (usually within a paragraph, at the end of a sentence) acknowledging that information came from another source. In MLA and APA style, an in-text citation is contained inside parentheses (and sometimes called a "parenthetical citation"). Citation styles that use footnotes or endnotes (such as Chicago or Turabian) may use a superscript in the same way.
2. **At the end of the paper** or assignment, there will be a list of more detailed bibliographic information that enables the reader to find the sources that were used. Every in-text citation must have a matching entry in this list. Depending on what citation style you are using, this list may be called "works cited," "references," or "bibliography." Different citation styles will require you to format these citations in different ways, but they all include similar information, like the author's name, title of the publication, date, URL, and/or page numbers.
 - Generally, whether that list is called a "works cited", "references", or "bibliography", the individual citations within that list will often be called "**references**".

Why Two Different Citations?

There are two overall purposes for providing citations:

1. To provide credit to the original authors/creators who came up with an idea or information.
2. To provide evidence to your reader. This evidence lends credibility to your statements and provides them with options for reading further on the topic.

The in-text citation provides direct evidence for your statements. The reader can see your statement and that it is immediately followed by a source, which they can then read more about if they want. However, in-text citations are often much too short for your reader to reliably find the original source based on that information below. An in-text citation will often only include the author's last name(s), a date, and a page number. That would make it very difficult to actually find the source! And hyperlinking doesn't always help because hyperlinks can change over time.

This is why you need the full reference (usually located at the end of the paper)!

The next section on [When to Cite Sources](#) addresses how to incorporate in-text citations and the MLA and APA sections will focus on how to create the full citations for various information source types.

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2.2.2: When to Cite Sources

Overview

As you learned in the chapter on Ethical & Legal Use of Information, it is necessary to give credit to others when you use their information in your assignment. Using other people's information may come in the form of a direct quote, or summarizing or paraphrasing somebody else's words. Paraphrasing means you restate what an author said in your own words; summarizing is when you talk about the main concepts or points. When you include someone else's ideas whether that's word-for-word (a direct quote), or summarizing or paraphrasing the words of somebody else—you need to include an in-text citation to let others know that the information is not your own, and to allow your reader to go and find the same source you used. Since in-text citations are only brief notations, they will all need a full citation at the end of the assignment or paper. See the each of the MLA and APA chapter for information on creating these full citations.

When writing an in-text citations, you can either include all of the in-text citation information in parenthesis at the end of the sentence or paragraph, or you can introduce the cited information by mentioning the author and the date in the sentence itself with the other information provided in parenthesis at the end. Both are acceptable but the second method often flows better within the sentence. You can see this demonstrated in the first 'direct quote' example under MLA below. This type of in-text citation is called "**citation in prose**" in MLA and a "**narrative citation**" in APA.

“Good writers understand why they create citations. The reasons include demonstrating the thoroughness of the writer's research, giving credit to original sources, and ensuring that readers can find the sources consulted in order to draw their own conclusions about the writer's argument. Writers achieve the goals of documentation by providing sufficient information in a comprehensible, consistent structure” (*MLA Handbook* 4).

MLA In-Text Examples:

- Direct Quote: According to Susan Cain, “excessive stimulation seems to impede learning: a recent study found that people learn better after a quiet stroll through the woods than after a noisy walk down a city street” (85).
Note: 85 is the page number.
- Paraphrasing: A recent study found that people tend to learn better after they took a quiet walk in the woods as opposed to a noisy walk down a city street (Cain 85).
Note: Cain is the author's last name, and 85 is the page number.
- For a source with no author, cite the title, abbreviated: “The Cooper-Molera garden represents the methods and plantings available in 1860's California” (“Secret Gardens”).
Note: This direct quote comes from a publication called “The Secret Gardens of Old Monterey” that does not mention who the author is.

APA In-Text Examples:

- Direct quote: According to a study on social pain, “acetaminophen reduces behavioral and neural responses associated with the pain of social rejection, demonstrating substantial overlap between social and physical pain.” (DeWall et al., 2010, p. 14)
Note: DeWall is the author's last name, and “et al.” means there are additional authors. 2010 is the year of publication, and 14 is the page number.
- Paraphrasing: In one study by DeWall et al. (2010), it was discovered that over-the-counter painkillers, like Acetaminophen, reduced social pain.
- For a source with no author and/or no date, use the title and n.d. for “no date”: An online poll found that the more time students spent in the library, the higher their overall GPA (“Student Success Poll,” n.d.).

Sources

MLA Handbook. 8th ed., Modern Language Association of America, 2016.

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2.2.3: MLA Style

Overview

The Modern Language Association (MLA) is a professional association for scholars of literature and language. Among other things, the MLA publishes a style manual (sometimes called a “style guide”) for writing and citing sources, used primarily in the humanities, including most English classes. MLA is one of several types of citation styles. As an undergraduate student, some professors or courses may require you to use APA (details below), Chicago, or Turabian style.

While MLA is currently in its 9th edition, it’s not necessary (or advisable) to memorize formatting rules for any citation style. Getting used to checking formatting examples and published guidance (for example, in books or on websites) will help you proofread citations and move more easily between citation styles. There are helpful reference books you can keep on hand (such as the [MLA Handbook](#)[\(opens in new window\)](#), which is the style manual mentioned above), and many great online tools through your college library or tutoring websites, or found with a quick online search. Every so often, MLA style (or any citation style), will undergo some changes, and a new edition of the style manual will be released. All citation styles have different formats for citing various information types (e.g., websites, books, podcasts, emails), and as technology advances and information becomes available in new formats, citation styles need to be added and updated.

Works Cited

In MLA style, the list of detailed bibliographic information at the end of the paper or assignment is called “Works Cited.” The core elements of an MLA citation are as follows (be sure to pay attention to the formatting and punctuation that follows each element). These are the types of information you will want to retain for citing sources in MLA:

MLA Core Elements

1. Author.
2. Title of source.
3. Title of container,
4. Other contributors,
5. Version,
6. Number,
7. Publisher,
8. Publication date,
9. Location.

Note

Notice in the examples below that the exact information needed, and its formatting, often varies depending on the type of source (book, journal article, etc.), that you are citing.

Author

- A single author should be written: Last name, First name Middle name
- For two authors, only invert the first author’s name. List the names in the order in which they appear on the source.
- For three or more authors, use et al. (which means, ‘and others’).
- When citing an edited book, add a descriptive label (“editor”) after the name.
Example: Smith, John M.
Example: Smith, John M., and Terence Duvall.
- When citing from social media, you may include the username after the author's name in brackets. If they are similar, you may omit the username. **Example:** Mizuhara, Kiko [[@i_am_kiko](#)]

Title of Source

- Include both the title and subtitle separated by a colon [:].
- Capitalize the first word of the title and subtitle, plus all other important words.

- Enclose in “quotation marks:”
 - If the title is part of a larger work, such as a story in an anthology, an article in a journal, or a Web page from a Web site
- Place in italics:
 - If the title is for an entire book, journal, or Web site

Title of Container

- When a source is part of a larger work, the larger work is called the “container.”
- The container is italicized and followed by a comma.
- Containers can be:
 - Periodicals (magazines, journals, newspapers)
 - Anthologies (books which contain short stories, essays, poetry, etc.)
 - Entire Web sites (which contain individual web pages)
 - Library or other online databases (which contain articles, books, etc.)

Other Contributors

- Contributors other than the author are named in the entry if they are important to your research or the identification of the source (i.e. editors and translators).
- When citing a source with both an author and editor, list the author first and the editor after the title of the source.

Version

If a source carries a notation that it is a work in more than one form (i.e. book edition), identify the version.

- 7th ed.
- Expanded ed.

Number

- Journals are typically numbered with volume (vol.) and issue numbers (no.).
- If you are using a multi-volume set, include the volume (vol.) number.

Publisher

- Only include the first publisher listed, unless the source was published by multiple independent organizations. Separate independent publishers with a forward slash [/].
- Abbreviate publisher names in the following cases:
 - Omit business words like Company, Corporation, Incorporated, and Limited
 - Replace University Press with UP (i.e. Oxford UP, U of California P, MIT P).
 - Replace University with U (i.e. U of Hawaii P for University of Hawaii Press).
- A publisher’s name may be completely omitted for the following types of sources:
 - Web page whose publisher is the same as the name of the overall website
 - Periodical (journal, magazine, newspaper)
 - Work published by the author

Publication Date

- Dates should be given as fully as they appear in your sources.
- If multiple dates are listed, cite the date most meaningful to your use of the source.
- Format as: Day Month Year. Abbreviate the names of months longer than 4 letters

Location

- In print sources, a page number (preceded by p.) or a range of page numbers (preceded by pp.) specifies the location.
- In online sources, location is indicated by the URL, DOI, or Permalink.
 - URL: Copy in full from your Web browser, but omit http:// or https://
 - DOI: Journal articles are often assigned “Digital Object Identifiers”. When possible, cite a DOI (formatted as [https://doi.org/](https://doi.org/10.1038/s41586-021-03423-4) followed by the DOI number) instead of the permalink or article URL. **Example:** <https://doi.org/10.1038/s41586-021-03423-4>

- Permalink: Web sources (especially Library databases) often provide stable URLs, called “permalinks”. When possible, use these instead of the browser address URL.

Compiling & Formatting

Once you have constructed your citations according to MLA rules, there are a few more steps to complete the Works Cited list.

- Center the words “Works Cited” at the top of the page.
- Alphabetize the citations by author’s last name, or by the first main word of the title if there is no author. (When alphabetizing, ignore A, An, and The at the beginning of citations.)
- Make sure all lines are double-spaced.
- Apply “hanging” indents to all citations: The first line of the citation is not indented. All subsequent lines are indented 0.5 inch.

Examples

Print Book:

Mancini, Candice. *Racism in Harper Lee’s To Kill a Mockingbird*. Greenhaven Press, 2008.

Electronic Book:

Schreiber, Brad. *Music Is Power: Popular Songs, Social Justice, and the Will to Change*. Rutgers UP, 2019. EBSCOhost, search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=2293722&site=ehost-live&scope=site.

Web page:

Hollmichel, Stephanie. “The Reading Brain: Differences between Digital and Print.” *So Many Books*, 25 Apr. 2013, somanybooksblog.com/2013/04/25/the-reading-brain-differences-between-digital-and-print/.

Academic Journal Article:

Grauer, Jens, et al. “Strategic Spatiotemporal Vaccine Distribution Increases the Survival Rate in an Infectious Disease like Covid-19.” *Scientific Reports*, vol. 10, no. 1, Dec. 2020, pp. 1–10. EBSCOhost, doi:10.1038/s41598-020-78447-3.

For more MLA style citation examples, visit [Excelsior OWL](#).(opens in new window)

Sources

MLA Handbook. 9th ed., Modern Language Association of America, 2021.

Works Cited section adapted from “Library 10” by [Cabrillo College Library](#)(opens in new window), licensed under [CC BY 4.0](#)(opens in new window)

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2.2.4: APA Style

Overview

The American Psychological Association (APA) is a professional association that represents those working in the field of psychology in the United States. Just like the Modern Language Association (MLA) is often used in the humanities subjects, the APA has their own citation guidelines that are often used to cite sources within the social sciences. [Publication Manual of the American Psychological Association](#)([opens in new window](#)) is the official reference book, or style guide, for all the details of APA style format, though you can find plenty of helpful guides for free online.

References

In APA style, the list of detailed bibliographic information at the end of the paper or assignment is called “References” and generally, your professors may use the word “references” instead of the word “citations”. The core elements of a APA style citation are as follows (be sure to pay attention to the formatting and punctuation used at the end of each element). APA is currently in its 7th edition. These are the types of information you will want to retain for citing sources in APA:

APA Core Elements

- Author.
- (Date).
- Title of article.
- *Title of Journal*.
- *Title of book*.
- Source or Publisher.
- *Volume number*
- (Issue number).
- URL or DOI hyperlink

Note

Notice in the examples below that the exact information needed, and its formatting, often varies depending on the type of source (book, journal article, etc.), that you are citing.

Author

- List the last name first and the first and middle names as initials.
 - Example: Smith, J. M.
- If there are two authors, use the ampersand (&) instead of the word “and.”
- When there are three to 20 authors, list all of the authors by last name and initials and use an ampersand before listing the last author.
- If there are more than twenty authors, list the first 19 authors then use an ellipsis (...) before listing the last author’s name. Do not use an ampersand before the last author and do not list more than 20 authors’ names total.

Date

- Use a complete date (YYYY, Month DD), if given, otherwise use what is given.
- Use “n.d.” if there is no date given.

Title

- Capitalize only the first letter of the first word of the title and subtitle, the first word after a colon or a dash in the title, and proper nouns (except for journal articles, in which you will capitalize all major words in the title).
- Italicize titles of longer works, like books, collections, websites, or journals. Do not put smaller titles in quotation marks or underline (e.g., chapters, articles, web pages).
- For more details and clarification, [read this page on the Excelsior OWL website](#).

Source

- This is where one can retrieve the cited information, like in a book, on a website, or in a journal article. The format of this section depends on the type of information resource it is. [Check out this helpful guide for more information on formatting sources](#)(opens in new window).

Compiling & Formatting

The rules for formatting a list of APA references is similar to MLA format, with some small but important differences:

- Center and bold the word “References” at the top of a separate page
- Alphabetize the citations by author’s last name, or by the first main word of the title if there is no author. (When alphabetizing, ignore A, An, and The at the beginning of citations.).
- If you have multiple citations by the same author(s), list the citations in chronological order, from earliest to most recent.
- Make sure all lines are double-spaced.
- Apply “hanging” indents to all citations: The first line of the citation is not indented. All subsequent lines are indented 0.5 inch.

Examples

Print Book:

Mancini, C. (2008). *Racism in Harper Lee’s To kill a mockingbird*. Greenhaven Press.

Electronic Book:

Schreiber, B. (2019). *Music is power : Popular songs, social Justice, and the will to change*. Rutgers University Press.

Web page:

Hollmichel, S. (2013, April 25). *The reading brain: Differences between digital and print*. So Many Books.
<https://somanycbooksblog.com/2013/04/...tal-and-print/>

Academic Journal Article:

Grauer, J., Löwen, H., & Liebchen, B. (2020). Strategic spatiotemporal vaccine distribution increases the survival rate in an infectious disease like Covid-19. *Scientific Reports*, 10(1), 1–10. <https://doi-org.whccd.idm.oclc.org/1...98-020-78447-3>

For more examples of APA style citations, visit [Excelsior OWL](#).(opens in new window)

Sources

Publication Manual of the American Psychological Association : The Official Guide to APA Style. 7th ed., American Psychological Association, 2021.

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2.2.5: Citation Steps for Any Style

1. Determine the citation style required for your paper or project and refresh your memory on the formatting rules using that citation styles handbook (your college library should have a copy for you to use) or using an online guide, like [Excelsior OWL](#)(opens in new window) or Citation and Writing Guides from [Penn State University Libraries](#)(opens in new window).
2. Remember to include your in-text citations as you are writing your paper or pulling your project together. If you don't include them as you go, it is easy to forget to go back and cite the source, which could lead to accidental plagiarism!
3. Identify the information source type you are creating a full bibliographic citation for, since the citation format looks different for different types of information sources. Sometimes, especially online, it can be hard to tell! If you aren't sure what type of source something is or how to format your citation, ask a librarian or writing tutor.
4. Compile your cited sources at the end of your paper or project, being sure to follow the formatting rules of the citation style you are using throughout the assignment. See the section on Citation Generators, next, for information about helpful tools for this task.

Refresher!

Remember, when it comes to citing your sources, the most common types of information that you need to save include: author(s) name(s), publication date, title of the article or page, title of the journal or website that houses it, volume and issue number for journals, web URL if applicable, and DOI if one is available.

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2.2.6: Citation Generators

Unlike 10-15 years ago when college students had to try to memorize citation formats and create each citation by hand, there are now many online tools available that will automatically create citations for many different types of information sources. Citation generators are tools that allow users to type, paste, or import certain information (like a source's type, title, author, and date), and then create a citation in whatever format is needed (e.g., APA, MLA, Chicago).

Library Databases

Almost all of your college library's databases will have a convenient citation generator built right into them. In most cases, when you are reading an ebook, academic journal article, or another resource coming from a library database, there will be an icon somewhere on the page for a citation generator. These often offer a list of citation styles to choose from; they provide a citation for that particular source in whatever format is needed, so you can easily copy and paste the full citation into your assignment. The citation generator is not always located in the same spot, and does not always appear the same way in all library databases, but will often say "cite" or have quotation mark icons to indicate that it is a citation tool.

While these citation generators are incredibly helpful and convenient, they do sometimes make mistakes! Always be sure to double-check the citation generated for you—do not assume that all citations generated by a citation tool will be 100% correct.



OneSearch

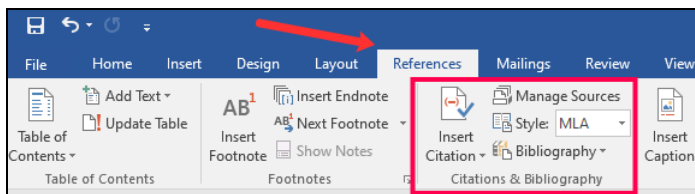
OneSearch also has its own convenient tool located within the record of every item record. The tool is located in the "Send to" section of the record and looks like one set of quotation marks with the word "CITATION" underneath. The citation style can be selected on the left-hand side (but please note, some colleges may list these formats differently from what is shown in the image below). Clicking on "COPY CITATION TO CLIPBOARD" will copy the citation so you can easily paste it into your bibliography (in Microsoft Word, Google Docs, or elsewhere). Besides checking the citation for accuracy, it is also important to check the formatting of your pasted text. Some formatting, like italics, may be lost when copying and pasting. Citation generators are fantastic tools that save a lot of time, but are not always 100% accurate!



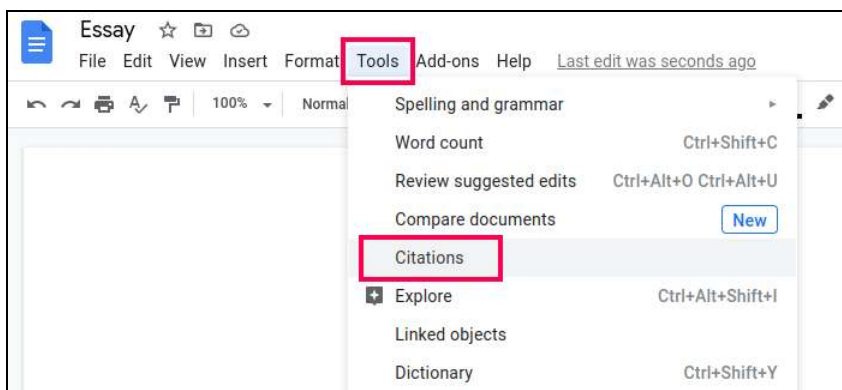
Word Processors

Two commonly used word processors—Microsoft Word and Google Docs—both have citation tools built into the software that make inserting in-text citations and compiling full citations quick and simple.

Microsoft Word’s citation generator is found under the toolbar section called “References,” and the “Insert Citation” tool allows users to plug in bibliographic information about each source used in their paper. The software will keep a running list of the sources, and allows for easy insertion of an in-text citation and a quick combination of citations into a bibliography in the appropriate citation style. An important thing to note is that Microsoft Word may not have the latest citation style format edition; for instance, it may only have the option to create citations in MLA 7th edition, but (as of the time this book was published) MLA 8th edition is the most up-to-date style.



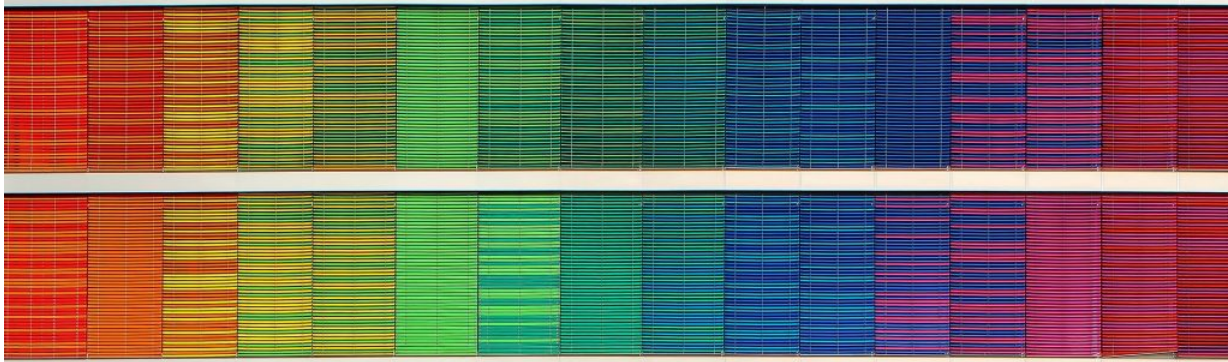
The citation generator in Google Docs is located under the “Tools” menu item on the toolbar. Though this citation tool is much less robust than Microsoft Word’s, only having three citation styles to choose from, it still allows for quick insertion of both in-text citations and a bibliography at the end of the paper. As mentioned previously, the citation styles may not be the latest edition and it is important to always review any citation generated for you.



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2.2.7: Conclusion



This chapter covered how to cite information sources in both MLA and APA style format in order to avoid plagiarism. Fortunately, there are many free, online tools, in addition to the style manuals for MLA and APA (and any other citation style) to help you create accurate citations from a variety of different types of information sources.

Sources

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CHAPTER OVERVIEW

3: Getting Started with Research

- 3.1: Quantitative or Qualitative
- 3.2: Fact or Opinion
- 3.3: Publication Formats and the Information Lifecycle
- 3.4: News as a Source
- 3.5: Data as Sources
- 3.6: The Research Process
- 3.7: The Purpose of Research Questions
- 3.8: Choosing a Topic
- 3.9: Narrowing a Topic
- 3.10: Background Reading
- 3.11: Research Questions
- 3.12: Influence of a Research Question
- 3.13: Developing Your Research Question

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3.1: Quantitative or Qualitative

Quantitative or Qualitative



Information can be quantitative or qualitative.

One of the most obvious ways to categorize information is by whether it is quantitative or qualitative. Some sources contain either quantitative information or qualitative information, but sources often contain both.

Many people first think of information as something like what's in a table or spreadsheet of numbers and words. But information can be conveyed in more ways than textually or numerically.

Quantitative Information – Involves a measurable quantity—numbers are used. Some examples are length, mass, temperature, and time. Quantitative information is often called data, but can also be things other than numbers.

Qualitative Information – Involves a descriptive judgment using concept words instead of numbers. Gender, country name, animal species, and emotional state are examples of qualitative information.

Take a quick look at the Example table below. Another way we could display the table's numerical information is in a graphic format—listing the students' ages or GPAs on a bar chart, for example, rather than in a list of numbers. Or, all the information in the table could be displayed instead as a video of each student giving those details about themselves.

Example: Data Table with Quantitative and Qualitative Data

Last Name	First Name	Age	Rank	Major	Gender	Current GPA	Photo
Adams	Grace	19	Sophomore	English	Female	3.78	
Bloomfield	Erika	21	Junior	Physics	Female	3.89	
Chow	Kimmie	20	Senior	Political Science	Female	3.77	
Crutchfield	Seth	23	Senior	Psychology	Male	3.58	
Fitch	Fredrick	18	Freshman	Art	Male	4.0	
Grover	Oscar	26	Junior	Biology	Male	3.32	

This table illustrates that information can include a range of formats, including pictures.

Increasingly, other formats (such as images, sound, and video) may be used as information or used to convey information. Some examples:

- A video of someone watching scenes from horror movies, with information about their heart rate and blood pressure embedded in the video. Instead of getting a description of the person's reactions to the scenes, you can see their reactions.
- A database of information about birds, which includes a sound file for each bird singing. Would you prefer a verbal description of a bird's song or an audio clip?
- A list of colors, which include an image of the actual color. Such a list is extremely helpful, especially when there are A LOT of color names.
- A friend orally tells you that a new pizza place is 3 blocks away, charges \$2 a slice, and that the pizza is delicious. This may never be recorded, but it may be very valuable information if you're hungry!
- A map of Ohio with counties shaded different intensities of red according to the median household income of inhabitants.

Activity: Quantitative vs. Qualitative

What quantitative and qualitative data components might you use to describe yourself? See the bottom of the page for some possible answers.

Answer

The answer to the "Quantitative vs. Qualitative" Activity above is:

Quantitative: age, weight, GPA, income

Qualitative: race, gender, class (freshman, sophomore, etc.), major

Are there others?

Activity: Multiple Data Displays

Take a look at the [Wikipedia article about UN Secretaries-General](#) (opens in new window). Scroll down and view the table of people who served as Secretary-General. In what ways is information conveyed in ways other than text or numbers? See the bottom of the page for answers.

Answer

The answer to the "Multiple Data Displays" Activity above is:

A photo of each secretary general The flag of their country of origin

Are there others?

- A world map with their country of origin shaded

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3.2: Fact or Opinion

Fact or Opinion



An author's purpose can influence the kind of information he or she chooses to include.

Thinking about the reason an author produced a source can be helpful to you because that reason was what dictated the kind of information he/she chose to include. Depending on that purpose, the author may have chosen to include factual, analytical, and objective information. Or, instead, it may have suited his/her purpose to include information that was subjective and therefore less factual and analytical. The author's reason for producing the source also determined whether he or she included more than one perspective or just his/her own.

Authors typically want to do at least one of the following:

- Inform and educate
- Persuade
- Sell services or products or
- Entertain

Combined Purposes

Sometimes authors have a combination of purposes, as when a marketer decides he can sell more smart phones with an informative sales video that also entertains us. The same is true when a singer writes and performs a song that entertains us but that she intends to make available for sale. Other examples of authors having multiple purposes occur in most scholarly writing.

In those cases, authors certainly want to inform and educate their audiences. But they also want to persuade their audiences that what they are reporting and/or postulating is a true description of a situation, event, or phenomenon or a valid argument that their audience must take a particular action. In this blend of scholarly author's purposes, the intent to educate and inform is considered to trump the intent to persuade.

Why Intent Matters

Authors' intent usually matters in how useful their information can be to your research project, depending on which information need you are trying to meet. For instance, when you're looking for sources that will help you actually decide your answer to your research question or evidence for your answer that you will share with your audience, you will want the author's main purpose to have been to inform or educate his/her audience. That's because, with that intent, he/she is likely to have used:

- Facts where possible.
- Multiple perspectives instead of just his/her own.
- Little subjective information.
- Seemingly unbiased, objective language that cites where he/she got the information.

