Annotated Bibliography: Gathering, Evaluating, and Documenting Sources

14



FIGURE 14.1 Academic writers often create annotated bibliographies to inform readers about sources and to analyze the information sources provide. Annotated bibliographies are especially useful in argumentative and scientific research. (credit: "Wikimedia Design edit-a-thon 16" by Sebastian ter Burg/flickr, CC BY 2.0)

CHAPTER OUTLINE

14.1 Compiling Sources for an Annotated Bibliography
14.2 Glance at Form: Citation Style, Purpose, and Formatting
14.3 Annotated Student Sample: "Healthy Diets from Sustainable Sources Can Save the Earth" by Lily Tran
14.4 Writing Process: Informing and Analyzing

INTRODUCTION As an author, you will spend a great deal of time crafting your compositions to ensure that your ideas, thesis statements, and arguments come across to readers clearly and with authority. The way to present a strong, persuasive argument is through thorough analysis and solid evidence obtained from credible sources. Because sources are so important, creating an annotated bibliography can be a cornerstone of the argumentative research writing process.

This chapter shows how to develop an annotated bibliography for the argumentative research project presented in Writing Process: Integrating Research. An annotated bibliography shows the authority present in each of the sources and explains why each was chosen. The information in the annotated bibliography helps readers understand the role a bibliography plays in gathering and using sources to support an argument. Later in the chapter, you will apply the principles presented to create your own annotated bibliography for one of the assignments in this course—perhaps your own argumentative research paper, as outlined in Writing Process: Integrating Research.

If you are creating an annotated bibliography, you may not have created a research log, as addressed in

Research Process: Making Notes, Synthesizing Information, and Keeping a Research Log. However, as you work through this chapter, consult Research Process: Making Notes, Synthesizing Information, and Keeping a Research Log for additional information about locating, analyzing, and incorporating sources.

By creating an annotated bibliography, you move beyond simply collecting sources to interacting with them. When writing annotations, you read each source more closely than you would otherwise, think about it more critically, and strengthen your own claims on the topic. An annotated bibliography thus provides you with perspectives beyond your own ideas and helps you understand where your claims fit into the broader body of knowledge on the topic, or "the conversation." Annotated bibliographies help other scholars by providing an overview of the sources and breadth of knowledge about the research surrounding a given topic.



Writing an annotated bibliography is an opportunity to practice expectations of convention; there are many rules to follow depending on the format and style you write in. But it can also be an opportunity to challenge convention in both the content and the style of your writing. A growing movement in academics fosters anti-racist practice, which embraces stylistic choices based on culture. That is to say, so-called standard language ideologies are no longer seen as "better" or even "correct." Rather, an ever-evolving idea of language awareness increasingly allows students and their instructors to explore cultural expression of ideas.

14.1 Compiling Sources for an Annotated Bibliography

LEARNING OUTCOMES

By the end of this section, you will be able to:

- Integrate your ideas with ideas from related sources.
- Locate, compile, and evaluate primary, secondary, and tertiary research materials related to your topic.

A **bibliography** is a list of the sources you use when doing research for a project or composition. Named for the Greek terms *biblion*, meaning "book," and *graphos*, meaning "something written," bibliographies today compile more than just books. Often they include academic journal articles, periodicals, websites, and multimedia texts such as videos. A bibliography alone, at the end of a research work, also may be labeled "References" or "Works Cited," depending on the citation style you are using. The bibliography lists information about each source, including author, title, publisher, and publication date. Each set of source information, or each individual entry, listed in the bibliography or noted within the body of the composition is called a **citation**.

Bibliographies include formal documentation entries that serve several purposes:

- They help you organize your own research on a topic and narrow your topic, thesis, or argument.
- They help you build knowledge.
- They strengthen your arguments by offering proof that your research comes from trustworthy sources.
- They enable readers to do more research on the topic.
- They create a community of researchers, thus adding to the ongoing conversation on the research topic.
- They give credit to authors and sources from which you draw and support your ideas.

Annotated bibliography expand on typical bibliographies by including information beyond the basic citation information and commentary on the source. Although they present each formal documentation entry as it would appear in a source list such as a works cited page, an annotated bibliography includes two types of additional information. First, following the documentation entry is a short **description** of the work, including information about its authors and how it was or can be used in a research project. Second is an **evaluation** of the work's validity, reliability, and/or bias. The purpose of the annotation is to summarize, assess, and reflect on the source. Annotations can be both explanatory and analytical, helping readers understand the research you used to formulate your argument. An annotated bibliography can also help you demonstrate that you have read the sources you will potentially cite in your work. It is a tool to assist in the gathering of these sources and serves as a repository. You won't necessarily use all the sources cited in your annotated bibliography in your

final work, but gathering, evaluating, and documenting these sources is an integral part of the research process.

Compiling Sources

Research projects and compositions, particularly argumentative or position texts, require you to collect sources, devise a thesis, and then support that thesis through analysis of the evidence, including sources, you have compiled. With access to the Internet and an academic library, you will rarely encounter a shortage of sources for any given topic or argument. The real challenge may be sorting through all the available sources and determining which will be useful.

The first step in completing an annotated bibliography is to locate and compile sources to use in your research project. At the beginning, you do not need to be highly selective in this process, as you may not ultimately use every source. Therefore, gather any materials—including books, websites, professional journals, periodicals, and documents—that you think may contain valuable ideas about your topic. *But where do you find sources that relate to your argument? And how do you choose which sources to use?* This section will help you answer those questions and choose sources that will both enhance and challenge your claim, allowing you to confront contradictory evidence and **synthesize** ideas, or combine ideas from various sources, to produce a well-constructed original argument. See Research Process: Accessing and Recording Information for more information about sources and synthesizing information.