The reason you want that kind of resource when trying to answer your research question or explaining that answer is that all of those characteristics will lend credibility to the argument you are making with your project. Both you and your audience will simply find it easier to believe—will have more confidence in the argument being made—when you include those types of sources.

Sources whose authors intend only to persuade others won't meet your information need for an answer to your research question or evidence with which to convince your audience. That's because they don't always confine themselves to facts. Instead, they tell us their opinions without backing them up with evidence. If you used those sources, your readers will notice and not believe your argument.

Fact vs. Opinion vs. Objective vs. Subjective

Need to brush up on the differences between fact, objective information, subjective information, and opinion?

Fact – Facts are useful to inform or make an argument.

Examples:

- The United States was established in 1776.
- The pH levels in acids are lower than pH levels in alkalines.
- Beethoven had a reputation as a virtuoso pianist.

Opinion – Opinions are useful to persuade, but careful readers and listeners will notice and demand evidence to back them up.

Examples:

- That was a good movie.
- Strawberries taste better than blueberries.
- George Clooney is the sexiest actor alive.
- The death penalty is wrong.
- Beethoven's reputation as a virtuoso pianist is overrated.

Objective – Objective information reflects a research finding or multiple perspectives that are not biased.

Examples:

- "Several studies show that an active lifestyle reduces the risk of heart disease and diabetes."
- "Studies from the Brown University Medical School show that twenty-somethings eat 25 percent more fast-food meals at this age than they did as teenagers."

Subjective – Subjective information presents one person or organization's perspective or interpretation. Subjective information can be meant to distort, or it can reflect educated and informed thinking. All opinions are subjective, but some are backed up with facts more than others.

Examples:

- "The simple truth is this: As human beings, we were meant to move."
- "In their thirties, women should stock up on calcium to ensure strong, dense bones and to ward off osteoporosis later in life."*

*In this quote, it's mostly the "should" that makes it subjective. The objective version of the last quote would read: "Studies have shown that women who begin taking calcium in their 30s show stronger bone density and fewer repercussions of osteoporosis than women who did not take calcium at all." But perhaps there are other data showing complications from taking calcium. That's why drawing the conclusion that requires a "should" makes the statement subjective.

Activity: Fact, Opinion, Objective, or Subjective?

[Open activity in a web browser.](#)

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3.3: Publication Formats and the Information Lifecycle

Publication Formats and the Information Lifecycle

We can also categorize sources by publication format. That's because of the difference in time and effort sources in each format require for their production.



Sources in particular formats simply cannot exist until there has been enough time for people to create them. The result is that the sources that are created toward the end of the information lifecycle may come to very different conclusions about the event than did those sources created early on.

Sometimes the information presented in the later formats is more valid and reliable than what is in those produced earlier.

A very good example is that conclusions about the Columbine High School shooting in 1999 and the causes of that tragedy reached by books—which took years to complete after the event—were likely to be very different than the conclusions reached by news coverage created early on. For instance, many early reports concluded that the two teens responsible for the shooting had been shunned by their classmates and that it was the pain of their exclusion that had moved them to take revenge. Consequently, many K-12 schools nationwide took steps to try to ensure that all students felt included in their student bodies. But more time-consuming reportage concluded that the boys were not shunned (one had had a date for prom activities just days before) and that it was mental illness that made them kill their classmates.

Movie: Information Cycle

This video explains what kinds of information sources about an event can exist at any point in time during and after that event.

Video: [The Information Cycle](#)(opens in new window)

[View Text Version of the Video](#)(opens in new window)

Activity: The Information Lifecycle

[Open activity in a web browser.](#)(opens in new window)

A Closer Look at Common Formats

Books – Usually a substantial amount of information, published at one time and requiring great effort on the part of the author and a publisher.

Magazines/Journals – Published frequently, containing lots of articles related to some general or specific professional research interest; edited.

Newspapers – Each is usually a daily publication of events of social, political and lifestyle interest.

Web sites – Digital items, each consisting of multiple pages produced by someone with technical skills or the ability to pay someone with technical skills.

Articles – Distinct, short, written pieces that might contain photos and are generally timely. Timeliness can mean that it's something that is of interest to readers at the point of publication or that is something the writer is thinking about or researching at a given point of time.

Tip: Evaluating Articles

Evaluating whether articles are **credible** enough for your information need is similar to evaluating any other source. There's more information on evaluating in Evaluating Sources.

Conference Papers – Written form of papers delivered at a professional or research-related conference. Authors are generally practicing professionals or scholars in the field.

Blogs – Frequently updated websites that do not necessarily require extensive technical skills and can be published by virtually anyone for no cost to themselves other than the time they devote to content creation. Usually marked by postings that indicate the date when each was written.

Documentaries – Works, such as a film or television program, presenting political, social, or historical subject matter in a factual and informative manner and often consisting of actual news films or interviews accompanied by narration.

Online Videos – Short videos produced by anybody, with a lot of money or a little money, about anything for the world to see. Common sites for these are YouTube and Vimeo.

Podcasts – Digital audio files, produced by anyone and about anything, that are available for downloading, often by subscription.

Activity: Best Format for Your Need

[Open activity in a web browser.\(opens in new window\)](#)

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3.4: News as a Source

News as a Source

News sources can provide insights that scholarly sources may not or that will take a long time to get into scholarly sources. For instance, news sources are excellent for finding out people's reactions, opinions, and prevailing attitudes around the time of an event.

So whether news sources are good for your assignment depends on what your research question is. (You'll find other relevant information at Sources and Information Needs.)

News is a strange term, because even when the information is old, it's still news. Some sources are great for breaking news, some are great for aggregated (or compiled) news, and others are great for historical news.

While news was transmitted for centuries only in newspapers, news is now transmitted in all formats: via radio, television, and the Internet, in addition to print. Even most newspapers have Internet sites today.

News must be brief because much of it gets reported only moments after an event happens. News reports occur early in the Information Lifecycle. See Publication Formats and the Information Lifecycle for more information.

When Are News Sources Helpful?

- You need breaking news or historical perspectives on a topic (what people were saying at the time).
- You need to learn more about a culture, place, or time period from its own sources.
- You want to keep up with what is going in the world today.

When Are News Sources of Limited Use?

- You need very detailed analysis by experts.
- You need sources that must be scholarly or modern views on a historical topic.

Activity: Using News Effectively

[Open activity in a web browser.\(opens in new window\)](#)

Mainline and Non-Mainline News Sources

Mainline American news outlets stick with the tradition of trying to report the news as objectively as possible. That doesn't mean their reports are perfectly objective, but they are more objective than the non-mainline sources. As a result, mainline news sources are more credible than non-mainline sources. Some examples of mainline American news outlets: *The New York Times*, *The Washington Post*, *The Boston Globe*, *The Chicago Tribune*, *The Los Angeles Times*; ABC News, CBS News, NBC News, PBS News, NPR News.

News from non-mainline American news outlets is often mixed with opinions. One way they frequently exhibit bias is that they leave out pertinent facts. Some examples of non-mainline American news outlets: MSNBC, Fox News, Gawker, Reddit.

Types of News Sources

Press Services—News outlets (print, broadcast, and online) get a lot of their news from these services, such as Reuters or Associated Press (AP), which make it unnecessary for individual outlets to send their own reporters everywhere. Services are so broadly used that you may have to look at several news outlets to get a different take on an event or situation.

News aggregators—Aggregators don't have reporters of their own but simply collect and transmit the news reported by others. Some sources pull news from a variety of places and provide a single place to search for and view multiple stories. You can browse stories or search for a topic. Aggregators tend to have current, but not archival news. Google news and Yahoo News are examples.

Newspaper sites – Many print newspapers also have their own websites. They vary as to how much news they provide for free. Take a look at these examples.

- [The LA Times\(opens in new window\)](#)
- [USA Today \(opens in new window\)](#)

- [The Boston Globe](#) (opens in new window)
- [The Times of London](#)(opens in new window)
- [China Daily, USA edition](#)(opens in new window)
- [The New York Times](#) (opens in a new window)

News Databases – Many college libraries provide access to newspaper databases (or collections of newspapers) to students for free. You can often find these on your library's website.

Broadcast News Sites – Although broadcast news (from radio and television) is generally consumed in real time, such organizations also offer archives of news stories on their web sites. However, not all of their articles are provided by their own reporters: some originate from the press services, Reuters and AP. Here are some examples of broadcast new sites:

- [ABC News](#)(opens in new window)
- [BBC](#)(opens in new window)
- [CNN](#)(opens in new window)
- [NPR News](#)(opens in new window)

Social Media – Most of the news outlets listed above contribute to social media websites and apps like [Facebook](#)(opens in new window). It's customary for highly condensed announcements in this venue to lead you back to the news outlet's website for more information. However, how credible tech companies such as Facebook, Twitter, and Google are with news is in serious doubt now that their lawyers have testified to the U.S. Congress that more than 100 million users may have seen content actually created by Russian operatives on the tech companies' platforms leading up to the 2016 U.S. presidential election. Read more about their testimony at [NPR](#)(opens in new window) and [The New York Times](#). (opens in new window)

Blogs – Sometimes these are good sources for breaking news, as well as commentary on current events and scholarship. Authors who write more objectively elsewhere can share more insights and opinions, more initial questions and findings about a study before they are ready to release definitive data and conclusions about their research.

Citizen Journalism – A growing number of sites cater to those members of the general public who want to report breaking news and submit their own photos and videos on a wide range of topics. The people who do this are often referred to as citizen journalists.

Examples of such sources include [CNN iReport](#)(opens in new window), [reddit](#)(opens in new window), and TikTok. For more details on the history and development of citizen journalism, including addressing some of the pros and cons, read [Your Guide to Citizen Journalism](#)(opens in new window).

News Feeds – You can get updates on specific topics or a list of major headlines, regularly sent to you so you don't have to visit sites or hunt for new content on a topic. Look for links that contain headings such as these to sign up for news feeds:

- RSS feeds
- News Feeds
- News Alerts
- Table of Contents Alerts

What is an RSS feed?

You can think of an RSS feed as similar to a social media timeline. It loads headlines and news from multiple sources and presents them to you.

Activity: RSS Feeds from Reuters

Visit Reuters News RSS Feeds to see a list of general and very specific topic areas for which you can sign up for alerts. What topic interests you? Consider signing up for one (or more).

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3.5: Data as Sources

Data as Sources

Using data as sources can help with all of your research project's information needs:

- Learn more background information.
- Answer your research question. (The evidence that data provide can help you decide on the best answer for your question.)
- Convince your audience that your answer is correct. (Data often give you evidence that your answer that your answer is correct. (Data often give you evidence that your answer to your research question is correct or at least a reasonable answer.)
- Describe the situation surrounding your research question.
- Report what others have said about your research question.

Movie: Reinterpreting Little Red Riding Hood

Video: [Reinterpreting Little Red Riding Hood](#)(opens in new window). This video provides a good example of the different types of data that one could collect about a wide variety of things.

[View Text Version of the Video](#)(opens in new window)

What is data? The word means many things to many people. (Consider “data” as it relates to your phone contract, for instance!) **For our purposes, a definition we like is “units of information observed, collected, or created in the course of research.”**

Erway, Ricky. 2013. *Starting the Conversation: University-wide Research Data Management Policy*. Dublin, Ohio: OCLC Research.

<https://files.eric.ed.gov/fulltext/ED564819.pdf>(opens in new window)

Data observed, collected, or created for research purposes can be numbers, text, images, [audio clips](#), and [video clips](#). But in this section on using data as sources, we're going to concentrate on *numerical* data.

TIP: From the Latin

Data is the plural of datum. (It's similar to how media is the plural of medium.)

Sometimes data is actually necessary to answer research questions, particularly in the social sciences and life and physical sciences. For instance, data would be necessary to support or rule out these hypotheses:

- More women than men voted in the last presidential election in a majority of states.
- A certain drugs shows promising results in the treatment of pancreatic cancer.
- Listening to certain genres of music lowers blood pressure.
- People of certain religious denominations are more likely to find a specific television program objectionable.
- The average weight of house cats in the United States has increased over the past 30 years.
- The average square footage of supermarkets in the United States has increased in the past 20 years.
- More tomatoes were consumed per person in the United Kingdom in 2015 than in 1962.
- Exploding volcanoes can help cool the planet by spewing sulfur dioxide, which combines with water vapor to make reflective aerosols.

So using numeric data in those portions of your final product that require evidence can really strengthen your argument for your argument for your answer to your research question. At other times, even if data is not actually necessary, numeric data can be particularly persuasive and sharpen the points you want to make in other portions of your final product devoted to, say, describing the situation surrounding your research question. (See Making an Argument)

For example, for a term paper about the research question “Why is there a gap in the number of people who qualify for food from food banks and the number of people who use food banks?,” you could find data on the website of Feeding America, the nation's largest network of food banks. Some of that data may be the number of people who get food from a food bank annually, with the number of seniors and children broken out. Those data won't answer your research question, but they will help you describe the situation around that question and help your audience develop a fuller understanding.

Similarly, for a project with the research question “How do some birds in Australia use “smart” hunting techniques to flush out prey, including starting fires?,” you might find a journal article with data about how many people have observed these techniques

and estimates of how frequently the techniques are used and by how many bird species.

Obtaining Data

There are two ways of obtaining data:

- Obtain data that already has been collected and analyzed. That's what this section will cover.
- Collect data yourself. This can include activities such as making observations about your environment, conducting surveys or interviews, directly recording measurements in a lab or in the field, or even receiving electronic data recorded by computers/machines that gather the data. You will explore these activities in courses you take.

Finding Data in Articles, Books, Web Pages, and More

Numeric search data can be found all over the place. A lot of it can be found as part of another source- such as books; journal, newspaper, and magazine articles; and web pages. In these cases, the data do not stand alone as a distinct element, but instead are part of the larger work.

When searching for data in books and articles and on web pages, terms such as statistics or data may or may not be useful search terms. That's because many writers don't use those terms in their scholarly writing. They tend to use the words findings or results when talking about the data that could be useful to you. In addition, statistics is a separate discipline and using that term will turn up lots of journals in that area, which won't be helpful to you. So use the search terms data and statistics with caution, especially when searching library catalogs.

Even without using those search terms, many scholarly sources you turn up are likely to contain data. Once you find potential sources, skim them for tables, graphs, or charts. These items are displays or illustrations of data gathered by researchers. However, sometimes data and interpretations are solely in the body of the narrative text and may be included in sections called "Results" or "Findings." (That shouldn't keep you from displaying the data in charts, graphs, or tables as you like in your own work, though. See Data Visualization later in this section.)

If the data you find in a book, article, or web page is particularly helpful and you want more, you could contact the author to request additional numeric research data. Researchers will often discuss their data and its analysis – and sometimes provide some of it (or occasionally, all). Some may link to a larger numeric research data set. However, if a researcher shares his or her data with you, it may be in a raw form. This means that you might have to do additional analysis to make it useful in answering your question.

Depending on your research question, you may need to gather data from multiple sources to get everything you need to answer your research question and make your argument for it. (See Making an Argument.)

For instance, in our example related to foodbanks above, we suggested where you could find statistics about the number of people who get food from American foodbanks. But with that research question ("Why is there a gap in the number of people who qualify for food from foodbanks and the number of people who use foodbanks?"), you would also need to find out from another source how many people qualify for foodbanks based on their income and compare that number with how many people actually use foodbanks.

Finding Data, Data Depositories, and Directories

Sometimes the numeric research data you need may not be in the articles, books, and web sites that you've found. But that doesn't mean that it hasn't been collected and packaged in a useable format. Governments and research institutions often publish data they have collected in discipline-specific data depositories that make data available online. Here are some examples:

- [United States Census Bureau](#)
- [Budget of the United States Government](#)
- [U.S. Bureau of Justice Statistics](#)
- [National Center for Education Statistics](#)
- [Daily Weather Maps \(NOAA\)](#)
- [GeoData.gov](#)
- [The World Factbook \(CIA\)](#)(opens in new window)

The United Nations and just about every country provide information as numeric data available online. Free and accessible data like this is called open data. The U.S. federal government, all states, and many local governments provide open data. You can find them (among other places) at site: .gov.

Other data are available through vendors who publish the data collected by researchers. Here are some examples:

- [International Monetary Fund Statistical Databases](#)
- [World Health Organization Statistical Information System](#)
- [Envirofacts](#)
- [OECD Education at a Glance](#)

Don't know if a depository that could contain data in your discipline? Check out a data directory such as re3data.org

Activity: Where to Find Data

[Open activity in a web browser.](#)

Evaluating Data as Sources

Evaluating data for relevance and credibility is just as important as evaluating any other source. Another thing that is the same with data is that there is never a 100% perfect source. So just as is pointed out in Evaluating Sources, you'll have to make educated guesses (inferences) about whether the data are good enough for your purpose.

Critical thinking as you evaluate sources is something your professors will expect. But you'll benefit in other ways, too, because you'll be practicing a skill necessary for the rest of your life, both in the workplace and in your personal life. It's those skills that will keep you from being duped by fake news and taken advantage by posts that are ignorant or, sometimes, simply scams.

To evaluate data, you'll need to find out how the data were collected. If the data are in another source, such as a book; web page; or newspaper, magazine, or research journal article, evaluate *that* source in the usual way (see Evaluating Sources). If the book or newspaper, magazine, or web page got the data from somewhere else, do the same evaluation of the source from which the book or article got the data. The article, book, or web page should cite where the data came from. If it doesn't, then that is a black mark against using that data. (The data in a research journal article are often the work of the authors of the article. But you'll want to be sure they provide information about how they collected the data.)

In addition, if the data are in a **research journal article**, read the entire article, including the section called Methodology, which tells how the data were collected. Then determine the data's **relevance** to your research question by considering such questions as:

- Were the data collected recently enough?
- Is the data cross-sectional (based on information from people at any one time) or longitudinal (based on information from the same people over time)? If one is more appropriate for your research question than the other, is there information that you can still logically infer from this data?
- Were the types of people from whom the data were collected the same type of people your research question addresses? The more representative the study's sample is of the group your research question addresses, the more confident you can be in using the data to make your argument in your final product.
- Was the data analysis done at the right level for your research question? For instance, it may have been done at the individual, family, business, state, or zip code level. But if that doesn't relate to your research question, can you still logically make inferences that will help your argument? Here's an example: Imagine that your research question asks whether participation in high school sports in Columbus City Schools is positively associated with enrolling in college. But the data you are evaluating is analyzed at the state level. So you have data about the whole state of Ohio's schools and not Columbus in particular. In this case, ask yourself whether there is still any inference you can make from the data.

Research articles are sometimes difficult to read until you get used to them. Here's a helpful PDF: [violentmetaphors.files.wordpress.com/2014/05/evaluating-research-articles.pdf](#) To evaluate the **credibility** of the data in a research journal article you have already read, take the steps recommended in Evaluating Sources, plus consider these questions:

- Is the article in a peer reviewed journal? (Look at the journal's instructions for authors, which are often located on the journal's website, to see if it talks about peers reviewing the article and asking for changes [revisions] before publishing.) If it is a peer reviewed journal, consider that a plus for the article's credibility. Being peer reviewed doesn't mean it's perfect; just more likely to be credible.
- Do the authors discuss causation or correlation? Be wary of claims of causation; it is very difficult to determine a causal effect. While research studies often find relationships (correlation) between various variables in the data, this does not equal causation. For instance, let's return to our example above: If the study of Ohio high schools students' sports participation

showed a positive correlation between sports participation and college enrollment, the researcher cannot say that participation *caused* college enrollment. If it were designed to show cause and effect, the study would not have resulted in a correlation. Instead, it would have had to have been designed as an experiment or quasi-experiment, used different statistical analyses, and would have supported or not supported its hypotheses.

ACTIVITY: Evaluating Data as Sources

[Open activity in a web browser.](#)

Data Visualization

Modern software can help you display your data in ways that are striking and often even beautiful. But the best criterion for judging whatever display you use is whether it helps you and your audience *understand* your data better than only text, maybe even noticing points that you would have otherwise missed.

Specific kinds of charts and graphs accomplish different things, which is important to keep in mind as you evaluate data and data sources. For instance:

- Line charts are usually used to show trends, comparing data over time.
- Scatter plots show the distribution of data points.
- Bar graphs usually compare categories of data.
- Pie charts show proportions of a whole.

It's important to decide what you want a display to *do* before making your final choice. Studying your data first so you know what you have will help you make that decision. Also, it may also be conventional in your discipline to display your data in certain ways. Examining the sources you were assigned to read in your course or asking your professor will help you learn what's considered conventional.

Your professors will be examining your visual display to make sure you did not misrepresent the data. For example, the proportions of slices in a pie chart all have to add up to 100%. If yours don't, you've done something wrong.

You can find tutorials online that can help you learn how to display data in charts or graphs. Good search statements to find those tutorials are:

- "Microsoft Word" (charts OR graphs)
- "Microsoft Excel" (charts OR graphs).

Citing Data

Data is not copyrightable, but the expression of data is. That is, how you present and display the data is copyrightable. So as with any other information source, you should cite any data you use from a source, whether it appeared in an article or you downloaded the data from a repository on the Web.

Examples: Citing Data

Data from a research database:

- APA: Author. (Date updated/published). Title of the page/document. *Journal or Database Title* [data file].
 - Department of Agriculture (2008). Crops harvested, *Crop Production* [data file].
- MLA: Author. "Title of the Page/Document". *Journal or Database Title*, Publishing Organization, date of publication. Access date.
 - Department of Agriculture. "Crops Harvested", *Data Planet*, 2008. Data Planet. Accessed 09/15/2009.

Data from a file found on the open Web:

- APA: Author. (Date updated/published with month and day if available). *Title of the web page/file*. Website Name. URL.
 - Center for Health Statistics, Washington State Department of Health. (2012, November 2). *Mortality table D1. Age-adjusted rates for leading causes of cancer for residents, 2002-2011*. Washington State Department of Health. <http://www.doh.wa.gov/>(opens in new window)
- MLA: Author. "Title of the Document/Page". *Title of the Website*, Name of the Organization Affiliated with the Website, Date of copyright or date last published/updated, URL. Accessed access date

- Center for Health Statistics, Washington State Department of Health. "Mortality Table D1. Age-Adjusted Rates for Leading Causes of Cancer for Residents, 2002-2011". *Washington State Department of Health*, Washington State Department of Health, Nov. 2012. [http://www.doh.wa.gov/\(opens in new window\)](http://www.doh.wa.gov/(opens in new window)). Accessed 9/15/2009.

Proper Use of Data

Once you have your data, you can examine them and make an interpretation. Sometimes, you can do so easily. But not always.

What if...

...you had a lot of information? Sometimes data can be very complicated and may include thousands (or millions...or billions...or more!) of data points. Suppose you only have a date and the high temperature for Columbus – but you have this for 20 years' worth of days. Do you want to calculate the average highs for each month based upon 20 years' worth of data by hand or even with a calculator?

...you want to be able to prove a relationship? Perhaps your theory is that social sciences students do better in a certain class than arts and humanities or life and physical science students. You may have a huge spreadsheet of data from 20 years' worth of this course's sections and would need to use statistical methods to see if a relationship between major and course grade exist.

You may find yourself using special software, such as Excel, SAS, and SPSS, in such situations.

Many people may have a tendency to look for data to prove their hypothesis or idea, as opposed to really answering their research questions. However, you may find that the opposite happens: the data may actually disprove your hypothesis. You should never try to manipulate data so that it gives credence to your desired outcome. While it may not be the answer you wanted to find, it is the answer that exists. You may, of course, look for other sources of data – perhaps there are multiple sources of data for the same topic with differing results. Inconclusive or conflicting findings do happen and can be the answer (even if it's not the one you wanted!). Conflicting results on the same topic are common. This is the reality of research because, after all, the questions researchers are studying are complicated. When you have conflicting results you can't just ignore the differences—you'll have to do your best to explain why the differences occurred.

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3.6: The Research Process

Research (or the process of investigating a topic and finding sources of information that help to establish facts and/or reach a conclusion) can be intimidating and confusing. However, there is a fairly simple set of steps to the research process!

Steps in the Process

1. Identify and develop your topic
 - Your assignment might set your topic or guide you in selecting it.
 - You should choose a topic that you find interesting.
 - You should choose a topic that you can find enough information about.
2. Start by doing some background research on the topic
 - Learn some of the history or context of the topic.
 - Learn about related topics you might want to research.
3. Locate your sources of information
 - Look to your assignment to see if you are required to use specific types of resources.
 - Consider the questions you need to answer.
4. Evaluate your sources of information
 - You want to make sure that your sources are credible, reliable, and unbiased.
5. Read those sources and make notes to use later
 - Make sure to record citation information!
 - Note the page or section/paragraph # for any information you plan to use later.
6. Write your paper / Complete your assignment
7. Cite your sources
8. Proofread what you've done!

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3.7: The Purpose of Research Questions

The Purpose of Research Questions



Research questions are very important.

Both professional researchers and successful student researchers develop research questions. That's because research questions are more than handy tools; they are essential to the research process.

By defining exactly what the researcher is trying to find out, these questions influence most of the rest of the steps taken to conduct the research. That's true even if the research is not for academic purposes but for other areas of our lives.

For instance, if you're seeking information about a health problem in order to learn whether you have anything to worry about, research questions will make it possible for you to more effectively decide whether to seek medical help—and how quickly.

Or, if you're researching a potential employer, having developed and used research questions will mean you're able to more confidently decide whether to apply for an internship or job there.

The confidence you'll have when making such decisions will come from knowing that the information they're based on was gathered by conscious thought rather than serendipity and whim.

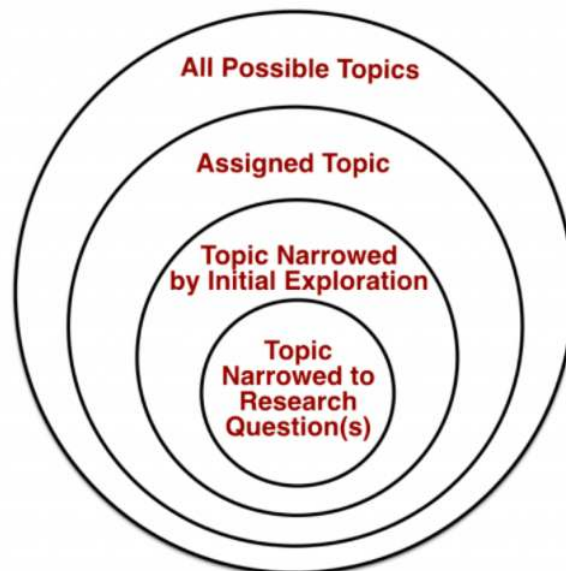
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3.8: Choosing a Topic

Questions to Consider

When it comes to academic research, choosing a topic is often the hardest part of the process! In many instances, college instructors will provide guidelines or a broad topic for the assignment, but it's your job to choose a narrower topic within those guidelines. Here are some questions to ask yourself before you decide on a topic to research:

- Have I been assigned a specific topic or can I choose my own?
- Is there a particular current event that interests me or an issue I feel strongly about? Can I select a topic that is closely related to my college major?
- Did the instructor specify what types of information sources I need to use?



Visualize narrowing a topic as starting with all possible topics and choosing narrower and narrower subsets until you have a specific enough topic to form a research question.

Sources

Image: “[Narrowing a Topic](#)(opens in new window)” by Teaching & Learning, [Ohio State University Libraries](#)(opens in new window) is licensed under [CC BY 4.0](#)(opens in new window)

“[Picking Your Topic IS Research](#)(opens in new window)” by [NC State University Libraries](#)(opens in new window) is licensed under [CC BY-NC-SA 3.0 US](#)(opens in new window)

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3.9: Narrowing a Topic

Narrowing a Topic

For many students, having to start with a research question is the biggest difference between how they did research in high school and how they are required to carry out their college research projects. It's 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've focused your interest enough to be able to tell precisely what you want to find out, instead of only what you want to "write about."

Process of Narrowing a Topic

All Possible Topics – You'll need to narrow your topic in order to do research effectively. Without specific areas of focus, it will be hard to even know where to begin.

Assigned Topics – Ideas about a narrower topic can come from anywhere. Often, a narrower topic boils down to deciding what's interesting to you. One way to get ideas is to read background information in a source like Wikipedia.

Topic Narrowed by Initial Exploration – It's wise to do some more reading about that narrower topic to a) learn more about it and b) learn specialized terms used by professionals and scholars who study it.

Topic Narrowed to Research Question(s) – A research question defines exactly what you are trying to find out. It will influence most of the steps you take to conduct the research.

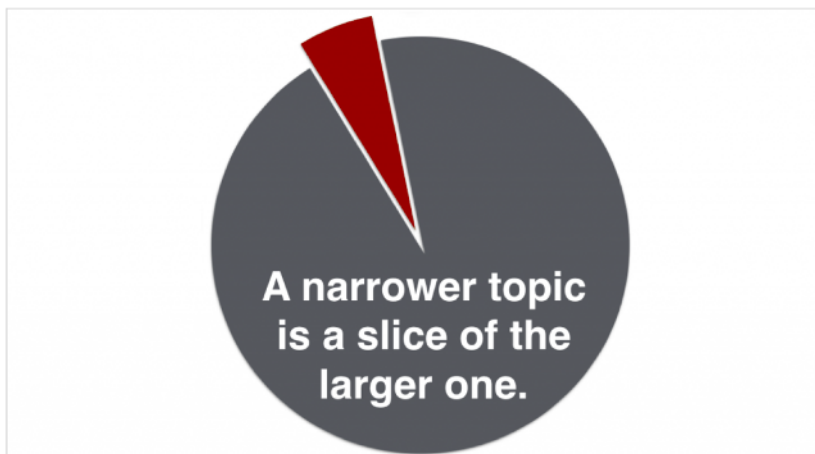
ACTIVITY: Which Topic Is Narrower?

[Open activity in a web browser.\(opens in new window\)](#)

Why Narrow a Topic?

Once you have a need for research—say, an assignment—you may need to prowl around a bit online to explore the topic and figure out what you actually want to find out and write about.

For instance, maybe your assignment is to develop a poster about "spring" for an introductory horticulture course. The instructor expects you to narrow that topic to something you are interested in and that is related to your class.



Another way to view a narrowed topic is as a sliver of the whole topic.

Ideas about a narrower topic can come from anywhere. In this case, a narrower topic boils down to deciding what's interesting to you about "spring" that is related to what you're learning in your horticulture class and small enough to manage in the time you have.

One way to get ideas would be to read about spring in Wikipedia, looking for things that seem interesting and relevant to your class, and then letting one thing lead to another as you keep reading and thinking about likely possibilities that are more narrow than the enormous "spring" topic. (Be sure to pay attention to the references at the bottom of most Wikipedia pages and pursue any that look interesting. Your instructor is not likely to let you cite Wikipedia, but those references may be citable scholarly sources that you could eventually decide to use.)

Or, instead, if it is spring at the time you could start by just looking around, admire the blooming trees on campus, and decide you'd like your poster to be about bud development on your favorites, the crabapple trees.

Anna Narrows Her Topic and Works on a Research Question

The Situation: Anna, an undergraduate, has been assigned a research paper on Antarctica. Her professor expects students to (1) narrow the topic on something more specific about Antarctica because they won't have time to cover that whole topic. Then they are to (2) come up with a research question that their paper will answer.

The professor explained that the research question should be something they are interested in answering and that it must be more complicated than what they could answer with a quick Google search. He also said that research questions often start with either the word "how" or "why."

What you should do:

1. Read what Anna is thinking below as she tries to do the assignment.
2. After the reading, answer the questions at the end of the monologue in your own mind.
3. Check your answers with ours at the end of Anna's interior monologue.
4. Keep this demonstration in mind the next time you are in Anna's spot, and you can mimic her actions and thinking about your own topic.

Anna's Interior Monologue

Okay, I am going to have to write something—a research paper—about Antarctica. I don't know anything about that place—I think it's a continent. I can't think of a single thing I've ever wanted to know about Antarctica. How will I come up with a research question about that place? Calls for Wikipedia, I guess.



A desert?

At [Wikipedia's Antarctica article](#) [en.Wikipedia.org]. Just skimming. Pretty boring stuff. Oh, look—Antarctica's a desert! I guess “desert” doesn't have to do with heat. That's interesting. What else could it have to do with? Maybe lack of precipitation? But there's lots of snow and ice there. Have to think about that—what makes a desert a desert.

It says one to five thousand people live there in research stations. Year round. Definitely the last thing I'd ever do. “...there is no evidence that it was seen by humans until the 19th century.” I never thought about whether anybody lived in Antarctica first, before the scientists and stuff.

Lots of names—explorer, explorer... boring. It says Amundson reached the South pole first. Who's Amundson? But wait. It says, “One month later, the doomed Scott Expedition reached the pole.” Doomed? Doomed is always interesting. Where's more about the Scott Expedition? I'm going to use that Control-F technique and type in Scott to see if I can find more about him on this page. Nothing beyond that one sentence shows up. Why would they have just that one sentence? I'll have to click on the Scott Expedition link.



Terra Nova...

But it gives me a page called Terra Nova Expedition. What does that have to do with Scott? And just who was Scott? And why was his expedition doomed? There he is in a photo before going to Antarctica. Guess he was English. Other photos show him and his team in the snow. Oh, the expedition was named Terra Nova after the ship they sailed this time—in 1911. Scott had been there earlier on another ship.

Lots of stuff about preparing for the trip. Then stuff about expedition journeys once they were in Antarctica. Not very exciting—nothing about being doomed. I don't want to write about this stuff.

Wait. The last paragraph of the first section says “For many years after his death, Scott's status as tragic hero was unchallenged,” but then it says that in the 20th century people looked closer at the expedition's management and at whether Scott and some of his team could be personally blamed for the catastrophe. That “remains controversial,” it says. Catastrophe? Personally blamed? Hmm.

Back to skimming. It all seems horrible to me. They actually *planned* to kill their ponies for meat, so when they actually did it, it was no surprise. Everything was extremely difficult. And then when they arrived at the South Pole, they found that the explorer Amundsen had beaten them. Must have been a big disappointment.

The homeward march was even worse. The weather got worse. The dog sleds that were supposed to meet them periodically with supplies didn't show up. Or maybe the Scott group was lost and didn't go to the right meeting places. Maybe that's what that earlier statement meant about whether the decisions that were made were good ones. Scott's diary said the crystallized snow made it seem like they were pushing and pulling the sledges through *dry sand*.



Rocks?!

It says that before things turned really bad (*really* bad? You've already had to eat your *horses*!), Scott allowed his men to put 30 pounds of rocks with fossils on the sledges they were pushing and dragging. Now was that sensible? The men had to push or pull those sledges themselves. What if it was those rocks that actually doomed those men?

But here it says that those rocks are the proof of continental drift. So how did they know those rocks were so important? Was that knowledge worth their lives? Could they have known?

Wow—there is drama on this page! Scott's diary is quoted about their troubles on the expedition—the relentless cold, frostbite, and the deaths of their dogs. One entry tells of a guy on Scott's team “now with hands as well as feet pretty well useless” voluntarily leaving the tent and walking to his death. The diary says that the team member's last words were “I am just going outside and may be some time.” Ha!

They all seem lost and desperate but still have those sledges. Why would you keep pulling and pushing those sledges containing an extra 30 pounds of rock when you are so desperate and every step is life or death?



A diary...

Then there's Scott's last diary entry, on March 29, 1912. “... It seems a pity but I do not think I can write more.” Well.

That diary apparently gave lots of locations of where he thought they were but maybe they were lost. It says they ended up only 11 miles from one of their supply stations. I wonder if anybody knows how close they were to where Scott *thought* they were.

I'd love to see that diary. Wouldn't that be cool? Online? I'll Google it.

Yes! At the British museum. Look at that! I can see Scott's last entry IN HIS OWN HANDWRITING!



A digital version?

Actually, if I decide to write about something that requires reading the diary, it would be easier to not have to decipher his handwriting. Wonder whether there is a typed version of it online somewhere?

Maybe I should pay attention to the early paragraph on the Terra Nova Expedition page in Wikipedia—about it being controversial whether Scott and his team made bad decisions so that they brought most of their troubles on themselves. Can I narrow my topic to just the controversy over whether bad decisions of Scott and his crew doomed them? Maybe it's too big a topic if I consider the decisions of all team members. Maybe I should just consider Scott's decisions.

So what research question could come from that? Maybe: how did Scott's decisions contribute to his team's deaths in Antarctica? But am I talking about his decisions before or after they left for Antarctica? Or the whole time they were a team? Probably too many decisions involved. More focused: How did Scott's decisions after reaching the South Pole help or hurt the chances of his team getting back safely? That's not bad—maybe. If people have written about that. There are several of his decisions discussed on the Wikipedia page, and I know there are sources at the bottom of that page.



Really, a desert?

Let me think—what else did I see that was interesting or puzzling about all this? I remember being surprised that Antarctica is a desert. So maybe I could make Antarctica as a desert my topic. My research question could be something like: Why is Antarctica considered a desert? But there has to be a definition of deserts somewhere online, so that doesn't sound complicated enough. Once you know the definition of desert, you'd know the answer to the question. Professor Sanders says research questions are more complicated than regular questions.

What's a topic I could care about? A question I really wonder about? Maybe those rocks with the fossils in them. It's just so hard to imagine desperate explorers continuing to push those sledges with an extra 30 pounds of rocks on them. Did they somehow know how important they would be? Or were they just curious about them? Why didn't they ditch them? Or maybe they just didn't realize how close to death they were. Maybe I could narrow my Antarctica topic to those rocks.



Why rocks?

Maybe my topic could be something like: The rocks that Scott and his crew found in Antarctica that prove continental drift. Maybe my research question could be: How did Scott's explorers choose the rocks they kept?

Well, now all I have is questions about my questions. Like, is my professor going to think the question about the rocks is still about Antarctica? Or is it all about continental drift or geology or even the psychology of desperate people? And what has been written about the finding of those rocks? Will I be able to find enough sources? I'm also wondering whether my question about Scott's decisions is too big—do I have enough time for it?



I should ask.

I think my professor is the only one who can tell me whether my question about the rocks has enough to do with Antarctica. Since he's the one who will be grading my paper. But a librarian can help me figure out the other things.

So Dr. Sanders and a librarian are next.

Questions

1. Was Anna's choice to start with Wikipedia a good choice? Why or why not?
2. Have you ever used that Control-F technique?
3. At what points does Anna think about where to look for information?
4. At the end of this session, Anna hasn't yet settled on a research question. So what did she accomplish? What good was all this searching and thinking?

Here are our answers below.

Our Answers:

1. **Was Anna's choice to start with Wikipedia a good choice? Why or why not?** Wikipedia is a great place to start a research project. Just make sure you move on from there, because it's a not a good place to end up with your project. One place to move on to is the sources at the bottom of most Wikipedia pages.
2. **Have you ever used that Control-F technique?** If you haven't used the Control-F technique, we hope you will. It can save you a lot of time and effort reading online material.
3. **At what points does Anna think about where to look for information?** When she began; when she wanted to know more about the Scott expedition; when she wonders whether she could read Scott's diary online; when she thinks about what people could answer her questions.
4. **At the end of this session, Anna hasn't yet settled on a research question. So what did she accomplish? What good was all this reading and thinking?** There are probably many answers to this question. Ours includes that Anna learned more about Antarctica, the subject of her research project. She focused her thinking (even if she doesn't end up using the possible research questions she's considering) and practiced critical thinking skills, such as when she thought about what she could be interested in, when she worked to make her potential research questions more specific, and when she figured out what questions still needed answering at the end. She also practiced her skills at making meaning from what she read, investigating a story that she didn't expect to be there and didn't know had the potential of being one that she is interested in. She also now knows what questions she needs answered and whom to ask. These thinking skills are what college is all about. Anna is way beyond where she was when she started.

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3.10: Background Reading

Background Reading



Get a good look at your topic through background reading.

It's wise to do some more reading about that narrower topic once you have it. For one reason, you probably don't know much about it yet. For another, such reading will help you learn the terms used by professionals and scholars who have studied your narrower topic. Those terms are certain to be helpful when you're looking for sources later, so jot them down or otherwise remember them.

For instance, if you were going to do research about the treatment for humans with bird flu, this 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'll eventually need for your assignment.

Most sources other than journal articles are good sources for this initial reading, including the *New York Times* or other mainline American news outlets, Wikipedia, encyclopedias for the discipline your topic is in (horticulture for the crabapple bud development topic, for instance), dictionaries for the discipline, and manuals, handbooks, blogs, and web pages that could be relevant.

This initial reading could cause you to narrow your topic further, which is fine because narrower topics lead to greater specificity for what you have to find out. After this upfront work, you're ready to start developing the research question(s) you will try to answer for your assignment.

Tip: Keeping Track of Your Information

While you are in the background reading phase of your research you will come across a lot of sources and won't know yet if they will prove useful in the long run. A handy type of software to help you keep track of all your findings is called citation management software. It will also be extremely valuable when it comes to using the resources you end up needing. Three of these tools are available for free to OSU students, staff and faculty. [Learn more about these tools and how to access them.](#)(opens in new window)



Common Citations Tools

Fuel Your Inspiration

It's worth remembering that reading, scanning, looking at, and listening to information resources is very useful during any step of the process to develop research questions. Doing so can jog our memories, give us details that will help us focus, and help us connect disparate information—all of which will help us come up with research questions that we find interesting.

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3.11: Research Questions

A research question is a question that your research project tries to answer. Research questions help you to

- focus your research
- determine how relevant your research is to your readers
- communicate the purpose of your research clearly

Once you have your topic, you can brainstorm related sub-topics that interest you. You can then refine those into specific questions that you can find research information on! Research questions should be clear, focused, relevant, and realistic in scope. It needs to be something that you can address within the limits of your assignment, time, and resources. A good research question will also inform your reader about what it is you will be informing them about.

How?

Forming a research question starts with choosing a topic of interest. Then you identify gaps in the information that is available - specific sub-topics that you or your readers need more information about. Finally, you identify questions that would provide that information.

Regular vs. Research Questions

Most of us look for information to answer questions every day, and we often act on the answers to those questions. Are research questions any different from most of the questions for which we seek information? Yes.

See how they're different by looking over the examples of both kinds below and answering questions about them in the next activity.

Examples: Regular vs. Research Questions

Regular Question: What time is my movie showing at Lennox on Friday?

Research Question: How do "sleeper" films end up having outstanding attendance figures?

Regular Question: What can I do about my insomnia?

Research Question: How do flights more than 16 hours long affect the reflexes of commercial jet pilots?

Regular Question: How many children in the U.S. have allergies?

Research Question: How does his or her country of birth affect a child's chances of developing asthma?

Regular Question: What year was metformin approved by the U.S. Food and Drug administration?

Research Question: Why are nanomedicines, such as doxorubicin, worth developing?

Regular Question: Could citizens register to vote at branches of the Columbus Public Library in 2016?

Research Question: How do public libraries in the United States support democracy?

Regular Question: What is the Whorfian Hypothesis?

Research Question: Why have linguists cared about the Whorfian hypothesis?

Regular Question: Where is the Apple, Inc. home office?

Research Question: Why are Apple's marketing efforts so successful?

Regular Question: What is Mers?

Research Question: How could decision making about whether to declare a pandemic be improved?

Regular Question: Does MLA style recommend the use of generic male pronouns intended to refer to both males and females?

Research Question: How do age, gender, IQ, and socioeconomic status affect whether students interpret generic male pronouns as referring to both males and females?

Activity: Which Kind of Question

[Open activity in a web browser.](#)(opens in new window)

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3.12: Influence of a Research Question

Influence of a Research Question

Whether you're developing research questions for your personal life, your work for an employer, or for academic purposes, the process always forces you to figure out exactly:

- What you're interested in finding out.
- What it's feasible for you to find out (given your time, money, and access to information sources).
- How you can find it out, including what research methods will be necessary and what information sources will be relevant.
- What kind of claims you'll be able to make or conclusions you'll be able to draw about what you found out.

For academic purposes, you may have to develop research questions to carry out both large and small assignments. A smaller assignment may be to do research for a class discussion or to, say, write a blog post for a class; larger assignments may have you conduct research and then report it in a lab report, poster, term paper, or article.

For large projects, the research question (or questions) you develop will define or at least heavily influence:

- Your **topic**, in that research questions effectively narrow the topic you've first chosen or been assigned by your instructor.
- What, if any, **hypotheses** you test.
- Which **information sources** are relevant to your project.
- Which **research methods** are appropriate.
- What claims you can make or **conclusions** you can come to as a result of your research, including what **thesis statement** you should write for a term paper or what **results section** you should write about the data you collected in your own science or social science study.



Your research question drives your hypothesis, research methods, sources, and your claims or conclusions.

Influence on Thesis

Within an essay, poster, or term paper, the thesis is the researcher's answer to the research question(s). So as you develop research questions, you are effectively specifying what any thesis in your project will be about. While perhaps many research questions could have come from your original topic, your question states exactly which one(s) *your* thesis will be answering.

For example, a topic that starts out as "desert symbiosis" could eventually lead to a research question that is "how does the diversity of bacteria in the gut of the Sonoran Desert termite contribute to the termite's survival?" In turn, the researcher's thesis will answer that particular research question instead of the numerous other questions that could have come from the desert symbiosis topic.

Developing research questions is all part of a process that leads to greater and greater specificity for your project.

Tip: Don't Make These Mistakes

Sometimes students inexperienced at working with research questions confuse them with the search statements they will type into the search box of a search engine or database when looking for sources for their project. Or, they confuse research questions with the thesis statement they will write when they report their research. The next activity will help you sort things out.

Activity: From Topic to Thesis Statement

[Open activity in a web browser.\(opens in new window\)](#)

Influence on Hypothesis

If you're doing a study that predicts how variables are related, you'll have to write at least one hypothesis. The research questions you write will contain the variables that will later appear in your hypothesis(es).

Influence on Resources

You can't tell whether an information source is relevant to your research until you know exactly what you're trying to find out. Since it's the research questions that define that, it's they that divide all information sources into two groups: those that are relevant to your research and those that are not—all based on whether each source can help you find out what you want to find out and/or report the answer.

Influence on Research Methods

Your research question(s) will help you figure out what research methods you should use because the questions reflect what your research is intended to do. For instance, if your research question relates to describing a group, survey methods may work well. But they can't answer cause-and-effect questions.

Influence on Claims or Conclusions

The research questions you write will reflect whether your research is intended to describe a group or situation, to explain or predict outcomes, or to demonstrate a cause-and-effect relationship(s) among variables. It's those intentions and how well you carry out the study, including whether you used methods appropriate to the intentions, that will determine what claims or conclusions you can make as a result of your research.

Activity: Quick Check

[Open activity in a web browser.\(opens in new window\)](#)

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3.13: Developing Your Research Question

Developing Your Research Question

Because of all their influence, you might worry that research questions are very difficult to develop. Sometimes it can seem that way. But we'll help you get the hang of it and, luckily, none of us has to come up with perfect ones right off. It's more like doing a rough draft and then improving it. That's why we talk about *developing* research questions instead of just writing them.

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/smaller topic that is related to the first.

Step 3: List some potential questions that could logically be asked in relation to the narrow topic.

Step 4: Pick the question that you are most interested in.

Step 5: Change that question you're interested in so that it is more focused.

MOVIE: Developing Research Questions

As you view this short video on how to develop research questions, think about the steps. Which step do you think is easiest? Which do you think is hardest?

Video: [Developing a Research Question\(opens in new window\)](#).

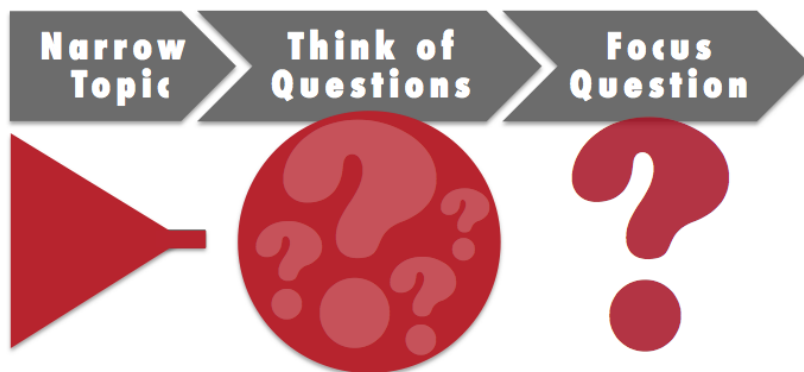
[View Text Version of the Video\(opens in new window\)](#)

Practice

Once you know the steps and their order, only three skills are involved in developing a research question:

- Imagining narrower topics about a larger one,
- Thinking of questions that stem from a narrow topic, and
- Focusing questions to eliminate their vagueness.

Every time you use these skills, it's important to evaluate what you have produced—that's just part of the process of turning rough drafts into more finished products.



Three steps for developing a research question: Narrow your topic, think of questions, then choose a question to focus on.

ACTIVITY: Developing a Research Question

[Open activity in a web browser.\(opens in new window\)](#)

Maybe you have a topic in mind, but aren't sure how to form a research question around it. The trick is to think of a question related to your topic, but not answerable with a quick search. Also, try to be specific so that your research question can be fully answered in the final product for your research assignment.

ACTIVITY: Thinking of Questions

For each of the narrow topics below, think of a research question that is logically related to that topic. (Remember that good research questions often, but not always, start with “Why” or “How” because questions that begin that way usually require more analysis.)

Topics:

- U.S. investors’ attitudes about sustainability
- College students’ use of Snapchat
- The character Scout in *To Kill a Mockingbird*
- Nature-inspired nanotechnologies
- Marital therapy

After you think of each research question, evaluate it by asking whether it is:

- Logically related to the topic
- In question form
- Not answerable with a quick Google search
- Specific, not vague

Sometimes the first draft of a research question is still too broad, which can make your search for sources more challenging. Refining your question to remove vagueness or to target a specific aspect of the topic can help.

ACTIVITY: Focusing Questions

The first draft research questions below are not focused enough. Read them and identify at least one area of vagueness in each. Check your vagueness with what we identified. It’s great if you found more than we did because that can lead to research questions of greater specificity. See the bottom of the page for the answers.

First Drafts of Research Questions:

1. Why have most electric car company start-ups failed?
2. How do crabapple trees develop buds?
3. How has NASA helped America?
4. Why do many first-time elections soon after a country overthrows a dictator result in very conservative elected leaders?
5. How is music composed and performed mostly by African-Americans connected to African-American history?

Answer

Some answers to the “Focusing Questions” Activity above are:

Question 1: Why have most electric car company start-ups failed?

Vagueness: Which companies are we talking about? Worldwide or in a particular country?

Question 2: How do crabapple trees develop buds?

Vagueness: There are several kinds of crabapples. Should we talk only about one kind? Does it matter where the crabapple tree lives?

Question 3: How has NASA helped America?

Vagueness: NASA has had many projects. Should we should focus on one project they completed? Or projects during a particular time period?

Question 4: Why do many first-time elections soon after a country overthrows a dictator result in very conservative elected leaders?

Vagueness: What time period are we talking about? Many dictators have been overthrown and many countries have been involved. Perhaps we should focus on one country or one dictator or one time period.

Question 5: How is music composed and performed mostly by African-Americans connected to African-American history?

Vagueness: What kinds of music? Any particular performers and composers? When?

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CHAPTER OVERVIEW

4: Searching for Information

- 4.1: Sources and Information Needs
- 4.2: Sources to Meet Needs
- 4.3: Planning Your Sources
- 4.4: Research Questions
- 4.5: Identifying the Main Concepts
- 4.6: Avoiding Confirmation Bias
- 4.7: Brainstorming Related Terms
- 4.8: Creating a Search Statement
- 4.9: How Can AI Help With Research?
- 4.10: Conclusion

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4.1: Sources and Information Needs

Sources and Information Needs



It's easier to find appropriate sources when you start with a plan.

This section and the section on Types of Sources work together. That's because knowing the kinds of information in each category of sources will help you choose the right kind of information to meet each of your information needs. **And some of those needs are very particular.**

Information needs are why you need sources. Meeting those needs is what you're going to do with sources as you complete your research project.

Here are those needs:

- To learn more background information.
- To answer your research question(s).
- To convince your audience that your answer is correct or, at least, the most reasonable answer.
- To describe the situation surrounding your research question for your audience and explain why it's important.
- To report what others have said about your question, including any different answers to your research question.

Tip:

For another way to think about the work your sources do, see Roles of Research Sources.

The verbs in the list of information needs above tell you exactly how you'll use sources to carry out your research and create your final product: to learn, answer, convince, describe, and report. But you won't be doing any of that alone.