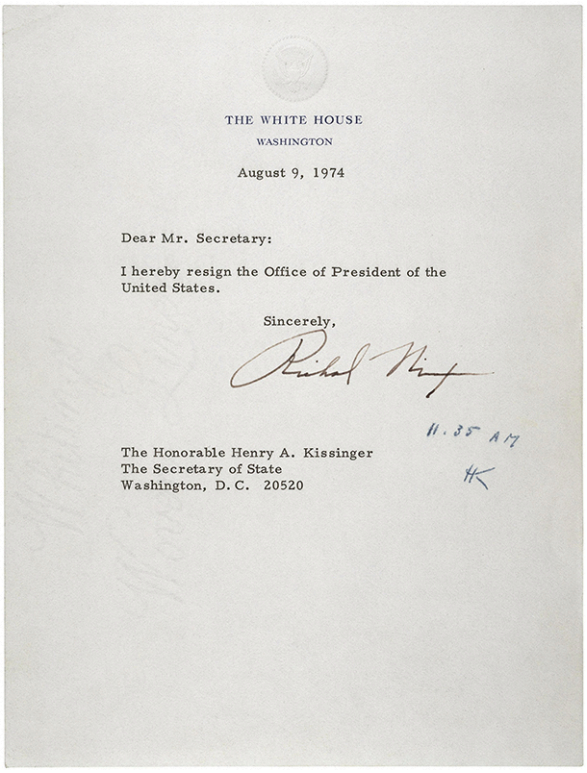
Primary, Secondary, and Tertiary Sources

In your research, you likely will use three types of sources: primary, secondary, and tertiary. During any research project, your use of these sources will depend on your topic, your thesis, and, ultimately, how you intend to use them. In all likelihood, you will need to seek out all three.

Primary Sources

Primary sources allow you to create your own analysis with the appropriate rhetorical approach. In the humanities disciplines, **primary sources** include original documents, data, images, and other compositions that provide a firsthand account of an event or a time in history. Typically, primary sources are created close in time to the event or period they represent and may include journal or diary entries, newspaper articles, government records, photographs, artworks, maps, speeches, films, and interviews. In scientific disciplines, primary sources provide information such as scientific discoveries, raw data, experimental and research results, and clinical trial findings. They may include published studies, scientific journal articles, and proceedings of meeting or conferences.

Primary sources also can include student-conducted interviews and surveys. Other primary sources may be found on websites such as the Library of Congress (https://openstax.org/r/Library_of), the Historical Text Archive (https://openstax.org/r/Historical_Text), government websites, and article databases. In all academic areas, primary sources are fact based, not interpretive. That is, they may be commenting on or interpreting something else, but they *themselves* are the source. For example, an article written during the 1840s condemning the practice of enslavement may interpret events occurring then, but it is a primary source document of its time.



THE WHITE HOUSE
WASHINGTON

August 9, 1974

Dear Mr. Secretary:

I hereby resign the Office of President of the United States.

Sincerely,

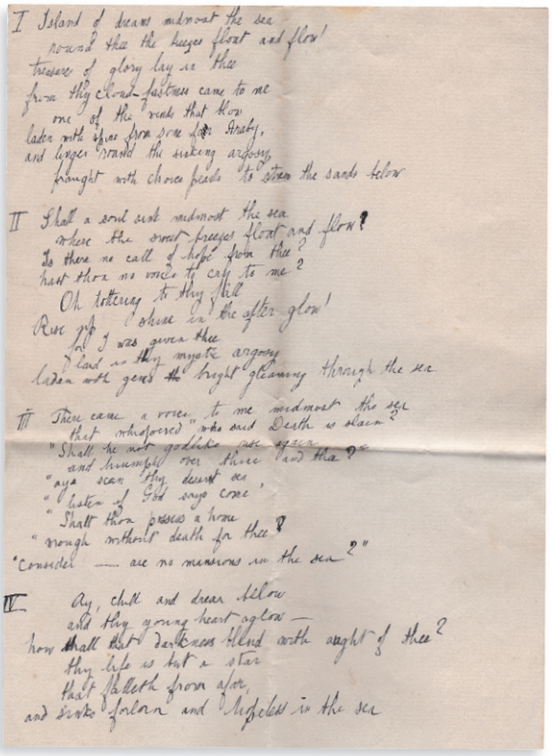
Richard Nixon

11.35 AM

The Honorable Henry A. Kissinger
The Secretary of State
Washington, D. C. 20520

HK

FIGURE 14.2 This letter of resignation by President Richard Nixon (1913–1994), written in 1974, is an example of a primary source. (credit: "Letter of Resignation of Richard M. Nixon, 1974" by Former U.S. President Richard M. Nixon, officially a work of the U.S. government/Wikimedia Commons, Public Domain)



I Island of dreams midmost the sea
around the the hueys float and flow!
treasure of glory lay in thee
from thy closed fastness came to me
one of the winds that blow
laden with spice from groves afar Arabby,
and bringest round the sinking argosy
fraught with choice perils to strew the sands below

II Shall a soul sink midmost the sea
where the purest pearls float and glow?
Is there no call of hope from thee?
hast thou no voice to cry to me?
Oh tottering to thy fall
River gift I was given thee
Land in thy mystic argosy
laden with gems the bright gleaming through the sea

III There came a voice to me midmost the sea
that whispered "who said Death is slain?
"Shall the mute goddess age
and triumph over three and thee?"
"aye dear thy doubt was
"Listen to God says one,
"Shall thou possess a home
"enough without death for thee?
"Consider — are no mansions in the sea?"

IV Ay, chill and drear below
and thy young heart aglow —
how shall dull darkness blend with aught of thee?
thy life is but a star
that falleth from afar,
and sinks forlorn and lifeless in the sea

FIGURE 14.3 Original poetry, such as this mirror-writing poem by Caroline Fitzgerald, is an example of a primary source. Manuscripts, journals, and diaries are primary sources. (credit: "Caroline Fitzgerald poem in mirror writing flipped" by Caroline Fitzgerald (1865–1911)/Wikimedia Commons, Public Domain)

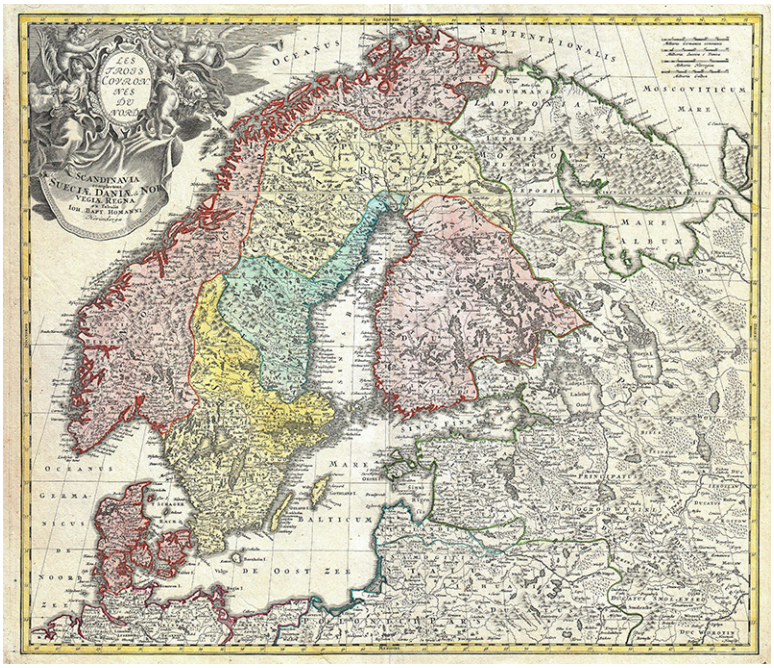


FIGURE 14.4 This map of Scandinavia from 1730 is an example of a primary source. (credit: "1730 Homann Map of Scandinavia, Norway, Sweden, Denmark, Finland and the Baltics - Geographicus – Scandinavia" by Johann Homann (1664–1724)/Wikimedia Commons, Public Domain)

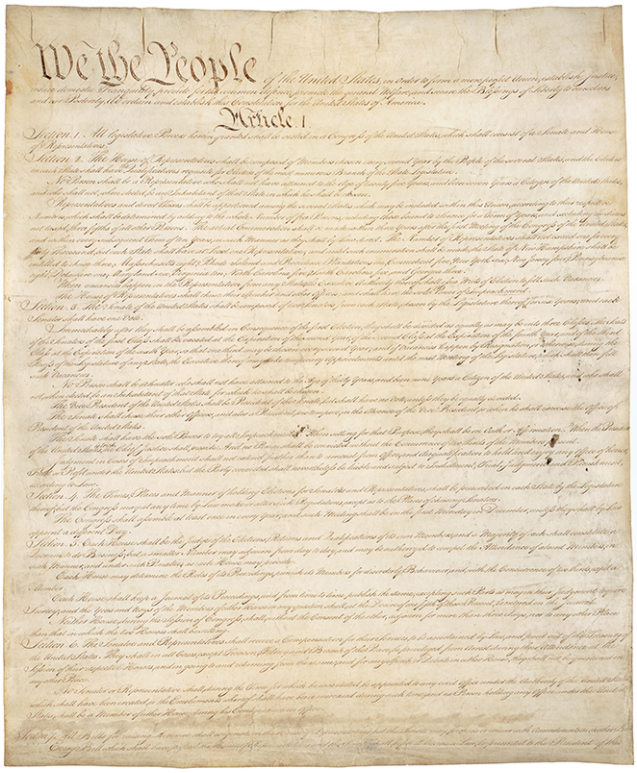


FIGURE 14.5 Government documents, such as the United States Constitution, are primary sources. (credit: "Constitution of the United States, page 1" by U.S. National Archives and Records Administration/Wikimedia Commons, Public Domain)

Secondary Sources

Secondary sources, unlike primary sources, are interpretive. They often provide a secondhand account of an

event or research results, analyze or clarify primary sources and scientific discoveries, or interpret a creative work. These sources are important for supporting or challenging your argument, addressing counterarguments, and synthesizing ideas. Secondary sources in the humanities disciplines include biographies, literary criticism, and reviews of the fine arts, among other sources. In the scientific disciplines, secondary sources encompass analyses of scientific studies or clinical trials, reviews of experimental results, and publications about the significance of studies or experiments. In some instances, the same item can serve as both a primary and a secondary source, depending on how it is used. For example, a journal article in which the author analyzes the impact of a clinical trial would serve as a secondary source. But if you instead count the number of journal articles that feature reports on a particular clinical trial, you might use them as primary sources because they would then serve as data points.

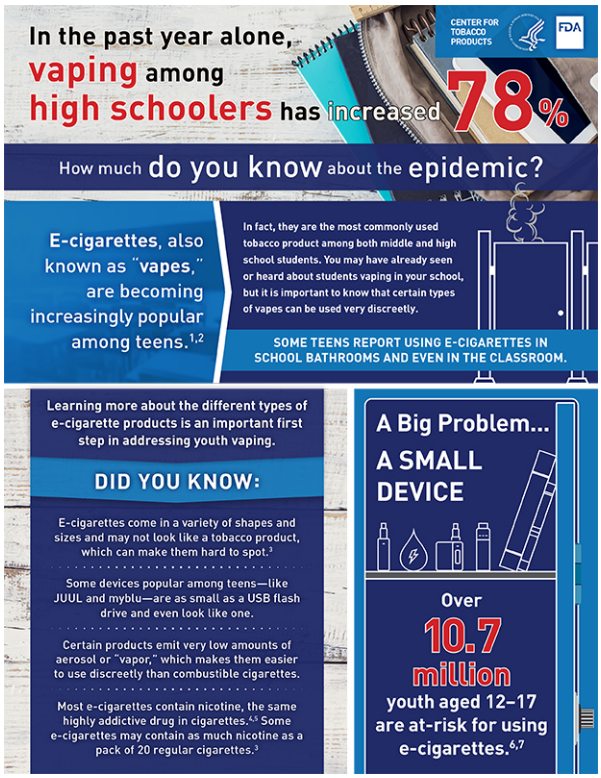


FIGURE 14.6 Infographics are secondary sources that combine text and graphics to summarize information about a topic. (credit: "Youth Vaping Risks" by nhs.gov/Wikimedia Commons, Public Domain)

Table 14.1 provides examples of how primary and secondary sources often relate to one another.