Your sources will give you information with which to reason. They'll also give you direct quotes and information to summarize and paraphrase as you create your final product. In other words, your sources will support you every step of the way during your research project.

Needs and Final Products

Background information may seldom appear directly in any final product. But meeting each of the other information needs will result in written sections of a term paper. For final products other than term papers, you'll have the same needs and will use sources to meet them. But not all needs will result in a section of your final product.

Posters & Information Needs

On a poster about your own original research, you aren't likely to have room to describe the situation surrounding your research question and why the question is important. That same lack of space may mean you do not report what others have

said about your question. But that doesn't mean you didn't meet those needs and others as you carried out your research—unlike a term paper or journal article, the poster format in which you reported it just had more limited space.

For instance, in order to justify doing the research to yourself and your professor, you probably started by meeting the information need to describe the situation and why it is important. Your instructor may have you turn in that justification. And in order to do research based on what has already been found out, you will have studied what others have already reported. You also had to do that in order to make your answer to your research question more believable. But that doesn't mean you had room on your poster to say you met those needs.

Activity: Sources and Information Needs

[Open activity in a web browser.](#)

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4.2: Sources to Meet Needs

Sources to Meet Needs

Because there are several categories of sources (see Types of Sources), the options you have to meet your information needs can seem complex.

Our best advice is to pay attention to when only primary and secondary sources are required to meet a need and to when only professional and scholarly sources will work. If your research project is in the arts, also pay attention to when you must use popular sources, because popular sources are often primary sources in the arts.

These descriptions and summaries of when to use what kind of source should help.



Get a good look at your topic through background reading.

To Learn Background Information

When you first get a research assignment and perhaps for a considerable time afterward, you will almost always have to learn some background information as you develop your research question and explore how to answer it.

Sources from any category and from any subgroup within a category – except journal articles – can meet students' need to learn background information and understand a variety of perspectives. Journal articles, are usually too specific to be background. From easy-to-understand to more complex sources, read and/or view those that advance your knowledge and understanding.

For instance, especially while you are getting started, secondary sources that synthesize an event or work of art and tertiary sources such as guidebooks can be a big help. Wikipedia is a good tertiary source of background information.

Sources you use for background information don't have to be sources that you cite in your final report, although some may be.

Sources to Learn Background Information

- **Quantitative or Qualitative:** Either—whatever advances your knowledge.
- **Fact or Opinion:** Any—whatever advances your knowledge.
- **Scholarly, Professional, or Popular:** Any—whatever advances your knowledge.
- **Primary, Secondary, or Tertiary:** Any—whatever advances your knowledge.
- **Publication Format:** Any—whatever advances your knowledge.

One important reason for finding background information is to learn the language that professionals and scholars have used when writing about your research question. That language will help you later, particularly when you're searching for sources to answer your research question.

To identify that language, you can always type the word glossary and then the discipline for which you're doing your assignment in the search engine search box.

Here are two examples to try:

- [Glossary neuroscience](#)
- [Glossary "social media marketing"](#)

(Putting a phrase in quotes in most search boxes insures that the phrase will be searched rather than individual words.)



Your research question may call for qualitative or quantitative sources.

To Answer Your Research Question

You have to be much pickier with sources to meet this need because only certain choices can do the job. Whether you can use quantitative or qualitative data depends on what your research question itself calls for.

Only primary and secondary sources (from the category called publication mode) can be used to answer your research question and, in addition, those need to be professional and/or scholarly sources for most disciplines (humanities, social sciences, and sciences). But the arts often require popular sources as primary or secondary sources to answer research questions. Also, the author's purpose for most disciplines should be to educate and inform or, for the arts, to entertain and perhaps even to sell. (As you may remember, primary sources are those created at the same time as an event you are researching or that offer something original, such as an original performance or a journal article reporting original research. Secondary sources analyze or otherwise react to primary sources. Because of the information lifecycle, the latest secondary sources are often the best because their creators have had time for better analysis and more information to incorporate.)

Example: Quantitative or Qualitative Data

Suppose your research question is “How did a particular king of Saudi Arabia, King Abdullah, work to modernize his country?”

That question may lend itself to qualitative descriptive judgments—about what are considered the components of modernization, including, for instance, what were his thoughts about the place of women in society.

But it may also be helped by some quantitative data, such as those that would let you compare the numbers of women attending higher education when Abdullah became king and those attending at the time of his death or, for instance, whether manufacturing increased while he reigned.

So looking for sources that provide both quantitative and qualitative information (not necessarily in the same resource) is usually a good idea.

If it is not clear to you from the formats of sources you are assigned to read for your course, ask your professor which formats are acceptable to your discipline for answering your research question.

Sources to Answer Your Research Question

- **Quantitative or Qualitative:** Will be determined by the question itself.
- **Fact or Opinion:** Professional and scholarly for most disciplines; the arts often use popular, as well.
- **Scholarly, Professional, or Popular:** Professional and scholarly for most disciplines; the arts often use popular, as well.
- **Primary, Secondary, or Tertiary:** Primary and secondary.
- **Publication Format:** Those acceptable to your discipline.



Sources that meet the approval of your audience will be more convincing.

To Convince Your Audience

Convincing your audience is similar to convincing yourself and takes the same kinds of sources—as long as your audience is made up of people like you and your professor, which is often true in academic writing. That means using many of those sources you used to answer your research question.

When your audience isn't very much like you and your professor, you can adjust your choice of sources to meet this need. Perhaps you will include more that are secondary sources rather than primary, some that are popular or professional rather than scholarly, and some whose author intent may not be to educate and inform.

Sources to Convince Your Audience

- **Quantitative or Qualitative Data:** Same as what you used to answer your research question if your audience is like you and your professor. (If you have a different audience, use what is convincing to them.)
- **Fact or Opinion:** Those with the purpose(s) you used to answer your research question if your audience is like you and your professor. (If you have a different audience, you may be better off including some sources intended to entertain or sell.)
- **Scholarly, Professional or Popular:** Those with the same expertise level as you used to answer the question if your audience is like you and your professor. (If you have a different audience, you may be better off including some popular.)
- **Publication Mode:** Primary and secondary sources if your audience is like you and your professor. If you have a different audience, you may be better off including more secondary sources than primary.
- **Publication Format:** Those acceptable to your discipline, if your audience is like you and your professor.



Use sources to frame the situation.

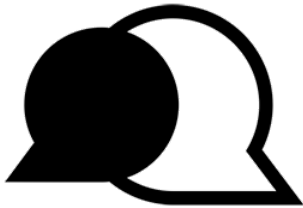
To Describe the Situation

Choosing what kinds of sources you'll need to meet this need is pretty simple—you should almost always use what's going to be clear and compelling to your audience. Nonetheless, sources intended to educate and inform may play an out-sized role here.

But even then, they don't always have to educate and inform *formally*, which opens the door to using sources such as fiction or the other arts and formats that you might not use with some other information needs.

Sources to Describe the Situation

- **Quantitative or Qualitative:** Whatever you think will make the description most clear and compelling and your question important to your audience.
- **Fact or Opinion:** Often to educate and inform, but sources don't have to do that *formally* here, so they can also be to entertain or sell.
- **Scholarly, Professional, or Popular:** Whatever you think will make the description most clear and compelling and your question important to your audience.
- **Primary, Secondary or Tertiary:** Whatever you think will make the description most clear and compelling and your question important to your audience. Some disciplines will not accept tertiary for this need.
- **Publication Format:** Whatever you think will make the description most clear and compelling and your question important to your audience. Some discipline will accept only particular formats, so check for your discipline.



Look for sources about how others have treated your research question.

To Report What Others Have Said

The choices here about kinds of sources are easy: just use the same or similar sources that you used to answer your research question that you also think will be the most convincing to your audience.

Sources to Report What Others Have Said

- **Quantitative or Qualitative:** Those sources that you used to answer your research question that you think will be most convincing to your audience.
- **Fact or Opinion:** Those sources that you used to answer your research question that you think will be most convincing to your audience.
- **Scholarly, Professional, or Popular:** Those sources that you used to answer your research question that you think will be most convincing to your audience.
- **Primary, Secondary, or Tertiary:** Those sources that you used to answer your research question that you think will be most convincing to your audience.
- **Publication Format:** Those sources that you used to answer your research question that you think will be most convincing to your audience.

Activity: Meeting Your Information Needs

[Open activity in a web browser.](#)

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4.3: Planning Your Sources

Planning Your Sources

Okay, so once you know what kinds of sources you need to meet your information needs, where should you look for them? Once more, thinking about categories can help.

Where sources are located is generally organized by audience expertise level—by whether they are popular, professional, or scholarly sources. Popular and professional are often grouped together. But scholarly sources tend to hang out by themselves. (That's why searching Google Scholar locates more of them than just plain old Google, and an academic library has more scholarly sources than a public library.) [Source Locator](#) can help you see where sources of every audience expertise level (popular, professional, and scholarly) are located. Check it out.

Even if you are not using our planning table, Before you start looking, try the Plan for Sources table below along with the suggestions made in this section to think through what sources you'll need for your own research project. (There's also an example plan for sources filled in for a term paper.) Having your Plan for Sources always at your side while you search for sources will guide where you look and what you're willing to accept. It will help you keep track of whether you have found the right resources.

Also take a look at our Source Locator, whose link is below.

PLAN FOR SOURCES				
Course:		Due Date:		Type of Final Product:
Research Question:				
Information Needs		Kinds of Sources (Popular, Professional, or Scholarly) That Should Meet Each Need	Publication Formats Likely to be Helpful in Meeting Each Need	Where to Look
To learn more background information				
To answer your research question and convince your audience				
To report what others have said				
To describe the situation and why it's important				

Thinking through the types of sources you need to meet your information needs helps you target your search. You can download the Plan for Sources table at <http://go.osu.edu/planforsources>.

You can download the table at <http://go.osu.edu/planforsources>, then fill it out with the help of our [Source Locator](#). Using this table doesn't mean you can't change your mind if you later find another kind of source that looks too good to pass up. But making a plan first will insure that you don't just grab any source you come across. The few minutes you take to complete the table will save you time later. And it's nice to have a plan all in one place that you can put into action!

Example: Sample "Plan for Sources" Table

PLAN FOR SOURCES				
Course: ARTS & SCIENCES 3200	Due Date: 2/15/16	Type of Final Product: term paper		
Research Question: In what ways has the checklist movement affected surgery patient outcomes in U.S. hospitals?				
Information Needs		Kinds of Sources (Popular, Professional, or Scholarly) That Should Meet Each Need	Publication Formats Likely to be Helpful in Meeting Each Need	Where to Look
To learn more background information	✓	Popular Professional	Any, including magazine articles, professional blogs, and association websites and publications	Google and Bing
To answer your research question and convince your audience	✓	Professional Scholarly	Books Research journal articles Conference papers	Library catalog Library databases Google Scholar
To report what others have said	✓	Professional Scholarly	Any, including professional blogs and association websites and publications Research journal articles Conference papers	Google and Bing Library databases Google Scholar
To describe the situation and why it's important	✓	Popular Professional	Any, including magazine articles, professional blogs, and association websites and publications	Google and Bing

Completing the table puts all your planning in one place.

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4.4: Research Questions

Identifying What You Know & Don't Know

Once you have narrowed down your research topic and done some preliminary background reading on your topic, it's time to start thinking about—and writing down—what you already know about your topic and what you are interested in finding out. Identifying the gaps in your knowledge will help you to create research questions that will guide your research. For instance, if you have decided to research the effects of divorce on children, you'd want to first think about what knowledge you already have on that topic. Next, write down what you do not know but are curious to find out.

What I know:

- Divorce is common in the United States
- Sometimes children are negatively affected by their parents getting divorced

What I don't know:

- Is there a certain age that children are more prone to the negative effects of divorce?
- Can children carry negative effects of divorce with them into adulthood?
- How can divorce impact academic performance?
- How can the effects of divorce be mitigated?

Though you may not be aware of it, you are mentally engaging in this process many times throughout the day. The process of seeking information for everyday questions is a bit different than for research questions, however. Take a look at the examples of regular questions and research questions below. While regular questions are easily answered by a quick online search (e.g., Google), research questions will take more exploration.

Examples: Regular vs. Research Questions

Regular Question: What time is my movie showing at Lennox on Friday?

Research Question: How do “sleeper” films end up having outstanding attendance figures?

Regular Question: What can I do about my insomnia?

Research Question: How do flights more than 16 hours long affect the reflexes of commercial jet pilots?

Regular Question: How many children in the U.S. have allergies?

Research Question: How does his or her country of birth affect a child's chances of developing asthma?

Regular Question: What year was metformin approved by the U.S. Food and Drug administration?

Research Question: Why are nanomedicines, such as doxorubicin, worth developing?

Regular Question: Could citizens register to vote at branches of the Columbus Public Library in 2016?

Research Question: How do public libraries in the United States support democracy?

Choosing the Right Question

Once you have a list of several aspects of your topic that you are curious about, choose one that interests you most and create a research question from it. Be sure to choose something that aligns with the parameters of your assignment and that you believe is feasible to research given the amount of time and resources you have access to. Research questions that are too vague will leave you swimming in a sea of irrelevant information, while a research question that is too specific will make it very difficult to find enough information sources to support your research.

Too broad: What is the impact of divorce on academic performance?

Too narrow: What is the impact of divorce on female student's grades during fifth grade in the United States?

Just right: How can divorce affect a student's GPA in high school?

Sources

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4.5: Identifying the Main Concepts

Keywords

Your research question will be the foundation for your research process. The next step is to identify the main concepts within the research question that you created. Though many people type full questions word-for-word into online search engines, the algorithms of the search engines are programmed to pull out the most important keywords in what is typed into the search bar—some of the words in your research question are irrelevant when it comes to finding information sources. Main concepts, also sometimes called keywords, key terms, and/or key phrases, are almost always nouns. Words in your research question that are not likely to relate to the main concept are words like: the, is, affect, what, why, when, how, and are. When trying to identify the main concepts, think about what ideas and topics would need to be present in an information source for it to be relevant to you and your research.

How can divorce affect a student's GPA in high school?

How can **divorce** affect a **student's GPA** in **high school**?

In the example above, the main concepts, or keywords, in the research question are divorce, student's GPA, and high school. These are the main concepts that will be the focus of your research; if an information source includes **all** of these concepts, then it is very likely to be relevant and useful to you. It is your job as a researcher to determine what is relevant to your research. Be aware that the main concepts from your research question serve as a base to launch your search for information and the keywords selected to describe your main concepts are likely to evolve during the process.

Searching is an iterative process: We try keywords, take a look at what we found and, if the results weren't good enough, edit our keywords and search again – often multiple times. Most of the time, the first keywords we try are not the best, even though Google may give us many results. It pays to search further for the sources that will help you the most. Be picky.

Sources

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4.6: Avoiding Confirmation Bias

What is confirmation bias? Here is a quick definition from the *Encyclopaedia Britannica*: “The tendency to process information by looking for, or interpreting, information that is consistent with one’s existing beliefs.” Although confirmation bias is typically unintentional, it is strong and widespread, with many [significant effects](#) and [real-world implications](#).

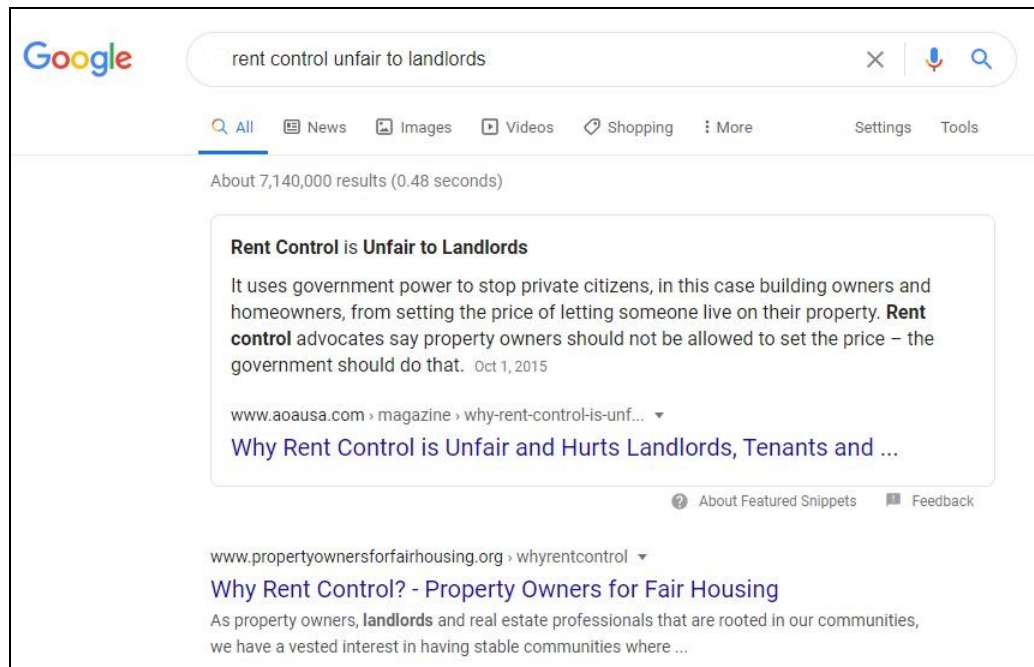
Impact on Searching

Some psychologists describe confirmation bias as the selective collection of evidence that supports what one already believes, while ignoring or rejecting evidence that supports a different conclusion. Experiments have found repeatedly that people tend to test hypotheses in a one-sided way, by searching for evidence consistent with their current beliefs. Rather than searching through all the relevant evidence, they phrase questions to receive an answer that supports their theory.

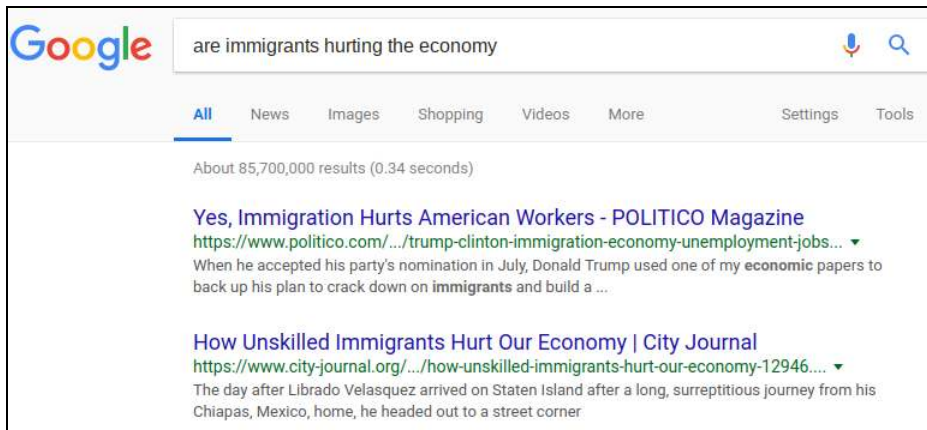
One of the primary types of confirmation bias is the [biased search for information](#). When you type a search or a question into Google, you will want to be careful that your choice of keywords does not unintentionally reflect a bias towards preexisting beliefs, or towards a particular preconceived answer.

Examples

A search for “is rent control unfair to landlords” is likely to get results that describe rent control as unfair to landlords. A better search might be something like “rent control landlords”



A search for “are immigrants hurting the economy” is likely to get results that argue that immigrants hurt the economy. A better search might be something like “economic effects of immigration”



Sources

Casad, Bettina J. “[Confirmation Bias](#).” *Encyclopaedia Britannica*, 1 Aug. 2016.

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4.7: Brainstorming Related Terms

Describing Main Concepts

In many instances, there are various ways that a main concept can be described. Not every information source will use the same term to describe the same thing! Take the topic of genetically modified food, for example. Though “genetically modified food” is commonly used, terms like “GMO,” “genetically modified organism,” “genetic engineering,” and “genetic modification” are often used by scientists to describe the same thing.

This is also a good time to look at your main concepts and decide if the keywords you’ve selected to describe them are too broad or too narrow. In the previous example, using the key phrase genetic engineering when looking for information about specific types of organisms that have been genetically modified, may be too broad of a term that yields irrelevant results. Also keep in mind the type of information you are searching for: If you need scholarly research articles, scientific terminology is more likely to be used in those resources; if you are searching for information that may appear in popular periodicals (like magazines and newspapers), more general, everyday language is likely to be used (e.g., myocardial infarction versus heart attack).

Brainstorming Alternatives

It can be helpful to list your keywords and any alternative or related keywords or phrases that may be helpful to your search. You may want to return to those reference sources you used for finding background information on your topic to see what terms and phrases were used. You may also try searching in a thesaurus for some synonyms, and you may even come back to this step later in the research process once you have completed some initial searches and discovered some helpful new alternative terms. Some databases will also list “related terms,” which can be helpful for modifying your search. On the other hand, some keywords are unique, and have no other terms that could be used in their place.

Main Concept/ Keyword	Alternative/Related	Alternative/Related	Alternative/Related
divorce	separation	split up	parental conflict
student’s GPA	grade point average	academic performance	academic achievement
high school	school	secondary school	—

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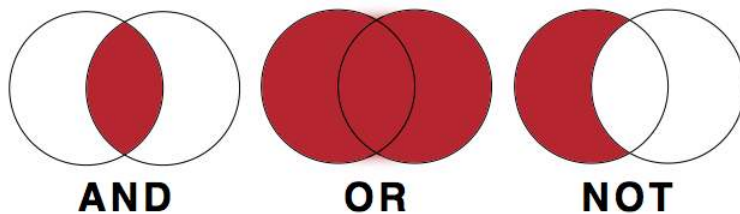
4.8: Creating a Search Statement

Combining Your Keywords

Once you have dissected your research question, found the main concepts, and listed several keywords to describe these concepts (e.g., synonyms, narrower terms, broader terms), it is time to combine those keywords in meaningful ways in order to perform a search for information resources. The combination of terms using various search strategies, called a **search statement**, will help you get more precise results than typing in a whole research question or just a few words into a search bar. Search statements are almost like a set of instructions given to whatever search option you are using (e.g., library catalog, library database) that describe what you want to find.

Boolean Operators

Named after the mathematician, George Boole, **Boolean operators** are used as conjunctions that combine or exclude certain keywords in your search. Though Boolean operators are used in logic, mathematics, and computer science, there are three common Boolean operators used by search engines (e.g., library catalogs, academic databases, and some online search engines). Think of Boolean operators as instructions that tell a search engine what to do with your keywords. Some search tools need Boolean operators to be typed in all capital letters in order for them to work, so it is a good idea to always type them in all caps whenever you are using them.

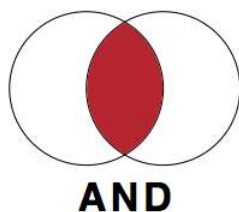


AND

The Boolean operator AND is used between all the keywords and phrases that you want to include in your search. When creating a search statement to find information on the effects of divorce on high school students' GPA, the Boolean AND operator would go between our three keywords/phrases:

Divorce AND grade point average AND high school

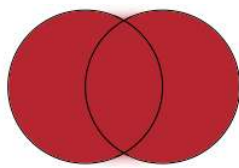
By doing this, the information sources that will be returned in the results will all contain all three of these keywords/phrases somewhere within them.



OR

The Boolean operator OR is used to search for alternative keywords. Remember, there are many words that one could use to describe the same concept and OR gives you the option to search for multiple, synonymous terms at once. Instead of searching for various alternative keywords in different searches, OR allows you to search for multiple alternative keywords in the same search.

grade point average OR academic achievement



OR

NOT

The Boolean NOT excludes certain keywords from your search. This Boolean operator is not a commonly used one, but can be very helpful if you are getting many irrelevant results. Boolean NOT is best used when using keywords that have associations with multiple things. For instance, if you were trying to search for information on the animal Jaguar and kept getting too many results about the car brand Jaguar, you could use the NOT operator to exclude the word “car” from your search. Jaguar NOT car would exclude any information sources that contained the word car. Be aware that using NOT can exclude relevant results, as well. If an article or website that had some great information on the animal Jaguar, but just so happened to mention the word “car” in the text somewhere, it would be excluded from your results.

Washington NOT George

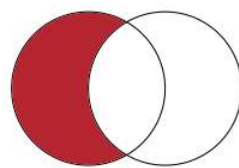
(when trying to find information on Washington the state, not George Washington)

Mexico NOT city

(when trying to find information on the entire country of Mexico not Mexico City)

Apple NOT fruit

(when trying to find information on Apple the computer company and not apples the fruit)



NOT

Phrase Searching

Phrase searching allows you to narrow down your search by specifying the exact order you want certain keywords to appear. Quotation marks around two or more keywords (also known as a “phrase”) will keep those words in that exact order during your search. For example, searching for the two keywords computer monitor without the quotation marks may find information sources that have nothing to do with computer monitors, but still contain the two words “computer” and “monitor” (e.g., an article about monitoring computer usage). Searching for “computer monitor” instead locks those keywords together as a unit and will only return results with that phrase “computer monitor.” Unless you are searching for a single keyword on its own, it’s a good idea to use phrase searching to make sure you are getting the most relevant results.

“Grade point average” OR “academic achievement”

Nesting

Just like Boolean, nesting is another concept taken from mathematics that is useful during information searches. When you are using more than one type of Boolean operator in your search statement, **nesting**—using parentheses around portions of your search statement—will help to organize what Boolean operators go with what keywords. Without nesting, most search engines and library databases will read your search statement from left to right, applying the Boolean operators in that sequence.

Let’s look at two examples:

Divorce AND (“grade point average” OR “academic achievement”) AND “high school”

Divorce AND “grade point average” OR “academic achievement” AND “high school”

In the first example, the search will yield results that contain either key phrase “grade point average” or “academic achievement,” but in the second example without the parentheses, the search will either look for information sources with both the keyword

“divorce” and the key phrase “grade point average” or it will find information sources with the key word “high school” and the key phrase “academic achievement.” The use of parentheses in this search statement would ensure that the Boolean OR is applied to the two alternative keywords.

Library databases will have the option of either a basic or advanced search. A basic search will require that you type out Boolean operators (in all capital letters) and the parentheses used for nesting. The advanced search will offer you drop-down menus for Boolean operators. If your search statement requires nesting, type the portion of the search statement that *would have* gone in parenthesis all on one line. See the screenshots below to view the differences between a basic and advanced search.

Searching: **Academic Search Complete** | [Choose Databases](#)

Divorce AND ("grade point average" OR "academic performance") AND 

Search 

[Search Options](#) ▶ [Basic Search](#) [Advanced Search](#) [Search History](#)

EBSCOhost’s basic search with the Boolean operators written out in all caps, phrase searching used, and parentheses used to nest the portion of the search statement that uses Boolean OR.

 Searching: **Academic Search Complete** | [Choose Databases](#)

Divorce	Select a Field (optional) ▼	Search 	
AND ▼ "grade point average" OR "academic achiev	Select a Field (optional) ▼		Clear 
AND ▼ "high school"	Select a Field (optional) ▼		 

[Basic Search](#) [Advanced Search](#) [Search History](#)

EBSCOhost’s advanced search option where Boolean AND is selected from the drop-down boxes between the search boxes and the portion of the search statement that uses Boolean OR is written all on one line instead of typing parentheses.

Truncation

There may be times that you want to include all the different word forms of a certain keyword in your search without having to use the Boolean OR and type in each of the different word forms. To use truncation, type in the root word followed by a symbol. In most cases the symbol used for truncating words is the asterisk (*), but this may vary depending on the search engine or library database you are using. For example, searching for child* would return results containing the words child, children, childhood, childish, etc. Watch the following video [3:34] for an explanation of truncation, as well as phrase searching and nesting:

Video: [How Library Stuff Works: Boolean Modifiers](#)(opens in new window)

Note: Turn on closed captions with the “CC” button or use the [text transcript](#)(opens in new window) if you prefer to read.

Sources

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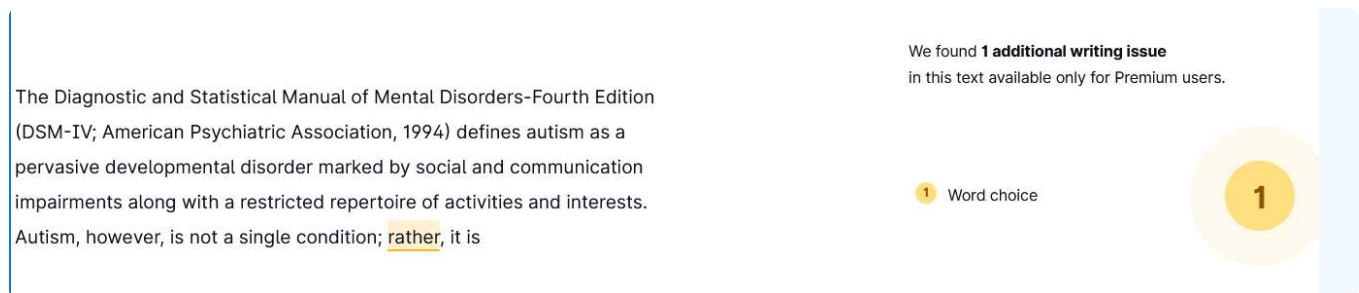
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4.9: How Can AI Help With Research?

There are a number of ways that you can use Artificial Intelligence tools to assist with research tasks. Again, it's important to know the limitations and issues involved with AI tools. It's also important to always refer to your course syllabus and teacher before choosing to get help from AI. It can often be perfectly fine to use an AI tool to help adjust a few words in a sentence or identify search keywords, but it's almost always inappropriate to copy writing from an AI tool and use it in an assignment (unless specifically instructed to do so).

For example, Grammarly is a commonly used tool that uses AI learning to recommend improvements to your writing. As shown below, it can be used to highlight and recommend that I use a different word than 'rather'.



Changing that word (or even a part of a sentence or several small sections) would be fine in most cases. However, there is a 'Generative AI' mode where you can ask Grammarly to write for you and it will completely rewrite your text. Copying and using that text from Grammarly would be plagiarism (as you did not write it yourself). This writing is predictable and often able to be detected by different teachers (potentially causing disciplinary action or a significant penalty to your grade).

Other AI Tools That Can Be Useful

[Goblin.Tools](#)([opens in new window](#)) can be used to create to-do lists. These can help keep you on track with your projects!

- Their [Formalizer](#)([opens in new window](#)) can also be used to suggest more professional-sounding versions of your own writing. However, directly copying this text would also be plagiarism. Instead of using it to completely change your writing, you could use it to get ideas for changing some of the words that you used or ways to adjust a few sentences. Instead of copying, use it as a learning tool to improve!

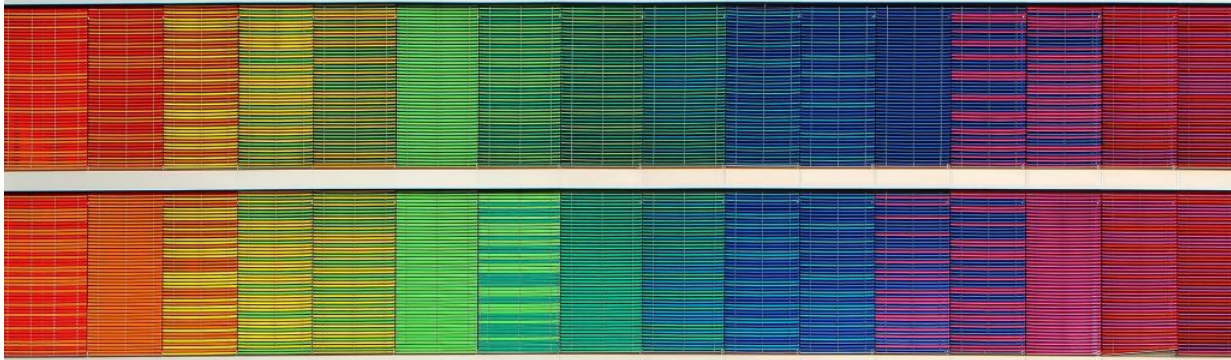
[ChatPDF](#)([opens in new window](#)) can be used to help you understand scholarly articles. If you find an article confusing, you can try loading it into ChatPDF where you can ask questions and have the website answer them. First, you have to download an article as a PDF. Then you can upload the article into the ChatPDF website. Once the PDF is loaded, you can type questions into the website and it will generate answers based on the content of the PDF. For example, you could try:

- What are the main points of this article?
- What methodology did the authors use?
- Summarize this article

[Bing Chat](#)([opens in new window](#)) can be used to brainstorm ideas or keywords. While it would be unethical to ask Bing Chat to write your paper for you, you can at least use it help you search. If you're struggling to come up with a paper idea, you can ask Bing Chat to recommend essay topics; or even to recommend research topics related to a specific subject you have in mind. You can also ask it for keywords that you might use to search. It will provide you with an assortment of related topics.

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4.10: Conclusion



This chapter covered what research questions are, why they are important, and how to create one from your research topic. The research question is the main question you will be trying to answer and will guide your research. You may find that you will change your research question, keywords, and search statement as you go about your research and learn more about your topic.

Sources

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CHAPTER OVERVIEW

5: Using the Library

5.1: Finding Materials in the Library

5.1.1: Chapter Scenario

5.1.2: Using OneSearch- Your California Community College Library's Search Tool

5.1.3: Finding Your Books

5.1.4: Filters and Advanced Search Options in OneSearch

5.1.5: Critical Thinking

5.1.6: How Libraries Organize Materials

5.1.7: Dewey Decimal Classification (DDC)

5.1.8: Library of Congress Classification (LCC)

5.1.9: Practice

5.1.10: Critical Thinking

5.1.11: Conclusion

5.2: Using Library Databases

5.2.1: Chapter Scenario

5.2.2: Library Databases- What's Inside Them?

5.2.3: Critical Thinking

5.2.4: Choosing a Library Database

5.2.5: Specialized Library Databases- Videos, Ebooks, and More!

5.2.6: Scholarly Articles, Magazine Articles, and Newspaper Articles

5.2.7: You Found Some Resources! Now What?

5.2.8: Preparing to Use a Database- What Do You Need to Find?

5.2.9: Full Text? HTML, PDF, and EPUB

5.2.10: Conclusion

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SECTION OVERVIEW

5.1: Finding Materials in the Library

5.1.1: Chapter Scenario

5.1.2: Using OneSearch- Your California Community College Library's Search Tool

5.1.3: Finding Your Books

5.1.4: Filters and Advanced Search Options in OneSearch

5.1.5: Critical Thinking

5.1.6: How Libraries Organize Materials

5.1.7: Dewey Decimal Classification (DDC)

5.1.8: Library of Congress Classification (LCC)

5.1.9: Practice

5.1.10: Critical Thinking

5.1.11: Conclusion

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5.1.1: Chapter Scenario

Scenario

Your US History professor has just assigned you a descriptive essay that is due in two weeks. For this essay, you will need to outline and describe the events that led up to the American Revolution. You are required to use at least two books and one documentary DVD; nothing can be from an online source. You determine that you need to visit the college library to find these resources, but you aren't sure how to find these resources in the library. You know you can ask for help from the reference librarian, but you want to find the resources yourself. Where do you start?

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5.1.2: Using OneSearch- Your California Community College Library's Search Tool

Does your college use OneSearch?

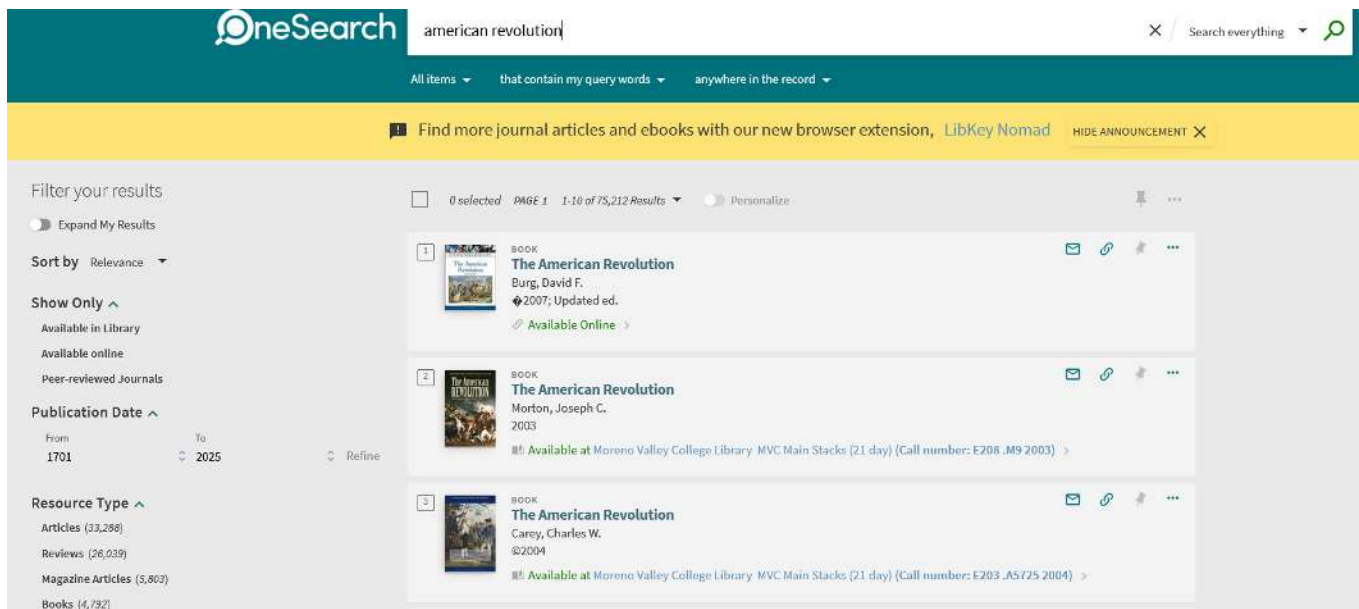
Your California Community College library most likely uses what is known as OneSearch to help you find library resources. If your library does not use OneSearch, there will be a lot of commonalities between your library's search tool and OneSearch. Speak with your instructor or a college librarian for further clarification.

College libraries hold a wide range of materials: books, DVDs, academic (scholarly) journals, magazines, newspapers, and more. When you use OneSearch, you will not only will find what your library physically owns, but it will also search for materials that the library has access to digitally or online. This can sometimes be confusing and can lead to a lot of search results. Fortunately, OneSearch provides you with ways to limit your search results so that you can identify the specific kinds of resources that you need to find.

Example Search

Let's consider the scenario presented at the beginning of this chapter. You need to find resources related to the American Revolution—specifically you need to find two books and one documentary film. Let's look at how you can do this in OneSearch.

If you search for American Revolution, you will see a search result that looks very similar to the one below:

The screenshot shows the OneSearch interface. At the top, there's a search bar with 'american revolution' entered. Below the search bar, there are filters for 'All items', 'that contain my query words', and 'anywhere in the record'. A yellow banner promotes a 'LibKey Nomad' browser extension. On the left, there's a 'Filter your results' section with options to 'Expand My Results', 'Sort by Relevance', and 'Show Only' (with sub-options like 'Available in Library', 'Available online', 'Peer-reviewed Journals', and 'Publication Date' from 1701 to 2025). The 'Resource Type' section shows counts for Articles (33,298), Reviews (26,039), Magazine Articles (5,803), and Books (4,792). The main results area shows three book entries for 'The American Revolution' by Burg, David F. (2007), Morton, Joseph C. (2003), and Carey, Charles W. (2004). Each entry includes a book cover, title, author, year, and a link to 'Available Online' or 'Available at Moreno Valley College Library'.

This sample search result list from OneSearch displays what you should typically see when you conduct a search including: search box at the top with your search terms in it, filter options on the left including publication date and resource type, and results with item information on the right.

Filtering Results: Availability & Resource Type

In your search results, you should notice some key details. Pay attention to the area to the left of your search results, where you can use filters that control your search results. The first set of filters is labeled as “Availability.” This will indicate how the resources are available. Are they available online? As peer-reviewed journals? You should notice there is an option that says “Available in Library” or something similar to indicate that your library owns those materials. This is a great filter to use to limit your search results that you can access at your library.

Another area to look at is “Resource Type.” Here, you’ll find different formats that you can limit your search results to. For our scenario, what types of resources do you need? We need two books. When you look at the image above, you’ll see that there are 6,693 books that are available in our search results. By clicking on “Books,” you will then be able to browse a list of those items.

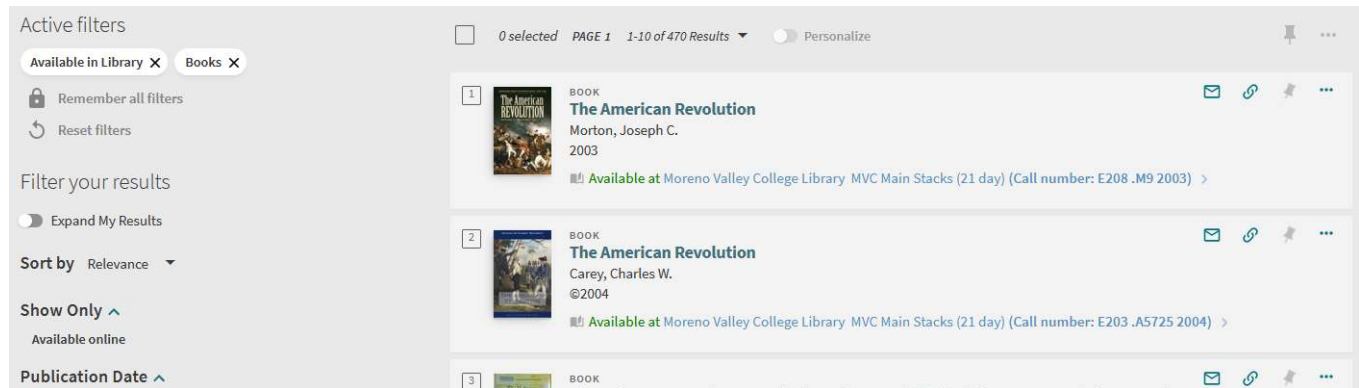
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5.1.3: Finding Your Books

Interpreting Your Search Results

After you identify two books that you think you could use, you will need to find those books in the library. Let's take a closer look at the search results:



In the above image, we have limited our search results to “Available in Library” and to “Books” as our resource type. These active filters are on the left side of the above image. The top two results in the example are books that are available in the library. We can confirm that these are books by the “Book” label next to the image of the item in the search result. Below the book’s cover, there is another label indicating the book’s availability. Both of these books are labeled as “Available,” meaning they should be in the library. If the book is checked out, missing, or simply unavailable, OneSearch will update the status so that you will know whether or not the book is available for you.

Call Numbers

The first book is called *The American Revolution*. According to OneSearch, this book is available at this library in the Main Stacks.



After the location (MVC Main Stacks), you should see a set of numbers showing the checkout period (21 days). Following that is the call number, shown as a series of letters and numbers. Call numbers allow libraries to organize their resources on their shelves in a logical manner; that is, they will be shelved either numerically or alphanumerically (using letters and numbers) according to these call numbers. In the example above, the book’s call number is E208 .M9. This means the library has it shelved with other books that are in the E to F range. After finding the E shelves, you would look for 208. Most books have these numbers listed on the spine. Once you find E208, you can look within all books with a call number starting in E 208, looking for .M9.

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5.1.4: Filters and Advanced Search Options in OneSearch

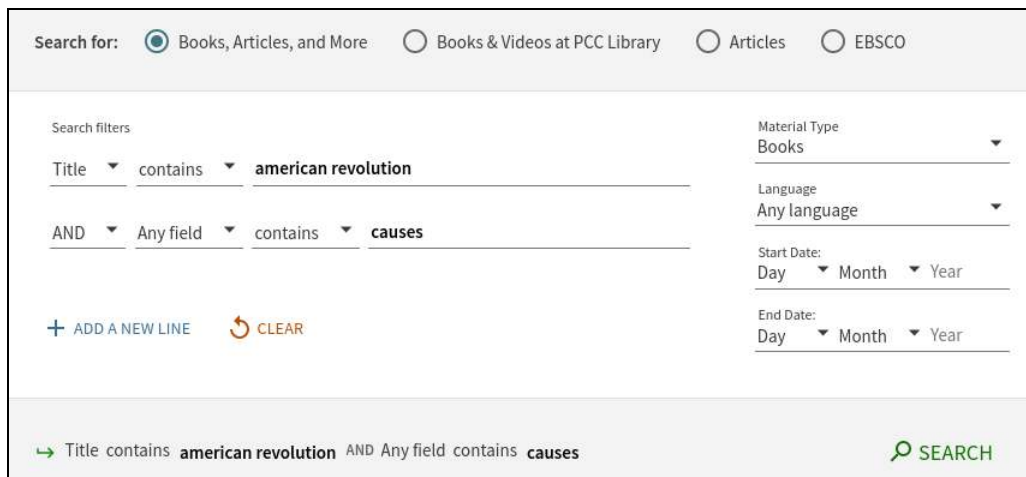
Filters

OneSearch provides you with many options to filter (or limit certain things out of) your results. We have already discussed “Availability” and “Resource Type.” Other filters that you might see at your library include Publication Date, Subject, Author, and Language.

Advanced Search

You can also click on an option called “Advanced Search” next to the search box at the top of your results (you might have to do a search first to see this depending on how your library has it set up). This option will allow you to be much more specific with your search. For example, let’s say you wanted to find books that have “American Revolution” in the title because you feel that those books will be most relevant to your topic. You also want to find books that address *the causes* of the American Revolution. This is hard to do in a simple search box. But in the Advanced Search option, you have much more control.

Below is an image of the Advanced Search from OneSearch. You should be able to see that in the first line, the search is set up so that the Title contains “American Revolution.” Then in the second line, there is the option that any field should contain the word “causes.” The search is also limited to a Material Type of “Books.” This Advanced Search has additional menus with other options we could use, such as language and date. You can even add additional keywords by choosing “Add a New Line.”



Search for: ☒ Books, Articles, and More ☐ Books & Videos at PCC Library ☐ Articles ☐ EBSCO

Search filters

Title ▼ contains ▼ american revolution

AND ▼ Any field ▼ contains ▼ causes

+ ADD A NEW LINE 

Material Type
Books ▼

Language
Any language ▼

Start Date:
Day ▼ Month ▼ Year

End Date:
Day ▼ Month ▼ Year

→ Title contains american revolution AND Any field contains causes 

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5.1.5: Critical Thinking

? Critical Thinking: Which Book?

In our example search, OneSearch found us 6,693 books, which seems like a great thing because in the scenario, we only need two books. But in reflection, 6,693 books are a lot of books to consider!

How will you determine which two will be the best ones for your research needs? What will you be looking for, and what strategies will you use to assist you to focus your search results?

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5.1.6: How Libraries Organize Materials

Two Systems

There are two main systems that California community college libraries use to organize materials on the shelves: the Dewey Decimal Classification (DDC) and the Library of Congress Classification (LCC, sometimes also informally called LC or LOC). Both classification systems provide a systematic way for the libraries to keep their materials organized.

Which classification system a library uses depends on local preferences and practices, but in general: academic and research libraries typically use the Library of Congress Classification, while public libraries tend to use the Dewey Decimal Classification. While we will introduce you to both systems, please note that your community college library probably only uses one of these.



Sources

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5.1.7: Dewey Decimal Classification (DDC)

The Dewey Decimal Classification (DDC) was created by Melvil Dewey in 1873 and is still used by libraries today to organize their collections. The DDC strives to assign all the knowledge in the world to 10 different topical areas organized by number so that each range of numbers (starting with 000–099) is assigned a broad topic area. Below is an outline of these topics.

Dewey Decimal Classification System: Topics

000–099: Computer Science, Information and General Works

100–199: Philosophy and Psychology

200–299: Religion

300–399: Social Sciences

400–499: Languages

500–599: Science

600–699: Technology

700–799: Arts & Recreation

800–899: Literature

900–999: History & Geography

These 10 broad topics are then subdivided into 10 more specific topics. As an example, the 900s–History & Geography is divided below.

900s: History & Geography

900–909: History

910–919: Geography & Travel

920–929: Biography & Genealogy

930–939: History of the Ancient World (to ca. 499)

940–949: History of Europe

950–959: History of Asia

960–969: History of Africa

970–979: History of North America

980–989: History of South America

990–999: History of Other Areas

And then these get broken down even further! Let's look at the 970s.

970s: History of North America

970: History of North America

971: Canada

972: Mexico, Central America, West Indies

973: United States

974: Northeastern United States

975: Southeastern United States

976: South Central United States

977: North Central United States

978: Western United States

979: Great Basin & Pacific Slope region

When we look at this book that we found with OneSearch, we can see that its Dewey number is in the 900s. That means it is part of History & Geography. Specifically, it is a 973, which means it is about History of North America–United States. The .3 refers to the time period between 1775 – 1789.



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5.1.8: Library of Congress Classification (LCC)

How It Works

In contrast to the DDC, the Library of Congress Classification system (LCC) strives to divide all the world's knowledge into 21 topical areas and groups them alphanumerically. That is, they first assign a topic area to a letter, and then divide that topic up by numbers. Created by the U.S. Library of Congress to meet the needs of its collection, the first outline of the LCC was released in 1904 ("Library of Congress Classification").

Library of Congress Classification

A: General Works
B: Philosophy, Psychology, Religion
C: Auxiliary Sciences of History
D: World History
E: History of the Americas
F: History of the Americas
G: Geography, Anthropology, Recreation
H: Social Sciences
J: Political Science
K: Law
L: Education
M: Music
N: Fine Arts
P: Language and Literature
Q: Science
R: Medicine
S: Agriculture
T: Technology
U: Military Science
V: Naval Science
Z: Bibliography, Library Science, Information Resources

The LCC then adds numbers after each letter to get more specific within each topic area. Our example from before has the call number E203.A5725. This call number falls within the range E201–298, which is reserved for works about the American Revolution.



How to Find a Book on the Shelf

Please watch this video explanation [1:49], which demonstrates the different elements of LCC call numbers and how they are ordered on a library shelf:

Video: [Understanding Call Numbers\(opens in new window\)](#)

Note: This video has open captions. You may also use the [text transcript\(opens in new window\)](#) if you prefer to read.

Sources

“[Library of Congress Classification\(opens in new window\)](#).” *Librarianship Studies & Information Technology*, 23 June 2020.

“[Understanding Call Numbers \(Research Minutes\)\(opens in new window\)](#).” *YouTube*, uploaded by Ryerson University Library & Archives, 14 Jan. 2011.

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5.1.9: Practice

? Practice: Understanding LCC

You have done a search and found some books about the American Revolution that you now need to find on the shelf.

Their call numbers are:

E203 .A5725 2004

E203 .A5728 2009

E203 .A57 2010

E203 .A57 2011

Which book would be first on the shelf and which would be last? Why?

Answer (Click to View)

These call numbers would be found in the following order:

E203 .A57 2010

E203 .A57 2011

E203 .A5725 2004

E203 .A5728 2009

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5.1.10: Critical Thinking

? Critical Thinking: Other Considerations

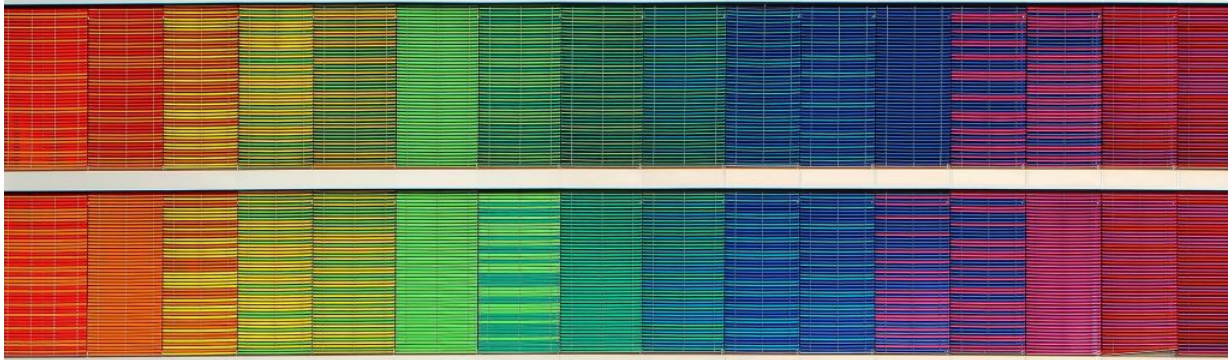
Libraries use classification systems such as the DDC or LCC to assist with keeping their materials organized on their shelves, but that's not the only thing that they might use. They might have separate sections to group similar items together. For example, they might have a DVD collection. These may or may not use DDC or LCC, but they will be organized separately from the books. Likewise, there may be a Reserves section, which you may not be able to browse yourself, but you might be able to search for through OneSearch.