Discipline	Primary Source Example	Secondary Source Example
Literature	Wilfred Owen's poem "Dulce et Decorum est"	Essay analyzing World War I poetry
Psychology	Raw data from a study testing the effects of a medication on bipolar disorder	Book evaluating different approaches to treating bipolar disorder in patients
Politics and Government	Transcript of John F. Kennedy's inauguration speech	Website analyzing the themes present in John F. Kennedy's inauguration speech
History	Diary of a soldier who fought in the Civil War	Textbook entry about the battles of the Civil War

TABLE 14.1 Primary and secondary sources

Discipline	Primary Source Example	Secondary Source Example
Fine Art	Native American pottery	Newspaper article about the importance of honoring Native American art
Performing Arts	Recording of a live concert	Critical review of a concert published in a magazine

TABLE 14.1 Primary and secondary sources

Tertiary Sources

In addition to primary and secondary sources, you can use a tertiary source to summarize or digest information from primary and/or secondary sources. Because tertiary sources often condense information, they usually do not provide enough information on their own to support claims. However, they often contain a variety of citations that can help you identify and locate valuable primary and secondary sources. Researchers often use tertiary sources to find general, historical, or background information as well as a broad overview of a topic. Tertiary sources frequently placed in the secondary-source category include reference materials such as encyclopedias, textbooks, manuals, digests, and bibliographies. For more discussion on sources, see The Research Process: Where to Look for Existing Sources.



FIGURE 14.7 Textbooks are examples of tertiary sources. (credit: "Programming language textbooks" by User:K.lee/Wikimedia Commons, Public Domain)

Authoritative Sources

Not all sources are created equally. You likely know already that you must vet sources—especially those you find on the Internet—for legitimacy, validity, and the presence of bias. For example, you probably know that the website Wikipedia is not considered a trustworthy source because it is open to user editing. This accessibility means the site's authority cannot be established and, therefore, the source cannot effectively support or refute a claim you are attempting to make, though you can use it at times to point you to reliable sources. While so-called bad sources may be easy to spot, researchers may have more difficulty discriminating between sources that are authoritative and those that pose concerns. In fact, you may encounter a general hierarchy of sources in your compilation. Understanding this hierarchy can help you identify which sources to use and how to use them in your research.

Peer-Reviewed Academic Publications

This first tier of sources—the gold standard of research—includes academic literature, which consists of textbooks, essays, journals, articles, reports, and scholarly books. As scholarly works, these sources usually provide strong evidence for an author's claims by reflecting rigorous research and scrutiny by experts in the field. These types of sources are most often published, sponsored, or supported by academic institutions, often a university or an academic association such as the Modern Language Association (MLA). Such associations exist to encourage research and collaboration within their discipline, mostly through publications and conferences. To be published, academic works must pass through a rigorous process called **peer review**, in which scholars in the field evaluate it anonymously. You can find peer-reviewed academic sources in library catalogs, in article databases, and through Google Scholar online. Sometimes these sources require a subscription to access, but students often receive access through their school.

Academic articles, particularly in the social and other sciences, generally have most or all of the following sections, a structure you might recognize if you have written lab reports in science classes:

- **Abstract**. This short summary covers the purpose, methods, and findings of the paper. It may discuss briefly the implications or significance of the research.
- **Introduction**. The main part of the paper begins with an introduction that presents the issue or main idea addressed by the research, establishes its importance, and poses the author's thesis.
- **Review**. Next comes an overview of previous academic research related to the topic, including a synthesis that makes a case for why the research is important and necessary.
- **Data** and **Methods**. The main part of the original research begins with a description of the data and methods used, including what data or information the author collected and how the author used it.
- **Results**. Data and methods are followed by results, detailing the significant findings from the experiment or research.
- **Conclusion**. In the conclusion, the author discusses the results in the context of the bigger picture, explaining the author's position on how these results relate to the earlier review of literature and their significance in the broad scope of the topic. The author also may propose future research needs or point out unanswered questions.
- **Works Cited or References**. The paper ends with a list of all sources the author used in the research, including the review of literature. This often-overlooked portion of the composition is critical in evaluating the credibility of any paper that involves research.



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REVIEW ARTICLE
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The perception of odor objects in everyday life: a review on the processing of odor mixtures

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Smelling monomolecular odors hardly ever occurs in everyday life, and the daily functioning of the sense of smell relies primarily on the processing of complex mixtures of volatiles that are present in the environment (e.g., emanating from food or conspecifics). Such processing allows for the instantaneous recognition and categorization of smells and also for the discrimination of odors among others to extract relevant information and to adapt efficiently in different contexts. The neurophysiological mechanisms underpinning this highly efficient analysis of complex mixtures of odorants is beginning to be unraveled and support the idea that olfaction, as vision and audition, relies on odor-objects encoding. This configural processing of odor mixtures, which is empirically subject to important applications in our societies (e.g., the art of perfumers, flavorists, and wine makers), has been scientifically studied only during the last decades. This processing depends on many individual factors, among which are the developmental stage, lifestyle, physiological and mood state, and cognitive skills; this processing also presents striking similarities between species. The present review gathers the recent findings, as observed in animals, healthy subjects, and/or individuals with affective disorders, supporting the perception of complex odor stimuli as odor objects. It also discusses peripheral to central processing, and cognitive and behavioral significance. Finally, this review highlights that the study of odor mixtures is an original window allowing for the investigation of daily olfaction and emphasizes the need for knowledge about the underlying biological processes, which appear to be crucial for our representation and adaptation to the chemical environment.

Keywords: odor mixture, perception, interactions, configural, elemental, animal behavior, human applications

INTRODUCTION

The way human beings map their environment as a brain representation is a cornerstone to the interactions they can develop with their surroundings and thus determines their fitness to the world they live in. This representation is built on the basis of sensory cues provided by sensory organs and gathered in the brain. The environment is particularly rich in volatile chemical compounds emitted from a large variety of natural and unnatural sources (e.g., plants, food, conspecifics, organisms, perfumes, human activities). The olfactory system must compute this mixture of volatiles, all day long at a certain distance from the sources and in a timescale reconcilable with fast but relevant behaviors. This is the challenge of the sense of smell, which has to extract relevant information from highly complex chemical mixtures. For humans and other organisms, the success of this computation is a prerequisite to a reliable mental representation of the olfactory environment, which is essential for maximizing adapted behaviors throughout life. Conversely, impaired olfactory processing may affect health and/or well-being and can even lead to death in certain species.

Efficient processing of odorants mixtures should allow for not only the instantaneous recognition and categorization of smells but also the discrimination of odors among others (e.g., background). The different ways in which the olfactory system processes an odor mixture relative to its components contributes to this discrimination. Nevertheless, though olfaction has been the subject of numerous studies, most of them used so-called "monomolecular odors" (i.e., they were based on single odorants as stimuli). As a consequence, the psychophysiological and neurobiological mechanisms that govern the perception of complex odor stimuli, namely the daily functioning of the sense of smell, remain poorly understood. In this context, the present review aims to depict the current knowledge on the perception of odor mixtures. The main guideline of this review is to gather and discuss the results of very recent as well as major studies on the processing of odor mixtures whatever they focused on cellular, neurobiological, behavioral or psychological aspects, and to take into consideration studies conducted both in humans and animals. Considering that olfactory neuroanatomy is remarkably conserved among animals (Ache and Young, 2005), we especially took advantage of studies in non-human species to highlight the ongoing research on the mechanisms of peripheral and central processing specific to complex odor stimuli. Then we discuss the implications of these mechanisms in relation to the perception

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FIGURE 14.8 Articles from peer-reviewed academic journals such as this one are among the most credible sources you can use. (credit: "The perception of odor objects in everyday life a review on the processing of odor mixtures" by Thierry Thomas-Danguin, Charlotte Sinding, et al./Wikimedia Commons, CC BY 3.0)

Credible Nonacademic Sources

These sources, including articles, books, and reports, are second in authority only to peer-reviewed academic publications. Credible nonacademic sources are often about current events or discoveries not yet reviewed in academic circles and often provide a wider-ranging outlook on your topic. Peer-reviewed texts tend to be narrow and specific, whereas nonacademic texts from well-researched sources are often more accessible and can offer a broader perspective. These three major categories generally provide quality sources:

- Information, white papers, and reports from government and international agencies such as the United Nations, the World Health Organization, and the United States government
- Longer articles and reports from major newspapers, broadcast media, and magazines that are well regarded in academic circles, including the *New York Times*, the *Wall Street Journal*, the BBC, and the *Economist*
- Nonacademic books written by authors with expertise and credentials, who support their ideas with well-sourced information

To find nonacademic sources, search for .gov or .org sites related to your topic. A word of caution, however: know that sources ending in .org are often advocacy sites and, consequently, inherently biased toward whatever cause they are advocating. You also can look at academic article databases and search articles from major newspapers and magazines, both of which can be found online.

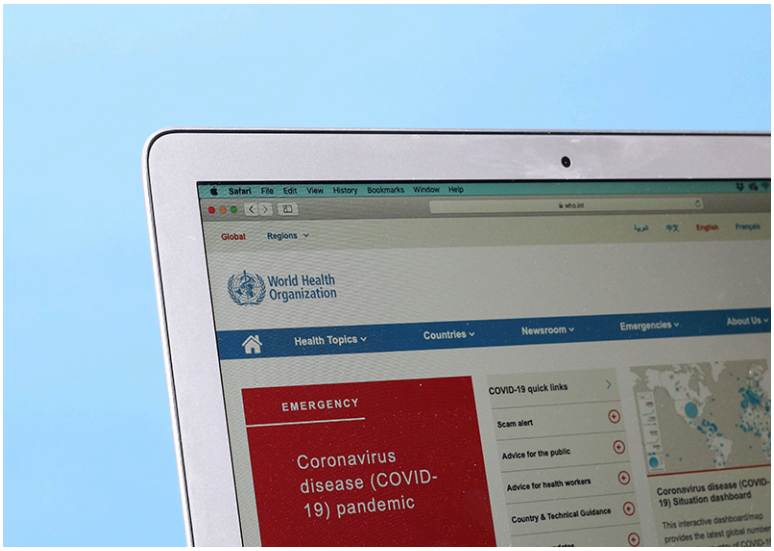


FIGURE 14.9 Information from credible sources, such as the World Health Organization, provides value to your research. (credit: "WHO World Health Organization on Coronavirus pandemic COVID-19" by https://www.nursetogether.com/Wikimedia Commons, CC BY 4.0)

Short Informational Texts from Credible Websites and Periodicals

The next most authoritative sources are shorter newspaper articles or other pieces on credible websites. These articles tend to be limited in scope, as their authors report on a single issue or event. Although they do not often provide in-depth analysis, they can be a source of credible facts to support your argument. Alternatively, they can point you in the direction of more detailed or rigorous sources that will enhance your research by tracing the original texts or sources on which the articles are based. Usually, you can find these sources through Internet searches, but sometimes you may have difficulty determining their credibility.

Judging Credibility

To judge credibility, begin by looking for the author or organization publishing the information. Most periodical compositions contain a short "About the Author" blurb at the beginning or end of the article and often include a link to the author's credentials or to more information about them. Using this information, you can begin to determine their expertise and, potentially, any agenda the author or organization may have. For example, expect a piece discussing side effects of medical marijuana written by a doctor to present more expertise than the same piece written by a political lobbyist. You also can determine whether bias is present; for example, the organization may promote a particular way of thinking or have an agenda that will influence the content and language of the composition. In general, look for articles written with neutral expertise.

The CRAAP Test

You may find the CRAAP test a helpful and easy-to-remember tool for testing credibility. This checklist provides you with a method for evaluating any source for both reliability and credibility. CRAAP stands for Currency, Relevance, Authority, Accuracy, and Purpose. The CRAAP test, as shown in Table 14.2, includes questions that can be asked of any source.

Currency	When was the information published, revised, or updated? Does your topic require current information? Are links within the source current?
Relevance	Does the information relate to your topic or support your thesis? Who is the intended audience of the source? What is the purpose of the source?
Authority	Who is the publisher, sponsor, or source? What are the author's credentials and/or qualifications? Does the URL reveal anything about the source?
Accuracy	Where does the information come from? What evidence is used to support the information, and can it be verified? Are there elements of bias? Has the information been reviewed?
Purpose	What is the author's purpose for creating the source? Is the information based on facts, opinion, or propaganda? What biases are present? Are biases recognized?

TABLE 14.2 CRAAP test questions

Sources with Clear Bias or Unclear Authority

The final type of source encompasses nearly everything else. Although they cannot be considered credible or valid to support your argument or claims, these sources are not necessarily useless. Especially when you are compiling sources at the beginning of a project, those with clear bias or unclear authority can be useful as you explore all facets of a topic, including positions within an argument. These sources also can help you identify topics on which to base your search terms and can even point you toward more credible sources.