What other collections does your library have that might be separated within the library? How will you be able to search for items in those collections? What do you need to know in order to find those items in the library?

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5.1.11: Conclusion



This chapter outlined how your library organizes materials and provided guidance on how you can search for resources that the library physically owns. Even though there are standards such as the Dewey Decimal System that libraries use to organize their materials, you may find that your college library has some unique and different ways of providing access to their physical collection. So, explore your library shelves and ask a librarian if you're unsure how to find an item. After familiarizing yourself with the library, it will become much easier to access those resources that you will need to complete your course assignments successfully.

Sources

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SECTION OVERVIEW

5.2: Using Library Databases

5.2.1: Chapter Scenario

5.2.2: Library Databases- What's Inside Them?

5.2.3: Critical Thinking

5.2.4: Choosing a Library Database

5.2.5: Specialized Library Databases- Videos, Ebooks, and More!

5.2.6: Scholarly Articles, Magazine Articles, and Newspaper Articles

5.2.7: You Found Some Resources! Now What?

5.2.8: Preparing to Use a Database- What Do You Need to Find?

5.2.9: Full Text? HTML, PDF, and EPUB

5.2.10: Conclusion

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5.2.1: Chapter Scenario

Scenario

Your English professor has assigned the class an argumentative essay. Your assigned topic for the essay is artificial intelligence. You are required to find evidence to support your argument from scholarly journals, magazines, newspapers, and books. You have to cite at least seven sources, at least one of each type, and you also have the option to use a video for one of your sources. Your professor states that she doesn't want you to use websites for your essay; you must use library databases and format your citations according to MLA. You are familiar with searching for books in the library, but unsure how to find the other resources.

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5.2.2: Library Databases- What's Inside Them?

Why Library Databases?

Library databases are collections of information. Sometimes these are general in topics and sometimes a database is specialized in one subject area. Sometimes they house only journal articles or videos, whereas other databases hold many types of information. Although the internet houses great resources, some websites are not appropriate for college-level research, and sometimes professors have concerns over the information that students might encounter online. Unfortunately, you can't find everything through a Google search, which is one reason why you'd want to use a library database.

Most library databases provide access to resources that you would normally subscribe to or pay for, such as a newspaper. You can access some newspaper articles for free online, but websites often limit the amount of articles you can view freely. For example, if you visit the *Los Angeles Times* online you might be able to view one or two articles. After that point, you will need to purchase a subscription to read more. But a library database will provide free access for students and professors at your college.

Another advantage of using a library database is that the resources are secured and safe to access. Some websites require you to accept additional considerations and agreements before accessing materials. But what are you agreeing to? Websites, by their nature, are dynamic resources; their content can change without warning. A resource in a database typically will not change and will often come with a permanent link (sometimes called a "permalink") so that you can find and share the resource in the future.

Please watch the following video "[What are Databases and Why You Need Them?\(opens in new window\)](#)" [2:34] for a concise summary of the key differences between using library databases and the Web for your research.

Note: Turn on closed captions with the "CC" button or use the [text transcript\(opens in new window\)](#) if you prefer to read.

Additional Database Features

Library databases tend to come with additional tools to support your research. These tools can include help with writing citations, easy-to-use filters to limit your search results, and options to save the article for later use. Whenever you use a library database, you will want to become acquainted with these additional features that will streamline and support your research process.

Takeaways: Library Databases vs. Websites

Comparison of Library Databases to Websites based on cost, privacy, reliability, and features.

	Library Databases	Websites
Cost	Always free for students to access.	Varies. Sometimes you can access resources freely, other times you can't.
Privacy & Security	Exposure of students' information is limited through the databases.	You often must "agree to terms" before accessing content on a website.
Reliability	Information in a library database will not change unless the subscription changes.	Websites are dynamic, and content can change daily.
Features	Databases typically come with a range of tools to help you find relevant resources. You have more control over the results you want to see.	Search engines online have limited features to narrow down results. You have less control over the results you want to see.

Sources

1. "[What Are Databases and Why You Need Them\(opens in new window\)](#)." *YouTube*, uploaded by Yavapai College Library, 29 Sept. 2011.

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5.2.3: Critical Thinking

? Critical Thinking: Databases or Websites?

Sometimes instructors will say: “Don’t use online sources—use library sources only!”

“But library databases are online,” you say to yourself. But you also understand that your instructor is referring to public websites or sources you can easily find using Google.

So, despite your instructor’s requirements, how would you decide when to use a library database versus a public website? What are a few of the advantages and disadvantages of each?

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5.2.4: Choosing a Library Database

Many Options

If you look at your library's database list, you might feel overwhelmed and confused. Why are there so many databases to choose from, and which one should you use? The first thing to realize is that library databases are each unique and specialized. Because of this, libraries tend to subscribe to multiple library databases to provide access to a range of materials that support the curriculum of the college. To choose a database, you need to know what each library database provides access to.

EBSCO, ProQuest, Gale

There are three big companies in the world of library databases: EBSCO, ProQuest, and Gale. Most likely, your library will have access to library databases that are owned by at least one of these, if not all three. Their library databases will generally provide you access to digital versions of resources: ebooks, newspaper articles, magazine articles, and scholarly journal articles. These companies also provide access to multimedia resources, such as streaming video and audio files. Some of the most common library databases from these companies are EBSCO's Academic Search Complete, ProQuest Central, and Gale's Academic OneFile. Any of these three library databases will connect you to the full range of resource types.

These three companies (EBSCO, ProQuest, and Gale) own so many library databases that they each also offer an aggregator search tool, which your library might or might not have access to depending on what they subscribe to. An aggregator search tool allows you to search across all of the library databases that your library subscribes to, owned by a single company. So, instead of searching in each of EBSCO's library databases individually, you can do a single search using EBSCOhost. Likewise, you can use the ProQuest Platform to search across most ProQuest resources, and Gale's PowerSearch to search across most Gale library databases. These aggregators also allow you to customize which library databases you want to search within. Note, however, that additional features are often available when library databases are searched one at a time.

Beyond these three companies are many others that your library might subscribe to that can be just as or maybe even more resourceful than the databases already discussed. Speaking to one of your librarians to understand which databases are the most appropriate for your research topic is always strongly recommended.

Scenario

Using the scenario for this chapter, and knowing that I need to find resources about artificial intelligence, I might want to focus on library databases that hold science articles (including general, multidisciplinary choices that cover science as well as many subjects). After looking at my library's database list, I determine that I will start with EBSCOhost and choose EBSCO's Science Full Text, Academic Search Complete, and MasterFILE. By using EBSCOhost, I'll be able to search all three of these library databases at the same time.

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5.2.5: Specialized Library Databases- Videos, Ebooks, and More!

Your go-to databases for finding scholarly journal articles, newspaper articles, and magazine articles will probably come from EBSCO, ProQuest, and Gale. But what about videos, ebooks, and other special resources? Finding these types of resources will require you to become familiar with specialized databases that your library might subscribe to. Below are charts categorized by resource type listing some of the more popular databases. Your library may subscribe to only a few of these databases or even other databases not listed here, so make sure to always check with a librarian about what resources are available to you.

Chart of library video databases and the types of videos they contain

LIBRARY DATABASES WITH VIDEOS	TYPES OF VIDEOS
Literary Reference Center Plus	Mostly documentary and instructional
Small Business Reference Center	Mostly documentary and instructional
Feature Film for Education Collection	Mostly documentary and instructional
Films on Demand	Popular movies
Swank	Popular movies

chart of library ebook databases and the types of ebooks they contain

LIBRARY DATABASES WITH EBOOKS	TYPES OF EBOOKS
eBook Collection	All types of eBooks
JSTOR	Nonfiction eBooks
Literary Reference Center Plus	Reference

specialized library databases and the subjects they focus on.

SPECIALIZED LIBRARY DATABASES	TYPES OF RESOURCES
Business Source Complete	Business articles and research
Criminal Justice Abstracts	Criminal justice articles and research
Education Research Complete	Education articles and research
Lexicomp - Dental	Drug information and clinical content
Masterfile Premier	Reference publications, biographies, and image collections
Opposing Viewpoints	Pro and con arguments for current social, political, and scientific issues
Oxford Music Online	Information on music including composers, performers, and music concepts

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5.2.6: Scholarly Articles, Magazine Articles, and Newspaper Articles

Identifying Different Types of Articles

In our scenario, you have to identify and find different types of articles. As pointed out already, the library databases often come with filters that allow you to separate out these different types of resources. There are even some library databases, such as JSTOR, that specialize in scholarly journal articles, or ProQuest's US Major Dailies, which specializes in newspapers. But what if you're using an aggregator, such as EBSCOhost, and you aren't using a filter to limit your search? How will you be able to differentiate a newspaper article from a magazine article or from a scholarly journal article? And why does it matter? There is a [separate chapter](#) that goes into the differences between information resources in more depth, but for quick reference consider the following characteristics of these resource types.

Scholarly Articles



Scholarly journal articles are usually long. They are also written with academic language that can sometimes be very technical. Especially in the sciences and social sciences, you will notice predictable sections within them, with subheadings like introduction, literature review, methodology, results/findings, and discussion/conclusion. They'll have a list of references or works cited, and are often authored by more than one person (especially in the sciences and social sciences). Scholarly journal articles focus on research topics and questions, which means that they may not be reflecting on specific events happening at the moment of publication; rather, they tend to reflect on trends and larger issues.

Magazine Articles



Magazine articles will generally be shorter than scholarly journal articles, written so that they can be understood easily by non-experts, and may or may not have different sections within the article. If they do, the subheadings will not be as predictable as they are in a scholarly journal article from the sciences or social sciences, and the section headings will probably relate back to the topic of the article. A magazine article in PDF format will probably be colorful and have images. You probably won't find a list of references or works cited at the end of a magazine article. In contrast to scholarly journal articles, magazine articles tend to look at specific events occurring at or around the time of publication, and the authors try to analyze that event to explain why it's important.

Newspaper Articles



Newspaper articles are usually the shortest of all three article types. Like magazine articles, they are written in simple language to be understood easily by the general public, but because they are shorter, they don't usually have different subsections within the article. While a printed newspaper article may have some images, there will be fewer than in magazines; newspaper articles in library databases are typically only available as HTML (i.e., no images). They also tend to describe events that are occurring at the

moment the article was published, with very little analysis of importance other than the fact that the event happened. First-hand accounts from people who experienced an event are often reported in newspaper articles. Exceptions to this would be editorials and “op-ed” pieces, which are opinion-based articles about an issue.

Sources

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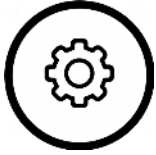
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5.2.7: You Found Some Resources! Now What?

Options



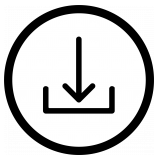
Most library databases give you the option to save, download, or email the resources that you find. You will want to get familiar with how the library databases present these options to you. For example, some library databases allow you to create your own free account within them. The advantage of creating an account (for example, with EBSCO, or ProQuest) is that you may be able to create folders to store links to resources you can easily find again later. You might also be able to save searches, so that you do not have to remember which keywords you entered. You can sometimes set up alerts attached to those searches, so if new resources are added to the library database (which can happen daily), you will be notified about those new relevant resources.

Emailing Sources



But maybe you do not want to set up an account. Not a problem! Many library databases allow you to send an email to yourself with the article or a link back to the article, without ever creating an account for the company that makes that database (You will, however, have to log in to your college library's website to access library databases from off campus, so the database knows you are a student there. If you're unsure how to do this, ask a librarian at your college.) This is where you will need to explore what options the library database offers. Sometimes, the email option is simple; sometimes you will have to fill out a form. If you see a form that needs to be filled out, review it carefully. The library database might be offering some great ways to save you time later, such as an option to include the citation of the article in the email. You can also send the article to other people: If you're working on a group project and everyone needs to look at the same resources, you might want to include your group members on the email form.

Downloading Sources



Some people prefer not to email the resource and they just want to download it. This is sometimes an option, depending on the library database and the resource. If it's available as a download, you might want to keep notes about the resource, so that you remember which library database you found it within, and any publication details you might need to build a proper citation for the resource.

Sources

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5.2.8: Preparing to Use a Database- What Do You Need to Find?

One of the main tasks that you will do within library databases is find articles, often scholarly journal articles. Fortunately, many library databases include filters that limit your results to just scholarly journal articles. This is especially helpful when using the big aggregator search tools from EBSCO, ProQuest, and Gale. But there are often other considerations to take into account when finding resources. As a reminder, always check your assignment requirements and ask yourself these questions:

Assignment Guiding Questions

1. How many resources am I required to find?
2. What types of resources am I required to find?
3. Are there any types of resources that I am not allowed to use?
4. Is there a requirement related to the publication date of the resources?
5. Are there any other requirements that might be helpful to remember (due dates, citation styles, etc.)?

Let's look at our scenario for this chapter to answer these questions:

Your English professor has assigned the class an argumentative essay. Your assigned topic for the essay is artificial intelligence. You are required to find evidence to support your argument from scholarly journals, magazines, newspapers, and books. You have to cite at least seven sources, at least one of each type, and you also have the option to use a video for one of your sources. Your professor states that she doesn't want you to use websites for your essay; you must use library databases and format your citations according to MLA.

According to the Scenario, we can answer the guiding questions as follows:

Answers to Assignment Guiding Questions

1. Seven resources.
2. At least one scholarly journal article, one magazine article, one newspaper article, and one book. That's only four out of the seven. You must find more of those resources to equal seven, and you can also use videos. All resources must come from library databases.
3. You can't use websites.
4. No publication date restrictions were provided.
5. MLA citation style must be used.

Having this information outlined for yourself will help you stay focused as you search through the library databases. After identifying some keywords to seek resources related to your topic, you can then use filters to limit your results to specific resource types (depending on the library database you are using). You should also be able to limit to a publication date when necessary.

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5.2.9: Full Text? HTML, PDF, and EPUB

Full Text Options

You might also see an option to limit your results to full text. Full text means that you will have full access to the resource. If you want to be able to read the article or view the resource, make sure that the full text option is selected. If you see search results that only bring back a summary, an abstract, or a citation for an article, it's most likely because you didn't select the "full text" option in your search filters.

Sometimes, there may be different ways to read the full text of an article or ebook. You might see HTML, PDF, or ePUB presented as options, and each format has strengths and weaknesses. In the end, it's up to you to decide which one to use. But you will want to be familiar with each type, because sometimes the resource you want to use will only be available in one of them.

HTML



HTML stands for Hypertext Markup Language. This is the basis for all text online. When you see HTML as an option to access the full text of an article or an ebook, it means the article will be presented as text only—much like text on a website, but without any flashy graphics or images. Just the text. What's great about this is that the text can be manipulated by the library database—manipulated in a good way. It can be converted into other languages, or the library database can read the text aloud or generate a file for you to download an audio version of the resource. HTML full text also tends to load rather quickly, and you can easily copy, highlight, and search through the text using keyboard shortcuts such as CTRL+F or Command+F. There are also disadvantages: Because there are no graphics or images (or when they are available, they are often separate from the text), you can lose context and vital information. Page numbers may be missing, and the text itself may have been loaded with errors from the original source. These can all be very problematic if you will be citing the resource.

PDF



PDF stands for "portable document format" and describes a document that retains or reflects the formatting of a formally published, printed document, with all the images and charts, page numbers, and publication information. In some PDFs, it is possible to select and copy the text, and the text can be recognized by screen readers and other accessibility software. Other PDFs are a scanned image of an original printed document, and the file may not be readable as text by your computer—it might just see an image. This makes it hard to copy and highlight text, and nearly impossible for the computer to translate it into a different language. Depending on the file size and the speed of your internet connection, some PDFs might take longer to load. But you can download them and save the file to read offline later, which is not always possible or easily done with HTML-based resources. Overall, though, PDFs are preferable when doing academic research, and are highly recommended to use because they preserve the look of the original source.

EPUB



EPUB can be described as a cross between PDF and HTML. This is a file type that you can download and access offline, that will have images embedded within it. But like HTML, the text can be manipulated by the computer or device. EPUBs are adaptable to screen size; text can be reformatted to be easily read on various devices, such as a smartphone or tablet. A PDF doesn't have that flexibility. The text in EPUBs can be recognized by screen readers and other accessibility software more easily than in PDFs. Disadvantages are that you will find EPUBs almost exclusively with ebooks, and you will need a separate EPUB reader software to read the resource offline; whereas most devices come equipped with PDF readers, not all devices have an EPUB reader installed.

Sources

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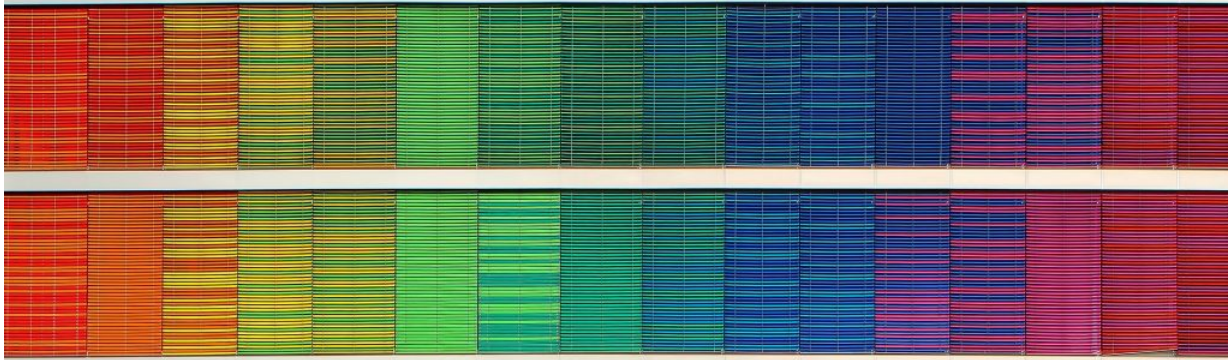
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5.2.10: Conclusion



In this chapter you were introduced to library databases. Library databases are collections of resources that are selected by your college library to support your academic endeavors. Sometimes the databases specialize in a specific type of resource like streaming videos—other times, they provide you with a wide range of resources such as scholarly journal articles, magazine articles, and newspapers. Library databases can assist you in making your research efforts much more efficient, effective, and organized; and as a student at your college, you will have free access to use your library databases that connect you to content that is not typically free on the Web.

Sources

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CHAPTER OVERVIEW

6: Evaluating Sources

- 6.1: Thinking Critically About Sources
- 6.2: Evaluating for Relevancy
- 6.3: Evaluating for Credibility
- 6.4: A Source's Neighborhood
- 6.5: Author and Publisher
- 6.6: Degree of Bias
- 6.7: Recognition from Others
- 6.8: Thoroughness
- 6.9: Combining the Factors

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6.1: Thinking Critically About Sources

Thinking Critically About Sources



Evaluating sources often involves piecing together clues.

This section teaches how to identify relevant and credible sources that you have most likely turned up on the Web and on your results pages of the library catalog, Google Scholar, and specialized databases. Relevant, credible sources will meet the information needs of your of your research project.

In order to evaluate a source, you have to answer two questions about it:

- Is this source relevant to my research question?
- Is this a credible source— a source my audience and I should be able to believe?

It's important to determine relevance before credibility because no matter how credible a source is, if it's not relevant to your research question it's useless to you for this project.

TIP: Other Criteria from Your Professor

Don't forget that you also have to make sure your sources meet any other criteria that your professor may have given you for this assignment. For instance, professors often stipulate that, some of your sources have to be scholarly sources or articles from a particular database.

So make sure you have identified enough of the kind of sources your professor has requested.

You might already be worrying about how long evaluating sources is going to take. So let's say right off that you won't have to read all of a source to decide whether it is relevant and credible. (Later, of course, it will take a closer read to determine what direct quotes, paraphrases, and summaries you may want to use from the sources you have selected.)

Nonetheless, our advice is to not begrudge the time you spend evaluating sources. It's one of the most important things to learn at college—the opportunity to evaluate sources is one of the big reasons your professors assign research projects. And your future employers will expect you to have learned how to do it. For the rest of your professional and personal life, you will be using the critical thinking skills that make choosing the right sources possible. So learning those skills is a good investment.

Happily, you'll also get faster the more you do it.

ACTIVITY: Evaluation Basics

[Open activity in a Web browser.](#)

Making Inferences: Good Enough for Your Purpose?

Sources should always be evaluated relative to your purpose-why you're looking for information. But because there often aren't clear-cut answers when you evaluate sources, **most of the time it is inferences-educated guesses from available clues**-that you have to make about whether to use information from particular sources.

Your information needs will dictate:

- What kind of information will help.
- How serious you consider the consequences of making a mistake by using information that turns out to be inaccurate. When the consequences aren't very serious, it's easier to decide a source and its information are good enough for your purpose. Of course, there's a lot to be said for always having accurate information, regardless.
- How hard you're willing to work to get the credible, timely information that suits your purpose. (What you're learning here will make it easier.)

Thus, your standards for relevance and credibility may vary, depending on whether you need, say,:

- Information about a personal health problem.
- An image you can use on a poster.
- Evidence to win a bet with a rival in the dorm.
- Dates and times a movie is showing locally.
- A game to have fun with.
- Evidence for your argument in a term paper.

For your research assignments or a health problem, the consequences may be great if you use information that is not relevant or not credible.

Activity: Quick Check

Instructions: Select one answer to each question.

[Open activity in a web browser.](#)

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6.2: Evaluating for Relevancy

Evaluating for Relevancy

Relevant sources are those that pertain to your research question. You'll be able to figure that out fairly quickly by reading or skimming particular parts of sources and maybe jotting down little tables that help you keep track. We'll show you how below, including where to look in specific kinds of sources and what questions to ask yourself as you do.

One thing to consider early on as you make inferences about relevancy is the effect that timeliness, or a source's currency, should have on deciding whether a source is relevant. **Your research question will determine that.**

For instance, if your research question is about the life sciences, you probably should consider only the most recent sources relevant because the life sciences are changing so quickly. There is a good chance that anything but the most recent sources may be out of date. So aim for sources no more than 5 years old. (An example discipline that calls for even newer sources is computer security.)

But suppose your research question is about the Edo Period in Japan (1603-1868) or about Robert Falcon Scott, who explored the Antarctic from 1901-1913. In these cases, an item from 1918 might be just as useful as an item from 2018 (although new information may have been found in the 100 year gap). But something from 1899 about Antarctica or from 1597 about Japan would NOT be current enough for these research questions.

These example research questions also give you two more clues about how to treat the timeliness or currency of sources as you consider relevance:

- Because of how long ago they lived or occurred, it would be unusual for many sources on Robert Scott or the Edo Period to have been published very recently. So, unlike sources for the biosciences, whether a source is very recent should probably not determine its relevancy to those research questions.
- Primary sources might be considered especially relevant to all three research questions. Bioscience journal articles that provide research findings for the first time count as primary sources. And primary sources (such as Scott's diaries and expedition photographs, as well as paintings, literature, clothing, and household items from the Edo Period) go a long way to explain faraway people and times. (See Primary, Secondary, & Tertiary Sources.)

EXAMPLE: Currency

Check out how currency is handled on [TED](#). This site provides videos of speakers talking about new ideas in technology, entertainment, and design. (That's what TED stands for.) Some videos are labeled "Newest Talks," and TED tells when every video was recorded.

For your sources for which timeliness matters, see the section Where to Look, which includes where to look in websites, articles, and books for information about a source's currency.

Time-Saving Tips

Instead of thinking you have to read all of every source in order to figure out whether it is relevant, read or skim only parts of each source. If you're looking at the right parts, that should give you enough information to make an educated guess about relevancy.

But what should you be looking for as you do that reading and skimming? One way to figure that out is to first parse your research question so that you can figure out its main concepts. (This is like identifying main concepts in your research question in order to search precisely.)

For instance, suppose your research question is: How does having diverse members in a group increase the critical thinking of the group?

What are this question's main concepts? Our answer is: group diversity and critical thinking.

So when trying to judge which sources are relevant to these main concepts, you would assess whether each source you've found pertains to at least one of these concepts. We recommend you jot down a little table like the one in the example below to keep track of which sources address each main concept.

To be considered relevant to your research question, a source wouldn't necessarily have to cover all of your main concepts, but finding sources that do is the ideal. Otherwise, you just have to make do with what you've got. Don't forget that each source would have to pass the currency test, too, if currency is important to your research question. So it's wise to record your decisions about the sources' currency on your tables, too.

EXAMPLE: Sources' Main Concepts and Currency

Research question: How does having diverse members in a group increase the critical thinking of the group?

	<i>Currency Okay</i>	<i>Group Diversity</i>	<i>Critical Thinking</i>
<i>Source A title</i>	X	X	
<i>Source B title</i>	X		
<i>Source C title</i>	X	X	X

The table in this hypothetical example indicates that both Sources A and C are relevant because each pertains to at least one main concept from the research question. Currency doesn't seem to matter much to our research question, so all three sources were marked current. But since currency is all that Source B has to offer, it is not relevant for this project.

If you do make little tables for relevance, it's probably a good idea to hang on to them. You might find them helpful later in your research process.

Where to Look in Websites, Articles, and Books

The information below tells where to look and what questions to ask yourself to assess three kinds of sources' relevancy to your research question. **Whatever you do, don't stop evaluating a source after looking only a website's name or the title of another source.**

Save time by looking in particular places in sources for information that will help you figure out whether the source is relevant to your research project. Much of our advice below comes from "Speedy Reading" in *The Craft of Research*, second edition, by Wayne Booth, Gregory Colomb, and Joseph Williams, 2003, pp. 108-109.

On a **website**, check the name of the website and its articles for clues that they contain material relevant to your research question. Consider whether time should have an impact on what information can be considered relevant. If so, skim any dates, datelines, What's New pages, and press releases to see whether any website content works with the time considerations you need. Page creation or revision dates that you find can also help.

Skim any site map and index on the website for key words related to your research question. Try the key words of your research question in the search box. Do you see enough content about your keywords to make you think parts of the website could be helpful?

For an **article**, think about the title. Does it have anything to do with your research question? Consider whether time should have an impact on what sources can be considered relevant. If so, is the publication date within your parameters? Also skim the abstract to see whether the article works with the time considerations you need. For instance, if there is a time period in your research question, does the article address the same time period or was it created in that time period?

Look at the abstract and section headings in the article to locate the problem or question that the article addresses, its solution, and the outline of the article's argument for its main claim. Can those help answer your research question? Do they make it seem the article will give you information about what others have written about your research question? Do they offer a description of the situation surrounding your research question?

Do the article's introduction and conclusion sections help you answer your research question and/or offer a description of the situation surrounding your question so you can explain in your final product why the question is important? Check whether the bibliography contains keywords related to your research question. Do the sources cited by the bibliography pertain to your research question?

For a **book**, check whether the title indicates the book could be about your research question. Consider whether time should have an impact on what sources can be considered relevant. If so, is the publication date or copyright date (usually listed in the library

catalog or on the back of the book's title page) too early or late for any time constraints in your research question? Maybe it is just right. Also skim some of the preface and introduction to see whether the book works with the time considerations you need.

For help answering your research question, skim the book's table of contents and any summary chapters to locate the problem or question that the book addresses, its solution, and the broad outline of the book's argument for its main claim. Do they also give you information about what others have written about your research question? Do they offer a description of the situation surrounding your research question? Look for your key words in the bibliography. Do the sources cited pertain to your research question? Skim the index for topics with the most page references. Do the topics with the most page references pertain to your research question?

ACTIVITY: Follow a Title's Clues for Relevance

[Open activity in a Web browser.](#)

ACTIVITY: Connecting the Dots beyond the Title

[Open activity in a Web browser.](#)

Connecting the Dots beyond the Title

Instructions: Now you can practice evaluating for relevance beyond the title. In the previous activity, you evaluated for currency and relevance the titles of three sources for the research question: How does “prospect theory” in behavioral economics help explain medical doctors’ decisions to favor surgery or radiation to cure cancer in patients?

Judging by the title, the most relevant source for that research question seemed to be a journal article called **“Cancer Treatment Prescription—Advancing Prospect Theory beyond Economics,” in *Journal of The American Medical Association Oncology*, June, 2016.**

Read the abstract of the article below. Then decide whether this source is relevant to your research questions above. That is, might the article help you meet any of your project’s information needs about the research questions? If there is at least one need it can help meet, then you should judge the article relevant.

Answer the question below the abstract to indicate the source is relevant. Then compare your answer with our feedback.

As usual, your information needs are:

- To learn more background information.
- To answer your research question.
- To convince your audience that your answer is correct or, at least, the most reasonable answer.
- To describe the situation surrounding your research question for your audience and explain why it’s important.
- To report what others have said about question, including any different answers to your research question.

Abstract

“Cancer Treatment Prescription—Advancing Prospect Theory beyond Economics,” in *Journal of The American Medical Association Oncology*, June, 2016 (Note to students: This article and abstract are fictitious.)

Importance Cancer Treatment is complex. We expect oncologists to make treatment decisions according to definitive standards of care. Finding out that prospect theory demonstrates that they react very much like most other people when deciding to recommend surgery or chemotherapy for their patients indicates that more self-reflection on oncologists’ part could help patients make better decisions. (Prospect theory describes how people choose between alternatives that have risk when the probability of different outcomes is unknown.)

Objective To show whether prospect theory applies to how oncologists framed their recommendations for surgery or chemotherapy for patients in good condition and bad condition.

Design, Settings, and Participants Records of 100 U.S. oncologists were examined for the years 2014 and 2015, which documented patient conditions and the way oncologists framed their recommendations regarding surgery or chemotherapy. Thus, a quasi-experimental ex post facto design was used for the study.

Main Outcomes and Measures This study explored the relationship between the way in which the oncologists “framed” the choice of surgery or chemotherapy as they made recommendations to patients, to patients’ conditions, and the choice actually made. Those results were compared to what prospect theory would predict for this situation.

Results Physicians seemed to present their recommendation of surgery or chemotherapy in a loss frame (e.g., “This is likely to happen to you if you don’t have this procedure”) when patients’ conditions were poor and in a gain frame (e.g., “By having this procedure, you can probably dramatically cut your chances of reoccurrence”) when their conditions were less poor. These results are what prospect theory would have predicted.

Conclusions and Relevance This study opens up the possibility that, as described by prospect theory, a person’s choice of framing behavior is not limited to how we naturally act for ourselves but includes how we act for other people, as the oncologists were acting on behalf of their patients. More research is necessary to confirm this line of evidence and determine whether oncologists’ decision making and framing is the most effective and entirely according to the best standards of care.

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6.3: Evaluating for Credibility

Evaluating for Credibility

Next, you'll be evaluating each of the sources that you deemed relevant.

Credibility is the degree to which a source can be trusted. What are the clues for inferring a source's credibility? Let's start with evaluating websites, since we all do so much of our research online. But we'll also include where to find clues relevant to sources in other formats when they differ from what's good to use with websites. Looking at specific places in the sources will mean you don't have to read all of every resource to determine its worth to you.

And remember, the more you take these steps, the faster it goes because always examining your sources becomes second nature.

What Used to Help

It used to be easier to draw conclusions about an information source's credibility, depending on whether it was a print source or a web source. We knew we had to be more careful about information on the web—simply because all the filters that promoted accuracy involved in the print publishing process were absent from most web publishing. After all, it takes very little money, skill, and responsible intent to put content on the web, compared with what has to be done to convince print publishers that your content is accurate and that they will make money by printing it.

However, many publishers who once provided only print materials have now turned to the web and have brought along their rigorous standards for accuracy. Among them are the publishers of government, university, and scholarly (peer-reviewed) journal websites. Sites for U.S. mainline news organizations also strive for accuracy rather than persuasion—because they know their readers have traditionally expected it. All in all, more websites now take appropriate care for accuracy than what used to be true on the web.

Nonetheless, it still remains very easy and inexpensive to publish on the web without any of the filters associated with print. So we all still need the critical thinking skills you'll learn here to determine whether websites' information is credible enough to suit your purpose.

5 Factors to Consider

Evaluating a website for credibility means considering the five factors below in relation to your purpose for the information. These factors are what you should gather clues about and use to decide whether a site is right for your purpose.

- The source's neighborhood on the web.
- Author and/or publisher's background.
- The degree of bias.
- Recognition from others.
- Thoroughness of the content.

How many factors you consider at any one time depends on your purpose when seeking information. In other words, you'll consider all five factors when you're looking for information for a research project or other high-stakes situation where making mistakes have serious consequences. But you might consider only the first three factors at other times.

Lateral Reading

One of the best approaches for evaluating sources and identifying fake or misleading news, is lateral reading. Lateral reading is when you compare a source to other sources in order to evaluate its credibility. Through lateral reading you can verify the source's evidence, get better context for the information provided, and find potential biases or weaknesses in its arguments.

Most websites or other sources aren't going to tell you they are biased. Nor will misleading or inaccurate information be openly labeled as such. With the amount of information that we're confronted with every day, it is impossible to fact-check every single piece of information. It's important to prioritize information as you receive it. Some information may be unimportant and doesn't need to be fact-checked.

Some information may sound important, but you may not have time to verify it; in which case you should note it as something that isn't confirmed. But when you are encountering information that you want to digest and put to use at school, work, or share with

others; then you should take some time to verify that information. While you can and should look for certain markers of quality (such as author credentials or experience), lateral reading can give you the best understanding of what is and is not accurate.

Reading laterally just means to search and find other sources that can confirm or refute the information you've encountered. For example, if you see a social media post making a claim; you can then search online to find Wikipedia, news articles, and other sources that discuss the same information! Do they sound like they are in agreement? If you look up the author, can you find information that makes them seem unbiased? If there is a claim about specific data or referencing a study, can you find the original source of that data or study?

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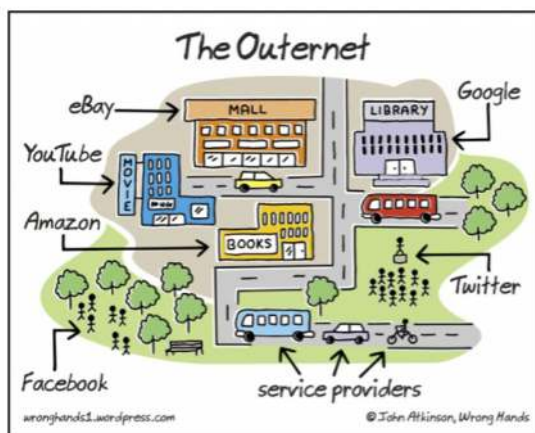
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6.4: A Source's Neighborhood

A Source's Neighborhood

To understand this concept and begin to use it, imagine that all the sites on the web constitute a community. Just like in a geographical community, there are neighborhoods in which individual sites hang out.

Thinking about what neighborhood a source is in on the web can help you decide whether the site is credible and suits your purpose.



Visualize the web as a community. (Image source: John Atkinson, [Wrong Hands](#)(opens in new window))

Audio: Neighborhoods on the Web

Listen to the audio clip (or read the text version) to hear how intuitive this concept is. After you listen, the next activity will show you how to apply the concept.

[Listen to Audio](#)(opens in new window) | [View Text Version](#)(opens in new window)

Tip: Author's Purpose for Print

Rather than examine print sources for their web neighborhood, examine them for their author's purpose. Read the introduction and conclusion and look at the table of contents to discern the author's purpose.

For instance, did the author intend to use the book or magazine article to inform/educate, persuade, sell, or entertain?

And is the author's purpose suitable for your purpose? For instance, does the fact that a resource was intended to persuade mean it can't help you answer your research question? (As you know from Sources and Information Needs, yes.)

? Activity: Self-Check

Why might you want to read information on an advocacy site (from the neighborhood of sites that promote particular ideas and behavior)—even when you're writing a term paper and it's not acceptable to cite that source because it persuades instead of educates and is not objective? See the bottom of the page for the answer.

Answer

Advocacy sites are useful to learn about a particular viewpoint. They may provide a wealth of information—you just have to keep in mind that it's just one side's view and then also seek out the other side's view.

Clues About a Website's Neighborhood

Watch the Understanding Google Search Results movie to better understand how you can quickly determine what kind of information you've turned up in a Google search.

Movie: [Understanding Google Search Results](#) (no audio)

Video: [Understanding Google Search Results](#)(opens in new window)

[View Text Version](#)(opens in new window)

On a website, check pages labeled About Us, About This Site, Mission, Site Index, and Site Map, if available. (If such pages or similarly labeled ones don't exist, it may be a sign that the site may be less trustworthy.)

Ask yourself these questions to gather clues that will help you decide what neighborhood you're in:

- **Is the site selling products and/or services (even if there are articles and other useful information, too)?** Perhaps it's a retail, service center, or corporate site.
- **Are there membership applications and requests for contributions of money or time anywhere on the site?** They're usually a sign that you're on a site that promotes particular ideas or behavior—in other words, they're in the advocacy neighborhood.
- **Do postings, articles, reports, and/or policy papers give a one-sided view or multiple views on issues, people, and events?** If they're one-sided, the site is probably a commercial site or in the advocacy group neighborhood. If the information is even-handed and includes different sides of an issue, the site is more likely to be on the library/museum, school, or mainline U.S. news side of town. Sites there usually provide information designed to educate rather than persuade. Newspapers online or in print usually do have editorial pages, however. But labeling opinions as such helps keep mainline U.S. news sources in the newsstand neighborhood and out of the advocacy neighborhood.

Activity: Neighborhoods on the Web

Work through the three activities below to practice the concept of neighborhoods on the web.

Matching Site to Neighborhood – [Open activity in a web browser](#)(opens in new window)

Matching Neighborhood to Purpose – [Open activity in a web browser](#)(opens in new window)

Which Neighborhood? – [Open activity in a web browser.\(opens in new window\)](#)

Making the Inference

Consider the clues. Then decide the extent that the site's neighborhood is acceptable for your purpose. It might help to grade the extent that this factor contributes to the site being suitable on a scale like this one:

- A – Very Acceptable
- B – Good, but could be better
- C – OK in a pinch
- D – Marginal
- F – Unacceptable

You'll want to make a note of the resource's grade for neighborhood so you can combine it later with the grades you give the other factors.

Answer to Activity: Self-Check

The answer to the "Self-Check" Activity above is:

Advocacy sites are useful to learn about a particular viewpoint. They may provide a wealth of information—you just have to keep in mind that it's just one side's view and then also seek out the other side's view.

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6.5: Author and Publisher

Author and Publisher



The reputation of the author and publisher influences your confidence in a source.

You'll always want to know who's providing the information for a website or other source. Do they have the education, training, or other experience that make you think they are authorities on the subject covered? Or do they just have opinions?

The more you know about the author and/or publisher, the more confidence you can have in your decision for or against using content from that source.

Authors and publishers can be individuals or organizations, including companies. (Web masters put things on the site but do not usually decide what goes on all but the smallest websites. They often just carry out others' decisions.)

Sites that do not identify an author or publisher are generally considered less credible for many purposes, including for term papers and other high-stakes projects. The same is true for sources in other formats.

Clues About an Author's and/or Publisher's Background

If they're available, first take a look at pages called such things as About This Site, About Us, or Our Team first. But you may need to browse around a site further to determine its author. Look for a link labeled with anything that seems like it would lead you to the author. Other sources, like books, usually have a few sentences about the author on the back cover or on the flap inside the back cover.

You may find the publisher's name next to the copyright symbol, ©, at the bottom of at least some pages on a site. In books the identity of the publisher is traditionally on the back of the title page.

Sometimes it helps to look for whether a site belongs to a single person or to a reputable organization. Because many colleges and universities offer blog space to their faculty, staff, and students that uses the university's web domain, this evaluation can require deeper analysis than just looking at the address. Personal blogs may not reflect the official views of an organization or meet the standards of formal publication.

In a similar manner, a tilde symbol (~) preceding a directory name in the site address indicates that the page is in a "personal" directory on the server and is not an official publication of that organization. For example, you could tell that Jones' web page was not an official publication of XYZ University if his site's address was: www.XYZuniversity.edu/~jones/page.html. The tilde indicates it's just a personal web page—in the Residences, not Schools, neighborhood of the web.

Unless you find information about the author to the contrary, such blogs and sites should not automatically be considered to have as much authority as content that is officially part of the university's site. Or you may find that the author has a good academic reputation and is using their blog or website to share resources he or she authored and even published elsewhere. That would nudge him or her toward the Schools neighborhood.

Learning what they have published before can also help you decide whether that organization or individual should be considered credible on the topic. Listed below are sources to use to look for what the organization or individual may have published and what has been published about them.

Tip: Find Out What the Author (Person or Organization) Has Published

Library Catalogs – You can search in a large library catalog to find books written by the author or try WorldCat, which searches many library collections across the world.

- [WorldCat Online Catalog](#)(opens in new window)

Web Article Database – Use a free web article database to search for articles by the author. Note: While you can search for free, you may not be able to retrieve articles unless searching through a library.

For example:

- [Google Scholar](#)(opens in new window)
- [MagPortal.com](#)(opens in new window)

Specialized Database – Locate articles written by the author by using a specialized database that covers the same topical area as information on the website. Check your library’s website to find databases that you can use for this purpose. (Such databases are also called periodical indexes.)

Tip: Find Out What Has Been Written *About* The Author

Web Search Engine – Use a search engine (such as Google) to find web pages where the author’s name is mentioned. (Be sure to search for the name as a phrase, as in “Jane Doe”)

Full-Text Article Database – Use a database that searches the full-text of articles (not just descriptive information about the article) to find those that mention people and organizations. Your college library will have many full-text article databases that you can search.

Activity: Identifying Authors

[Open activity in a web browser.](#)(opens in new window)

Making the Inference

Consider the clues. Then decide the extent that the source’s author and/or publisher is acceptable for your purpose. It might help to grade the extent that this factor contributes to the site being suitable on a scale like this one:

- A – Very Acceptable
- B – Good, but could be better
- C – OK in a pinch
- D – Marginal
- F – Unacceptable

You’ll want to make a note of the source’s grade for author and/or publisher so you can combine it later with the grades you give the other factors.

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6.6: Degree of Bias

Degree of Bias

Most of us have biases, and we can easily fool ourselves if we don't make a conscious effort to keep our minds open to new information. Psychologists have shown over and over again that humans naturally tend to accept any information that supports what they already believe, even if the information isn't very reliable. And humans also naturally tend to reject information that conflicts with those beliefs, even if the information is solid. These predilections are powerful. Unless we make an active effort to listen to all sides we can become trapped into believing something that isn't so, and won't even know it.

— A Process for Avoiding Deception, Annenberg Classroom

Probably all sources exhibit some bias, simply because it's impossible for their authors to avoid letting their life experience and education have an effect on their decisions about what is relevant to put on the site and what to say about it.

But that kind of unavoidable bias is very different from a wholesale effort to shape the message so the site (or other source) amounts to a persuasive advertisement for something important to the author.



Look for evidence of bias in your sources.

Even if the effort is not as strong as a wholesale effort, authors can find many—sometimes subtle—ways to shape communication until it loses its integrity. Such communication is too persuasive, meaning the author has sacrificed its value as information in order to persuade.

While sifting through all the web messages for the ones that suit your purpose, you'll have to pay attention to both what's on the sites and in your own mind.

That's because one of the things that gets in the way of identifying evidence of bias on websites is our own biases. Sometimes the things that look most correct to us are the ones that play to our own biases.

Clues About Bias

Review the website or other source and look for evidence that the site exhibits more or less bias. The factors below provide some clues.

This table demonstrates examples of unbiased and biased behavior in information sources

Coverage	
Unbiased: This source's information is not drastically different from coverage of the topic elsewhere. Information and opinion about the topic don't seem to come out of nowhere. It doesn't seem as though information has been shaped to fit.	Biased: Compared to what you've found in other sources covering the same topic, this content seems to omit a lot of information about the topic, emphasize vastly different aspects of it, and/or contain stereotypes or overly simplified information. Everything seems to fit the site's theme, even though you know there are various ways to look at the issue(s).
Citing Sources	
Unbiased: The source links to any earlier news or documents it refers to.	Biased: The source refers to earlier news or documents, but does not link to the news report or document itself.
Evidence	

Unbiased: Statements are supported by evidence and documentation.	Biased: There is little evidence and documentation presented, just assertions that seem intended to persuade by themselves.
Vested Interest	
Unbiased: There is no overt evidence that the author will benefit from whichever way the topic is decided.	Biased: The author seems to have a “vested interest” in the topic. For instance, if the site asks for contributions, the author probably will benefit if contributions are made. Or, perhaps the author may get to continue his or her job if the topic that the website promotes gets decided in a particular way.
Imperative Language	
Unbiased: Statements are made without strong emphasis and without provocative twists. There aren’t many exclamation points.	Biased: There are many strongly worded assertions. There are a lot of exclamation points.
Multiple Viewpoints	
Unbiased: Both pro and con viewpoints are provided about controversial issues.	Biased: Only one version of <i>the truth</i> is presented about controversial issues.

Examples: Bias

- [The U.S. Immigration Debate](#)(opens in new window) – Shows where it gets its facts; the Council on Foreign Relations is nonpartisan.
- [White Poison: The Horrors of Milk](#)(opens in new window) – Claims are not supported by documentation. Title itself seems biased.

Making the Inference

Consider the clues. Then decide the extent that the bias you detected on the source is acceptable for your purpose. It might help to grade the extent that this factor contributes to the site being suitable on a scale like this one:

- A – Very Acceptable
- B – Good, but could be better
- C – OK in a pinch
- D – Marginal
- F – Unacceptable

You’ll want to make a note of the source’s grade for bias so you can combine it later with the grades you give the other factors.

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6.7: Recognition from Others

Recognition from Others

Checking to see whether others have linked to a website or tagged or cited it lets you know who else on the web recognizes the value of the site's content. Reader comments and ratings can also be informative about some sites you may be evaluating, such as blogs.

If your source is a print book, the blurbs on the front or back cover give you information from authors, experts, or other well-known people who were willing to praise the book and/or author. The same kind of “mini-reviews” may be available on the publisher's website. You can also look for reviews of the book or other source by using Google and Google Scholar.

Those links, tags, bookmarks, citations, and positive reader comments and ratings are evidence that other authors consider the site exemplary. Book reviews, of course, may be either positive or negative.



Ratings and positive comments and review are evidence that others find a source valuable.

Exactly which individuals and organizations are doing the linking, tagging, citing, rating, and commenting may also be important to you. There may be some company you'd rather your site not keep! Or, maybe the sites that link to the one you're evaluating may help solidify your positive feelings about the site.

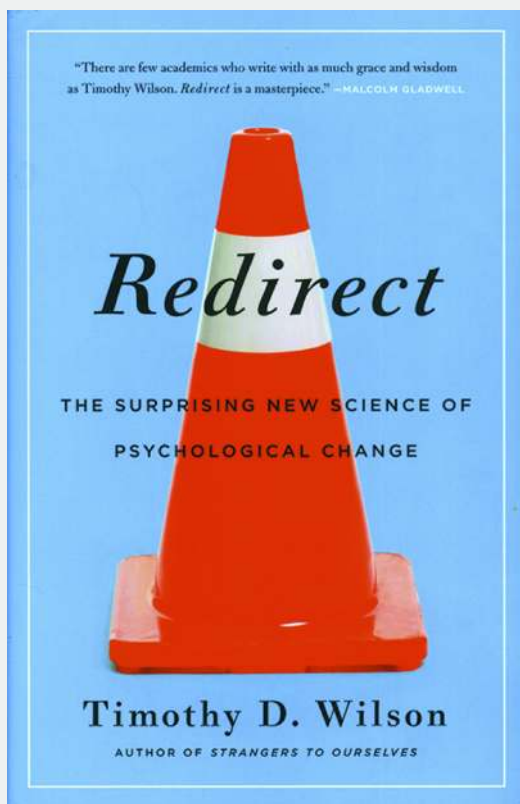
Don't let an absence of links, tags, citations, ratings, and comments damn the site in your evaluation. Perhaps it's just not well-known to other authors. The lack of them should just mean this factor can't add any positive or negative weight to your eventual decision to use the site—it's a neutral.

Tip: Peer Review and Citation as Recognition

The peer review most articles undergo before publication in a scholarly journal lets you know they're considered by other scholars to be worth publishing. You might also be interested to see to what extent other researchers have used an article after it was published. (That use is what necessitates their citation.) But keep in mind that there may not be any citations for very new popular magazines, blogs, or scholarly journal articles.

Activity: Influence You?

Would the blurb on the front cover of *Redirect* by psychologist Timothy Wilson influence you positively or negatively in your evaluation of the book?



The blurb says: “There are few academics who write with as much grace and wisdom as Timothy Wilson. *Redirect* is a masterpiece. – Malcolm Gladwell”

Clues about Recognition

Find citations of an article

Although there is no simple way to find every source that cites an article in a popular magazine, a blog, or a scholarly journal, there are some ways to look for these connections.

For articles published in popular magazines or blogs, enter the title of the article in quotes in the search box of a search engine like Google. The resulting list should show you the original article you're evaluating, plus other sites that have mentioned it in some way. Click on those that you want to know more about.

Example: Finding Mentions

Here's an example using Google to find mentions for a blog article called [Help Wanted: 11 million college grads](#)(opens in new window) by Bill Gates.

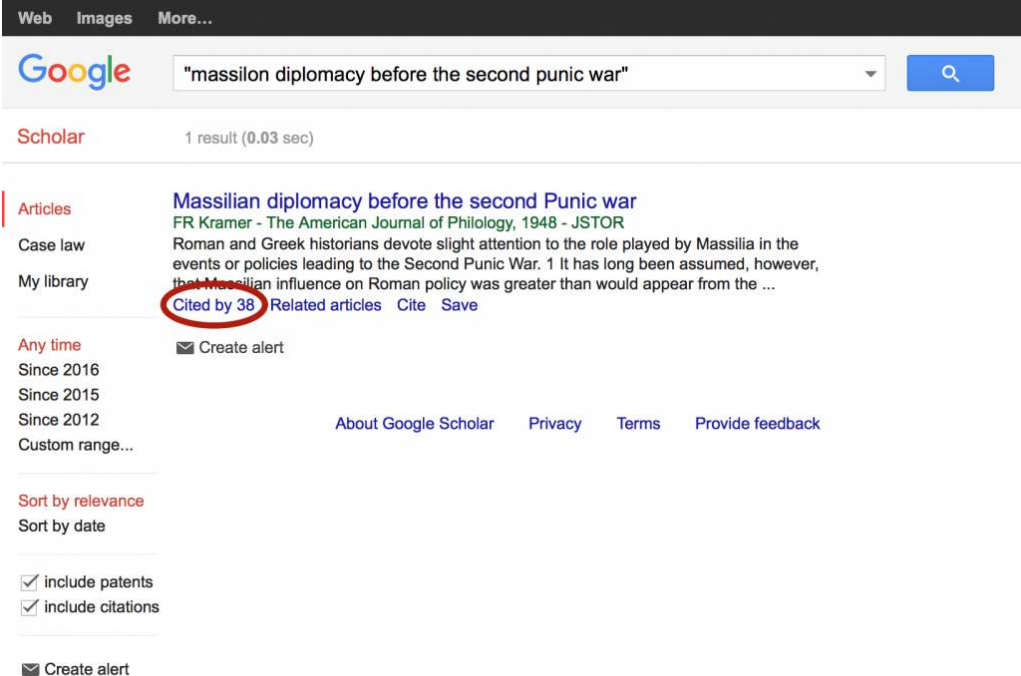
Activity: Inferences

Use Bing to determine how many scholarly sites have made links to these sites. Copy each search statement below and put it in the [Bing](#)(opens in new window) search box to make your searches.

- inbody:www.DOAJ.org site:edu
- inbody:www.nvic.org site:edu

Sometimes you'll even have to take a look at the linking organization's document in order to figure out *why* it's linking. For instance, is it linking to a bad example that it wants to show? Like usual with source evaluation, you'll have to make inferences.

For articles published in scholarly journals, use Google Scholar to enter the title of the article in quotes. In the results list, find the article you're evaluating. (Many articles have similar titles.) Look for the number of citations in the lower left of the listing for your article. If you want more information on the authors who have done the citing, click on the citation number for a clickable list of articles or papers and get the names of authors to look up at the end of the articles or with a search engine. (This is a good way to discover more articles about your topic, too.)



The screenshot shows a Google Scholar search interface. At the top, there's a search bar with the query "massilian diplomacy before the second punic war" and a search button. Below the search bar, it says "Scholar" and "1 result (0.03 sec)". The main result is titled "Massilian diplomacy before the second Punic war" by FR Kramer, published in The American Journal of Philology, 1948 - JSTOR. The abstract mentions Roman and Greek historians' attention to Massilia's role in the Second Punic War. A red circle highlights the text "Cited by 38" in the lower left of the result snippet. To the left of the result, there are navigation links: "Articles", "Case law", and "My library". Below the result, there are filters for "Any time", "Since 2016", "Since 2015", "Since 2012", and "Custom range...". There are also links for "About Google Scholar", "Privacy", "Terms", and "Provide feedback". At the bottom, there are checkboxes for "include patents" and "include citations", and a "Create alert" button.