FIGURE 14.10 Websites and periodicals with clear bias or without clear authority may be useful in pointing you in the direction of more credible sources. (credit: skylarvision/Pixabay, CC0 1.0)

Locating Sources

Academic article databases are the best starting places for finding sources. There are too many databases to cover them all in this chapter, but you would be wise to familiarize yourself with those to which you have access through your school or program. For further information on databases, see The Research Process: Where to Look for Existing Sources. In the long run, this knowledge will save you a good deal of time and a possible headache.

You will want to start with your college library website, which includes access to sources paid for by your institution. As a student, you should be able to access these quickly and easily. Another popular and wide-ranging database is Google Scholar (https://openstax.org/r/Google_Scholar). Google Scholar is helpful for finding sources across a wide range of topics. One drawback, however, is that it catalogues nearly all disciplines, so the results can be vast and unfocused. Therefore, when using Google Scholar, be as specific as possible, and add your academic discipline as a keyword. For example, when searching for information on climate change, add the keyword "environment" or "politics" depending on your research angle; otherwise, the results will include all disciplines and potentially bury the articles you seek. Google Scholar also has a feature labeled "Cited by," which shows you other papers that cite the article in their review of literature relate to the topic. Writing Process: Informing and Analyzing contains more information about focusing your searches. Like clues to a mystery, one search can lead you to a wealth of related articles.

When you are able to identify potential sources by reading their abstracts or using Google Scholar, you may at times land on a publisher's website that requires you to pay to read the full article. When you find yourself in a situation such as this, record information about the article—author(s), article title, journal title, publication date. It is likely that you will be able to use your school's database to access the article. For information about other databases, consult The Research Process: Where to Look for Existing Sources.

Just as writing is **recursive**, requiring you to go back and forth between different stages of the process, you will likely return to your annotated bibliography at different points. You may begin by looking for sources related to your topic, or you may choose or narrow your topic after an initial database search for sources. If your project has a variety of possible topics, you may even start with a current issue of a leading journal in the field, find an article that interests you, and use that article to shape your topic selection. As a bonus, you will have your first reputable source. Later, as you refine your thesis, reasoning, and evidence, you may find yourself returning to your search for sources. Consider this hypothetical situation: You are developing an argument that examines the risk factors of childhood trauma that surface in later life. As you analyze the data from your sources, it occurs to you to find out whether any documented correlation exists between early trauma and resilience. So you return to Google Scholar and your university's academic database to find more research based on this idea in order to revise your analysis by adding the new viewpoint.

One difficulty may be homing in on the keywords that will lead you to the sources you need. At this point, sources from the last two categories discussed may come into play: short pieces from credible websites and newspapers and other texts with clear bias or unclear authority. Less credible sources may lead you to better ones, particularly if you can identify the keywords used in them and then apply those keywords within academic databases. For more on developing useful keywords, consult The Research Process: Where to Look for Existing Sources.

Boolean Operators

Keyword searches can become frustrating, either yielding so much information that it seems impossible to sort through or narrowing the search so much that you miss important potential sources. One way to remedy this situation is to become familiar with **Boolean operators**, the basis of mathematical sets and database logic. Rather than searching with natural language only, you can use these operators to focus your search. The three basic Boolean operators are **AND**, **OR**, and **NOT**. Using these operators helps you search by linking necessary information, excluding irrelevant information, and focusing information. For example, if you have some pieces

of information from tertiary sources, you may be able to use Boolean operators to find additional useful sources. A search string such as *artificial intelligence (title) AND Buiten (author) AND 2019 (year)* can yield the exact journal source you need. Here is a brief review of how to use the three operators:

- Use **AND** to narrow search results and tell the database to include *all* search terms in finding sources. If you want to find sources that include all of the search terms entered, use the AND operator. In Figure 14.11, the darkest blue triangular section in the center of the Venn diagram represents the result set for this search, including all three terms. In many databases, including Google, AND is implied between each word. To exclude AND, use quotation marks. For example, Google would translate the search term *ethics artificial intelligence* as *ethics AND artificial AND intelligence*. To make your phrases more specific, use the AND operator combined with quotation marks: *"ethics" AND "artificial intelligence"*.

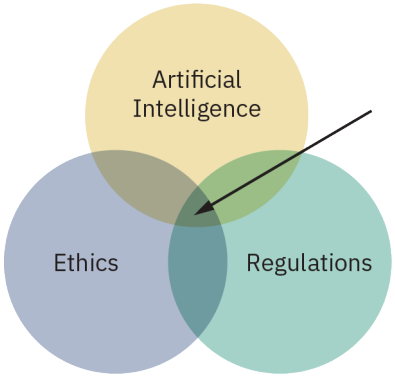


FIGURE 14.11 Search results for AND (attribution: Copyright Rice University, OpenStax, under CC BY NC-SA 4.0 license)

- Use **OR** to connect two or more similar concepts and broaden your results, telling the search engine that any of your search terms can appear in the results it gives you. The Boolean operator OR is represented by Figure 14.12. Using the OR operator gives you a very large set of results.

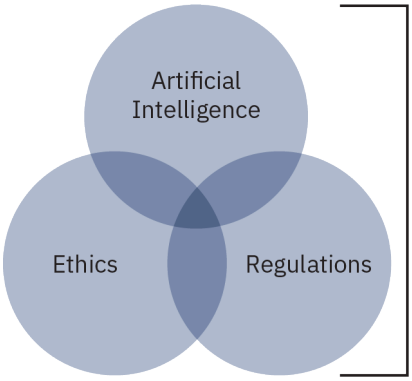


FIGURE 14.12 Search results for OR (attribution: Copyright Rice University, OpenStax, under CC BY NC-SA 4.0 license)

- Use **NOT** to exclude results from a search. This operator can help you narrow your search, telling the search engine to ignore names or words you do not want included in your results. For example, if you know you don't want self-driving cars in your search results, you might search for *"artificial intelligence" NOT "self-driving cars"*.

Choosing Sources

Choosing sources to include in your annotated bibliography may seem overwhelming. However, if you can find a few good academic articles as a starting point, use them to guide your research. Academic articles are efficient, scrutinized by experts in their fields, and organized in ways that aid readers in identifying key

findings that relate to their argument. The following tips will help you choose solid sources to guide your research:

- **Look for relevant scholarly articles.** Even the briefest Google search can yield an overwhelming amount of content. Sift through it by looking first through academic databases to find high-quality sources relevant to your research.
- **Read abstracts.** As you sift through scholarly articles, you can get a good idea of what each one is about by reading the abstract. It includes the findings and will show you in about 100 words whether the paper holds relevance to your research.
- **Skim.** Once you have determined that an article may be useful, skim each section to glean the information you need. Closer and more extensive reading can come later as you develop and support your argument.
- **Avoid getting bogged down** in technical information or industry-specific jargon. The benefit of reading peer-reviewed research is that you know the reviewers have determined it to be solidly constructed. Therefore, even if you don't understand some portions completely, you can still feel confident about using relevant information from the article.
- **Work smarter** by using the research provided. Once you have identified an article that is helpful to your research, use it to find more like it. Search for other publications by the authors; researchers often spend much of their careers researching one overarching topic or theme. Use the review of literature to identify related articles that may add to your research. You can also use the article's bibliography to find additional sources. Or reverse engineer the process: use article databases to find other articles that cite the article in their literature reviews.

14.2 Glance at Form: Citation Style, Purpose, and Formatting

LEARNING OUTCOMES

By the end of this section, you will be able to:

- Successfully apply citation conventions to your writing, understanding the ideas of intellectual property that motivate their use.
- Compose texts that integrate the writer's ideas with ideas from related sources.

Citation Styles

Academic writing encompasses a variety of citation styles. Depending on the type of source, most of these styles include varieties of similar information: author's name, title of work, publisher, location of publishing company, journal, website link, and sometimes the DOI (digital object identifier). The citation style you choose often will coincide with the academic discipline involved. Major citation styles include the following:

- **American Psychological Association (APA)**: Often used in education, psychology, and science fields
- **Modern Language Association (MLA)**: Often used in humanities fields
- **Chicago** or **Turabian Style**: Often used in business, history, and fine arts fields

Your instructor most often will assign a particular style for students to use. In this book, for example, the primary focus is on MLA Documentation and Format, although APA Documentation and Style is covered as well.

You can also visit the official MLA Style Center (https://openstax.org/r/MLA_Style). Another excellent and comprehensive source on citation format is Purdue University's Online Writing Lab (https://openstax.org/r/Purdue_University) (OWL). A citation in MLA format of a website with no listed author name would look like the following example:

"Food Preparation Workers." *Occupational Outlook Handbook*, U.S. Bureau of Labor Statistics, 1 Sept. 2020, www.bls.gov/ooh/food-preparation-and-serving/food-preparation-workers.htm.

Annotated Citations

An annotated bibliography goes further than the citation entry. Beginning with the formal citation as shown above, it continues with information about the text, discussing the work's author(s), authority, and impact on or usefulness to the research project. Most annotated bibliographies also present a short critical analysis of the source. Annotations are written in paragraph form. Depending on the purpose of your project and the instructions given, your annotations may range from relatively simple summaries to thorough analyses of your sources and how you will use them. Typically, you will provide this information in one or two paragraphs of around 100 to 200 words total.

Look at the following sample annotation, which is two paragraphs long and consists of just over 150 words. It not only establishes the credibility of the publisher of the website, in this case a United States government organization, but also summarizes the conclusions of the source, including an analysis of future projections for this and similar occupations. It also reflects on how the source contributes to the research and how it helps shape the argument proposed in the research project.

"Food Preparation Workers." *Occupational Outlook Handbook*, U.S. Bureau of Labor Statistics, 1 Sept. 2020, www.bls.gov/ooh/food-preparation-and-serving/food-preparation-workers.htm.

> Authority: This web page is produced by the Bureau of Labor Statistics, part of the United States Department of Labor. This agency collects and disseminates the latest economic and employment data, including figures on employment and wages. The report provides information such as education needed, median pay, most recent data regarding number of jobs, and employment outlook for the next 10 years.

> The web page concludes that the occupational outlook of this profession is declining slightly, with an anticipated 1 percent decline in employment over the 10 years following the publication date, largely as a result of folding food preparation into the duties of counter workers. However, it also projects that employment in the combined occupations of cooks and food preparation workers will increase 7 percent over the same period of time. This source supports the project's claim that technical education in food services provides beneficial training that leads to employment and helps shape the argument for better funding for technical schools.

Annotated bibliographies are usually ordered alphabetically by the first word in the citation, often the author's last name. In very long lists of citations, you may choose to organize entries by topic, arranging sources into groups that address the topic from similar perspectives or focuses. The entirety of the annotation should be indented. Only the beginning of the source citation, typically the author's last name, is left-aligned. Your paragraphs should be objective, offering comment and criticism based on the reliability, validity, and bias present rather than on your agreement or disagreement with the ideas. Although you can state opinions, do so in the context of the larger project, and provide explanations.

Functions of an Annotated Bibliography

The function of an annotated bibliography can vary according to the purpose of the writing and the stage at which it is completed. These functions often include

- providing a review of literature for research related to a argument;
- formulating a thesis, particularly if you compile the annotated bibliography at the beginning of the writing process;
- demonstrating the amount and quality of your research on a subject or topic;
- providing examples of sources of information available on a topic; and
- supplying items and publications of interest to readers or other researchers.

Parts of an Annotated Bibliography

An annotated bibliography allows readers to determine the scope and credibility of the sources you have used in your research. Each annotation goes beyond a summary of the source, providing information that helps

readers determine whether to read the entire work. In other words, if someone else were researching the same or a similar topic, your annotations would help them decide whether the sources would be useful and why. Occasionally, confusion may arise about the function and purpose of abstracts versus annotations. As defined, an **abstract** is a purely descriptive summary, typically found at the very beginning of a journal article or in a periodical index. Abstracts are usually short, intended to provide readers with a concise understanding of a paper's basic content, research, and findings. Although **annotations** also can be descriptive, informative, and similarly brief, they are usually evaluative and critical.

A useful and thorough annotation contains three basic parts:

- A **summary** of the source, detailing the topic(s), major arguments and claims, and main ideas discussed.
- An **evaluation** of the source's usefulness to your argument, its validity, its reliability, and any bias present. When you evaluate sources, you discuss the authors and their credentials, any agendas present, and the sources' goals.
- A **reflection** on how the source fits into the puzzle of your research project. You will examine how it shapes your argument and influences your thinking about the topic.