Google Scholar shows how many articles have cited a given article.

[View the live example](#)(opens in new window)

Making the Inference

Consider the clues. Then decide the extent that the source's recognition from others is acceptable for your purpose. It might help to grade the extent that this factor contributes to the site being suitable on a scale like this one:

- A – Very Acceptable
- B – Good, but could be better
- C – OK in a pinch
- D – Marginal
- F – Unacceptable

You'll want to make a note of the source's grade for recognition so you can combine it later with the grades you give the other factors.

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6.8: Thoroughness

Thoroughness



Consider how well a source covers your topic.

Figuring out whether a website or other source is suitable for your purpose also means looking at how thoroughly it covers your topic

You can evaluate thoroughness in relation to other sources on the same topic. Compare your source to how other sources cover the material, checking for missing topics or perspectives.

Clues About Thoroughness

Click around a site to get some idea of how thoroughly it covers the topic. If the source you are evaluating is a print resource, read the introduction and conclusion and also the table of contents to get a glimpse of what it covers. Look at the index to see what subject is covered with the most pages. Is it thorough enough to meet your information need?

Tip: Related Sites

Use Google to find other sites on the same topic by entering **related:[the URL of the site you know]** in the search box.

For example: [related:guides.osu.edu](https://www.google.com/search?q=related:guides.osu.edu)

Use this technique to browse other sites Google turns up. Do other sites cover aspects of the topic that are missing from the site you are evaluating? Or does your site stack up pretty well against the competition?

Activity: Comparing Websites

[Open activity in a web browser.](#)

Making the Inference

Consider the clues. Then decide the extent that the source's thoroughness is acceptable for your purpose. It might help to grade the extent that this factor contributes to the source being suitable on a scale like this one:

- A – Very Acceptable
- B – Good, but could be better
- C – OK in a pinch
- D – Marginal
- F – Unacceptable

You'll want to make a note of the source's grade for thoroughness so you can combine it later with the grades you give the other factors.

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6.9: Combining the Factors

Combining the Factors

Once you've considered each factor used in evaluating a source, it's important to take a look at the inferences you made about them. Now is the time to look at those grades all together—to average them if you've been assigning grades—and to make one more inference.

Taking the grade on each factor into account, can you infer that the source is credible enough for your purpose? If it isn't, this is one source that can't be helpful in your project. If it is relevant and credible enough, you can use information from that resource with confidence. All of this amounts to making a judgement call based on the evidence available. A source does not have to have good evidence of every category to be suitable for every research purpose.

Making the Final Inference

Assume you're writing a term paper and are considering using information from Site XYZ. You ran through the evaluation process as you looked over the site, and you made notes about the grades you assigned.

The grades you gave individual factors are:

- Neighborhood: A
- Author/publisher's background: B
- Degree of bias: A
- Recognition from others: No Evidence
- Thoroughness: C
- Currency of the content: A

You average the grades (A=4, B=3, C=2, D=1, F=0), remembering not to include the factor on which you gave no grade. The score was 3.4, about a B, which is a "Good, but could be better" score on the scale we used in this tutorial. You decide to use information from this site in your project.

- A – Very Acceptable
- B – Good, but could be better
- C – OK in a pinch
- D – Marginal
- F – Unacceptable

When Should You Stop?

Research shows that students often don't know when they should stop trying to find and evaluate sources for a particular project. How many sources are enough? It's hard to say, exactly. But you'll need enough to meet the information needs of your project and to meet the requirements your professor told you about.

Furthermore, you may change your mind as you continue working on your project. There is probably not a researcher alive who hasn't thought he or she had enough relevant and sources, only to change their mind later when they were actually writing the final product.

This [Sources Checklist](#)(opens in new window) may help you decide what you have enough of and to keep track of needs yet to be met. If you need to, you can use it multiple times as you work on the same project.

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CHAPTER OVERVIEW

7: Open Education and Fair Use

- 7.1: What is Open Education?
- 7.2: Challenges with Open Education
- 7.3: Creative Commons
- 7.4: Public Domain
- 7.5: What Is Fair Use?
- 7.6: The Four Factors
- 7.7: Common Examples of Fair Use

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7.1: What is Open Education?

Open education refers to educational practices and resources that are openly available for anyone to use, access, modify, and share. It encompasses a variety of initiatives aimed at making education more accessible, affordable, and inclusive. In the context of college students, open education can manifest in several ways:

1. **Open Educational Resources (OER):** These are freely accessible, openly licensed materials that can be used for teaching, learning, research, and other educational purposes. OER include textbooks, lecture notes, videos, and other educational materials that are typically available online at no cost.¹
 - At California Community Colleges, these are often reflected in courses labeled as 'ZTC' or Zero Textbook Cost. However, ZTC can be achieved through non-OER means as well including providing class textbook sets at the library or designing courses without textbooks.
2. **Open Access Journals:** These are scholarly journals that make their articles freely available online to the public. This allows students to access the latest research and academic publications without any financial barriers.
3. **Open Pedagogy:** This approach involves engaging students in the creation of open educational resources as part of their learning experience. It promotes collaboration, creativity, and critical thinking skills among students.

By embracing open education practices, college students can benefit from a more flexible and diverse learning environment while reducing the financial burden associated with traditional educational resources. Additionally, open education promotes knowledge sharing and collaboration on a global scale.

What is "Open"?

Open Educational Resources are accessible and open. This means that, in an ideal world, anyone can use and even edit them. However, in reality, there are different types of licenses that permit different types of use. While all open resources will be available and accessible to anyone, they may have limits on how someone can use them beyond just reading the materials. Most commonly, Open resources are licensed under some version of the Creative Commons license.

Zero Textbook Cost (ZTC)

The California Community College systems have lowered the cost of education through their ZTC initiative. This program encourages faculty to develop courses that have no textbook cost. It also requires that ZTC courses be labeled in the class schedule of each college. This enables students to find and enroll in these Zero Textbook Cost courses.

Enrolling in ZTC courses can help students save money, but it also provides more flexibility in how students can access their course resources, encourages the use of more diverse learning materials, and may even improve student performance.²

Sources

1. SPARC. (n.d.). *Open education*. Sparcopen.org. <https://sparcopen.org/open-education/>(opens in new window)
2. California Community Colleges. (n.d.). *Open education resources*. California Community Colleges. <https://www.cccco.edu/About-Us/Chancellors-Office/Divisions/Educational-Services-and-Support/Open-Education-Resources>(opens in new window)

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7.2: Challenges with Open Education

Open education, while offering many benefits, also raises some concerns.

Key Challenges

Quality Control

- **Lack of Standardization:** Open educational resources (OER) may vary widely in quality and accuracy since they are created by different individuals or organizations without a standardized review process.
- **Outdated Content:** OER may not always be updated regularly, leading to the dissemination of outdated information.

Sustainability

- **Funding:** The sustainability of open education initiatives can be a concern due to the lack of a clear funding model. Without sustainable funding, projects may struggle to maintain resources and support.
- **Long-term Maintenance:** Ensuring the long-term maintenance and updating of OER can be challenging without a dedicated team or organization overseeing the content.

Accessibility

- **Digital Divide:** Not all learners have equal access to technology or the internet, which can create barriers to accessing open educational resources for some individuals or communities.

Discoverability

- **Search Expertise:** Many college faculty are not experienced with searching for open education resources. This can make it difficult to locate suitable resources.
- **Lack of Centralization:** OERs are located across many different websites, making them more difficult to find.

Instructional Concerns

- **Lack of Resources:** Many courses use textbooks that include videos, case studies, online homework, and other types of tools that enrich the classroom but are not easily replicated by OERs.

While open education has the potential to democratize access to education and resources, addressing these concerns is crucial to ensure its effectiveness and sustainability in the long run.¹

How Do We Solve for This?

Colleges and scholars are doing many things to simplify the use of OERs:

- Creating central repositories for finding and accessing OERs.
- Developing more robust training in using and licensing OERs.
- Providing grants and other financial incentives to develop OERs.
- Hiring librarians and other staff specialized in Open Education.

Sources

1. Kortemeyer, Gerd. (2013, February 26). *Ten years later: Why open educational resources have not noticeably affected higher education, and why we should care*. Educause. <https://er.educause.edu/articles/2013/2/ten-years-later-why-open-educational-resources-have-not-noticeably-affected-higher-education-and-why-we-should-care>(opens in new window)

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7.3: Creative Commons

Creative Commons is the most commonly used license for making resources open. "Creative Commons licenses give everyone from individual creators to large institutions a standardized way to grant the public permission to use their creative work under copyright law."¹ Creative Commons actually includes six different licenses that vary in the amount of permissions that they grant to other people for using and/or editing that resource.

In these different licenses CC refers to Creative Commons, which is then followed by other acronyms that have different meanings. These acronyms are SA (Share Alike), NC (Non Commercial), and ND (No Derivatives).

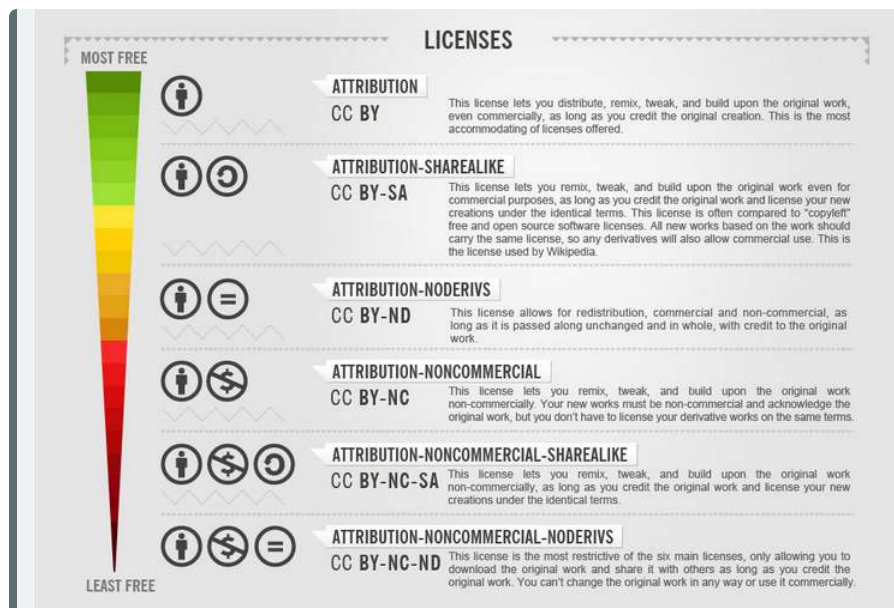
What is a Derivative?

A derivative is something created using another work. This goes beyond simple quoting or paraphrasing some information from that work, but means you are taking the original work and transforming it into something else. It implies that you are using a substantial amount of the original work.

CC Licenses

- CC BY allows any use but requires that you provide attribution (usually as a citation) if creating a new version of their work.
- CC BY-SA allows any use but requires that you provide attribution AND use the CC BY-SA license if creating a new version of their work.
- CC BY-NC allows any use to create a new (derivative) work so long as it is non-commercial, meaning that you will not make a profit off of it. You must also provide attribution to the original author.
- CC BY-NC-SA has the same allowances and conditions of CC BY-NC but also requires that any derivative works use the CC BY-NC-SA license.
- CC BY-ND allows people to read and copy the work but not to create any derivatives from it. It cannot be edited or transformed.
- CC BY-NC-ND is the same as CC-BY-ND except it also prevents any use that would generate a profit for people other than the original creator.¹

There is also a special CC0 license, which means that the creator gives up any rights to the work. Anyone may do anything they like with it.



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very limiting. It also describes the allowances for each license, already described above under CC Licenses.

Sources

1. Creative Commons. (2019). *About CC licenses*. CreativeCommons.org. <https://creativecommons.org/share-your-work/cclicenses/>(opens in new window)

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7.4: Public Domain

Public domain refers to creative works that are not protected by intellectual property laws, such as copyright, and are therefore free for anyone to use without permission or payment. These works can include literature, music, art, and scientific discoveries that are considered part of the public heritage. Once a work enters the public domain, it can be freely accessed, shared, and built upon by anyone. Works in the public domain play a crucial role in education, research, and creativity by providing a foundation of knowledge and inspiration for new creations.

📌 Isn't that just CC0?

Basically, yes! CC0 is a license option that enables people to willingly put their works in the public domain.

Copyright laws vary by country. In the United States, works primarily end up in the public domain when either its author releases all copyright claims to it (such as with CC0 or with government authors), or when the copyright for the work expires. For many works, it can take 70-95 years from the date of publication for the work to go into the public domain. However, the exact length of time varies greatly depending on when the work was published, who it was published by, and where it was published.¹

Sources

1. Copyright services: Copyright term and the public domain. (2024, January 16). Cornell University Library.
[https://guides.library.cornell.edu/copyright/publicdomain\(opens in new window\)](https://guides.library.cornell.edu/copyright/publicdomain(opens in new window))

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7.5: What Is Fair Use?

What Is Fair Use?



Fair Use is an exception to U.S. copyright law that allows use of copyrighted work under certain conditions.

Are you incorporating any materials in your research final product that were created by someone else, such as images or text from other works? These materials could be protected by copyright. For example, content you find online, text, books, movies, songs, email, images, and videos are most likely copyrighted. Fortunately, U.S. copyright law includes an exception that allows you to use copyrighted work in your assignments for class.

However, if you would like to share your research product outside of the classroom (such as on a webpage or blog or in your portfolio), you will need permission from the copyright owner(s) unless your use is covered under another statutory exception. Fair use is one such exception, and it can apply to a wide variety of uses.

Note: Fair Use and Educational Use

Fair Use plays an important role in education. Although educational use receives several protections in copyright law, not all educational use is automatically fair use. It's important to know that there are limits to how you can use others' creative works even as a student or teacher in the classroom.

In this section, you will learn about fair use and strategies to help determine whether or not a proposed use of someone else's copyrighted works falls under the fair use exception. Understanding how to properly perform a fair use analysis and assert your fair use rights can help you to build upon others' works with confidence.

Fair Use and Copyright – A Balance

Copyright in the U.S. is intended to promote the creation of new works by providing an incentive for creators. However, recognizing that new works often build on or incorporate existing works, the law strikes a balance between the rights of creators and the rights of users via exceptions to the exclusive rights of the creator.

The fair use exception is detailed in Section 107 of the U.S. Copyright Act. Unlike other copyright exceptions, fair use is flexible and can apply to a broad array of uses. It is designed to be adaptable to new uses and technologies so that Congress doesn't have to create new exceptions before a new technology can be utilized.

Movie: What Is Fair Use?

Watch a short introduction to fair use from the OSU Libraries' [Copyright Resources Center](#).

Video: [What is Fair Use?\(opens in new window\)](#)

Parody and Satire

Parody and satire use humor to convey their message. They create a new version of a work (also called a "derivative work"), that seeks to deliver a different message. Parody imitates the style of the original creator or work but introduces exaggerations that are intended to be funny. Satire, on the other hand, usually attempts to comment on society or the world.

Parody and satire are most often used as tools of criticism and commentary. However, only parody can be considered fair use.

Why is satire not fair use?

Fair use states that you may use copyrighted works "for purposes such as criticism [or] comment"; however, parody has the explicit purpose of commenting on or criticizing the original work itself. It is an attempt to make humorous commentary about that work and usually cannot be done without mimicking the original work. Satire often has nothing to do with the original work that might be copied from, and so it isn't necessary to create a 'derivative'. Satire could be achieved through using other means or styles.

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7.6: The Four Factors

The Four Factors

Most of the copyright exceptions are very specific about what kinds of uses may qualify for the exception and often include various restrictions about who can use the exception and under what precise conditions.

Fair use, on the other hand, is much more flexible and can apply to a wide variety of uses. Instead of specifying an exact type of user, type of material or amount that qualifies for this exception, the fair use statute provides a framework for the analysis and application of four factors that determine whether or not a particular use may qualify as fair use.

The four factors of fair use are:

- Purpose & character of use, including whether commercial (i.e. publishing a book) or non-commercial (i.e. using in a classroom assignment)
- Nature of the original material (i.e., is the work published or unpublished? Fact or fiction? Highly creative?)
- Amount and substantiality of the original work (are you using the entire work or just a portion?)
- Effect on the marketplace or on the work's value (will your use have a financial impact on the creator?)

When considering whether a proposed use of a copyrighted work may qualify as fair use, you must weigh all four factors together. Each factor is equally important.

Transformation

The courts have recently emphasized the concept of transformation or a transformative purpose, which falls under the first factor of fair use.

Transformation means that the way in which the work is being used is significantly different than the original use for which it was created.

In many cases a transformative use of a copyrighted work will strongly favor a determination of fair use.

There are two ways in which a use can be transformative.

First, you could actually make changes to the original work in order to use it for a new purpose. An example would be to take short clips of popular movies and remix them to create a video for the purpose of social commentary or teaching.

The second form of transformative use does not require that you alter the original work in any way. Instead, you simply use the work for a purpose that is significantly different than the use for which it was created. An example of this would be using clips from a blockbuster movie that was originally sold for mass market entertainment for the purpose of teaching and research.

Movie: Remix Culture

See examples of remixing that fall under fair use.

Video: [Fair Use & Online Videos](#)(opens in new window)

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7.7: Common Examples of Fair Use

Common Examples of Fair Use

Students and teachers rely on fair use in order to accomplish many of their educational goals. Below are some, but by no means all, educational activities that rely upon fair use.

Student Projects

Includes both media and text.

Your fair use analysis will change depending on how the project is presented, i.e. only the professor sees it, you present it to the whole class, you present it to a group outside of the class, or you post it online for anyone to see.

Course Reserves

Includes electronic reserves.

Instructors may copy or post small portions of books or journals for supplementary student readings, but cannot copy entire copyrighted works as a replacement for materials that students would normally be required to purchase.

Sound or Video Clips for Teaching

Students and teachers can make use of video or sound clips in creating multi-media presentations for use in the classroom.

Digitization Projects

Many university libraries rely on fair use in order to create large scale digitization projects that preserve older materials, as well as providing improved access to their collections for the purpose of research. For an example of this type of digitization project check out the [HathiTrust Digital Library](#)(opens in new window).

Content in Scholarly Articles

It is common to quote other researchers' writings or use others' images, graphs or charts in your own scholarly writing. These practices have long been considered acceptable under fair use.

Access for the Disabled

When specific exemptions don't fit.

While there are specific exceptions that allow for making copies of copyrighted works in order to provide access to the visually handicapped, they are sometimes too narrow to provide complete access. In these cases it is possible to rely upon fair use in order to provide access to materials.

Fair Use for Non-Educational Purposes

Fair use is not only available for educational purposes. Many other commercial and non-commercial activities depend upon fair use. Some of these common fair uses include:

- Quotes in books, news reports and blogs
 - Mash-ups and remixes
 - Parody, such as on television shows like South Park or Saturday Night Live
 - Video or sound clips in documentary films
 - Thumbnail images on search engines
-

Myths about Fair Use

Many people have heard of fair use and have some ideas about what it is. Unfortunately, there are many myths or misunderstandings about exactly what fair use covers, what the law states or how it can be applied. Below we dispel just a few of the most common myths about fair use.

Myth 1: All educational use is fair use.

Fact: While many educational uses are considered fair use, there are some activities that do not meet the fair use criteria. For example, a teacher can't make copies of an entire text book so that students don't have to buy it.

Myth 2: Every educational use is transformative.

Fact: Using copyrighted works for teaching can often be a transformative use, but not always. For example, using a text book created to teach Biology 101 to teach Biology 101 is not transformative.

Myth 3: All socially beneficial use is fair use.

Fact: Fair use is designed to help balance the rights of the creator and the social benefit of using copyrighted works in certain ways. Not all uses of copyrighted works that would be socially beneficial, however, qualify as fair use. For example, scanning and posting an entire medical text book online for anyone to access for free is socially beneficial but probably not fair use.

Myth 4: All commercial use precludes fair use.

Fact: Many commercial activities, such as newspapers and online news sites, rely heavily on fair use.

Myth 5: It is not possible to have a fair use when a permissions scheme exists for a work.

Fact: Just because rights holders are willing to charge you to use their copyrighted material, does not mean that fair use cannot apply. For example, the Associated Press created a licensing scheme to quote from AP stories but quoting from news stories has long been considered fair use.

Myth 6: Fair use specifies a percentage or amount of a work that is okay to use.

Fact: The law does not state that using 10% of a book or 30 seconds of a song or video clip is fair use. You can often use more than these arbitrary limits, while sometimes using even less might not be fair use. The amount of the original work used is only one of the four factors to consider.

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 - [2.2.5: Citation Steps for Any Style](#) - [CC BY-NC 4.0](#)
 - [2.2.6: Citation Generators](#) - [CC BY-NC 4.0](#)
 - [2.2.7: Conclusion](#) - [CC BY-NC 4.0](#)
- [3: Getting Started with Research](#) - [CC BY-NC 4.0](#)
 - [3.1: Quantitative or Qualitative](#) - [CC BY-NC 4.0](#)
 - [3.2: Fact or Opinion](#) - [CC BY-NC 4.0](#)
 - [3.3: Publication Formats and the Information Lifecycle](#) - [CC BY-NC 4.0](#)
 - [3.4: News as a Source](#) - [CC BY-NC 4.0](#)
 - [3.5: Data as Sources](#) - [CC BY-NC 4.0](#)
 - [3.6: The Research Process](#) - [Undeclared](#)
 - [3.7: The Purpose of Research Questions](#) - [CC BY-NC 4.0](#)
 - [3.8: Choosing a Topic](#) - [CC BY-NC 4.0](#)
 - [3.9: Narrowing a Topic](#) - [CC BY-NC 4.0](#)
 - [3.10: Background Reading](#) - [CC BY-NC 4.0](#)

- 3.11: Research Questions - *CC BY-NC 4.0*
- 3.12: Influence of a Research Question - *CC BY-NC 4.0*
- 3.13: Developing Your Research Question - *CC BY-NC 4.0*
- 4: Searching for Information - *CC BY-NC 4.0*
 - 4.1: Sources and Information Needs - *CC BY-NC 4.0*
 - 4.2: Sources to Meet Needs - *CC BY-NC 4.0*
 - 4.3: Planning Your Sources - *CC BY-NC 4.0*
 - 4.4: Research Questions - *CC BY-NC 4.0*
 - 4.5: Identifying the Main Concepts - *CC BY-NC 4.0*
 - 4.6: Avoiding Confirmation Bias - *CC BY-NC 4.0*
 - 4.7: Brainstorming Related Terms - *CC BY-NC 4.0*
 - 4.8: Creating a Search Statement - *CC BY-NC 4.0*
 - 4.9: How Can AI Help With Research? - *Undeclared*
 - 4.10: Conclusion - *CC BY-NC 4.0*
- 5: Using the Library - *CC BY-NC 4.0*
 - 5.1: Finding Materials in the Library - *CC BY-NC 4.0*
 - 5.1.1: Chapter Scenario - *CC BY-NC 4.0*
 - 5.1.2: Using OneSearch- Your California Community College Library's Search Tool - *CC BY-NC 4.0*
 - 5.1.3: Finding Your Books - *CC BY-NC 4.0*
 - 5.1.4: Filters and Advanced Search Options in OneSearch - *CC BY-NC 4.0*
 - 5.1.5: Critical Thinking - *CC BY-NC 4.0*
 - 5.1.6: How Libraries Organize Materials - *CC BY-NC 4.0*
 - 5.1.7: Dewey Decimal Classification (DDC) - *CC BY-NC 4.0*
 - 5.1.8: Library of Congress Classification (LCC) - *CC BY-NC 4.0*
 - 5.1.9: Practice - *CC BY-NC 4.0*
 - 5.1.10: Critical Thinking - *CC BY-NC 4.0*
 - 5.1.11: Conclusion - *CC BY-NC 4.0*
 - 5.2: Using Library Databases - *CC BY-NC 4.0*
 - 5.2.1: Chapter Scenario - *CC BY-NC 4.0*
 - 5.2.2: Library Databases- What's Inside Them? - *CC BY-NC 4.0*
 - 5.2.3: Critical Thinking - *CC BY-NC 4.0*
 - 5.2.4: Choosing a Library Database - *CC BY-NC 4.0*
 - 5.2.5: Specialized Library Databases- Videos, Ebooks, and More! - *CC BY-NC 4.0*
 - 5.2.6: Scholarly Articles, Magazine Articles, and Newspaper Articles - *CC BY-NC 4.0*
 - 5.2.7: You Found Some Resources! Now What? - *CC BY-NC 4.0*
 - 5.2.8: Preparing to Use a Database- What Do You Need to Find? - *CC BY-NC 4.0*
 - 5.2.9: Full Text? HTML, PDF, and EPUB - *CC BY-NC 4.0*
 - 5.2.10: Conclusion - *CC BY-NC 4.0*
- 6: Evaluating Sources - *CC BY 4.0*
 - 6.1: Thinking Critically About Sources - *CC BY 4.0*
 - 6.2: Evaluating for Relevancy - *CC BY 4.0*
 - 6.3: Evaluating for Credibility - *CC BY 4.0*
 - 6.4: A Source's Neighborhood - *CC BY 4.0*
 - 6.5: Author and Publisher - *CC BY 4.0*
 - 6.6: Degree of Bias - *CC BY 4.0*
 - 6.7: Recognition from Others - *CC BY 4.0*
 - 6.8: Thoroughness - *CC BY 4.0*
 - 6.9: Combining the Factors - *CC BY 4.0*
- 7: Open Education and Fair Use - *Undeclared*
 - 7.1: What is Open Education? - *Undeclared*
 - 7.2: Challenges with Open Education - *Undeclared*
 - 7.3: Creative Commons - *Undeclared*
 - 7.4: Public Domain - *Undeclared*
 - 7.5: What Is Fair Use? - *CC BY 4.0*
 - 7.6: The Four Factors - *CC BY 4.0*
 - 7.7: Common Examples of Fair Use - *CC BY 4.0*
- Back Matter - *CC BY-NC 4.0*
 - Index - *CC BY-NC 4.0*
 - Glossary - *CC BY-NC 4.0*
 - Detailed Licensing - *CC BY-NC 4.0*
 - Detailed Licensing - *Undeclared*