Create an Annotation

With these guidelines and information in mind, you can create an annotation. First, write a summary of typically no more than one or two sentences. Include the name of the author of the work, when and where it was written, and a general description of the content. Here you will need to **paraphrase**, or explain the essential information of the text in your own words. The rest of the annotation is an analysis of the source and a reflection on how you will use it. The evaluation assesses the source's quality and relevance to your topic. Although you often complete an annotated bibliography at the culmination of a work, the analytic nature of the annotated bibliography means that working on it as part of the prewriting process can help you shape your ideas, learn more about your topic, write a thesis, and determine which sources to use while formulating your argument.

Using Sources in Academic Conversation

Academic writing, particularly an assignment in which you create an **argument**—a persuasive text using one or more appeals—to support a claim to support a claim through reasoning and evidence, is somewhat like joining a conversation, as mentioned in the introduction to this chapter. You contribute your own ideas to an issue, support your claim by citing other sources on the topic, refute counterclaims, and create meaningful rhetorical appeals. With these contributions, you add your writing to the database of knowledge and opinion regarding that topic. See Glance at Genre: Introducing Research as Evidence for a more detailed discussion of authors in conversation. As you think about creating your annotated bibliography, keep this conversation in mind.

One way to use sources is to find those that agree with your position and perhaps even those that argue the point in a similar way. While using sources like these isn't necessarily a problem, creating a rhetorical argument is more than simply repeating existing research, no matter how solid or well-regarded it may be. Therefore, try to expand your compilation to include sources that not only provide strong evidence for your claim but also challenge, extend, or focus on a narrow part of your argument. Joining the conversation may mean explaining how your ideas differ from those presented by another author, or it may involve synthesizing the ideas of multiple sources.

You can join the conversation in several ways without simply restating the words of a source. One option is to combine arguments or research findings from associated source ideas in order to create a summary claim or statement. It may be that none of your sources individually point to a result, but connecting some of them may lead you to a broad conclusion. A second option builds on the first, but rather than summarize to draw a conclusion, you would synthesize to make a claim about the consequences or implications of the sources. A third option is to identify and develop areas of agreement or disagreement between sources and between your

own claims and the sources you examine. Finally, you may find areas for further study, including unanswered questions raised by the research you analyze.

Key Terms

These are key terms and characteristics of annotated bibliographies.

- **Agenda**: Underlying intentions or motivations of a person or group.
- **Analysis**: Detailed examination of a complex topic, often looking at individual parts, to interpret meanings, themes, and author choices.
- **Annotations**: A note of explanation or comment. Annotations are both descriptive and critical, adding clarity and insight beyond a straightforward summary.
- **bias**: Predisposition, inclination, or prejudice toward or against something.
- **Bibliography**. A list of sources and basic information about them, including author, title, publisher, and publication date.
- **Boolean operators**: The words AND, OR, and NOT used as conjunctions between search terms to combine or exclude keywords in an online database search. Boolean operators help narrow searches.
- **Citation**: A set of information referencing a single source of information used in a writer's research.
- **Format**: The way in which a composition is arranged or organized. In a bibliography, *format* is the way in which the bibliographical information is presented.
- **Paraphrase**: A restatement, usually for clarity, of a written or spoken text.
- **Peer-reviewed source**: An article or other informational work written by an expert and reviewed anonymously by other experts in the field to ensure the work's overall quality, including its validity.
- **primary sources**: An immediate, firsthand account of a topic or an event from someone connected to it. Original research, including interviews, experiments, surveys, and field observations, is considered a primary source.
- **rigorous**: Exhaustive, thorough, accurate.
- **secondary sources**. A secondhand account of an event or topic, often providing analysis or interpretation.
- **Style**: A set of rules for citing sources in academic writing.
- **Summary**: A brief statement covering the main ideas of an event or written composition.
- **Synthesis**: The combination of ideas to form new conclusions.
- **tertiary sources**: A summary or digest of primary or secondary sources.
- **Thesis**: **A** statement that identifies a topic and the author's claim, or angle, about that topic.

14.3 Annotated Student Sample: "Healthy Diets from Sustainable Sources Can Save the Earth" by Lily Tran

LEARNING OUTCOMES

By the end of this section, you will be able to:

- Explain the purpose, language, culture, and expectations of different genres of composition.
- Analyze relationships between ideas and organizational patterns.
- Evaluate research materials for credibility, sufficiency, accuracy, timeliness, and bias.

Introduction

In this section, you will read a sample annotated bibliography based on the Annotated Student Sample to help you create your own annotated bibliography. As you read, remember that annotations summarize, assess, and evaluate a source, specifically regarding its function in the project for which it is used. Note the purpose of the annotations in this bibliography and how much information the author includes for readers.

LIVING BY THEIR OWN WORDS

Annotated Bibliography

Berners-Lee, M., et al. "Current Global Food Production Is Sufficient to Meet Human Nutritional Needs in 2050 Provided There Is Radical Societal Adaptation." *Elementa: Science of the Anthropocene*, vol. 6, 2018, online.ucpress.edu/elementa/article/doi/10.1525/elementa.310/112838/Current-global-food-production-is-sufficient-to. Accessed 7 Dec. 2020.

Format. *Notice that only the author's name is left-aligned. All other text, including the annotation, is indented. The citation includes all relevant information in MLA format. Et al. means "and others." M. Berners-Lee is the principal author.*

> M. Berners-Lee and the other authors of this article—C. Kennelly, R. Watson, and C. N. Hewitt—all are associated with Lancaster [UK] University. In this article, they present a quantitative analysis of global and regional food supply, following the flow of calories, protein, and selected micronutrients from production to human consumption. Clear tables and figures accompany the text. A reference list of 55 books, scholarly articles, and official reports provides sources for additional information.

> Of particular value is that the paper first analyzes current policies and practices in food production, then offers projections for two scenarios. One scenario assumes that current policies and practices continue unchanged. The other explains what policies and practices need to be implemented to supply a healthy diet globally in 2050. This information makes it possible to describe what success looks like and also what failure looks like.

Authority. *This annotation includes two paragraphs. In the first, Lily Tran discusses the credibility of the authors, noting their research and association with a British university. Tran also emphasizes the data provided and comments on the breadth of references listed.*

Evaluation. *The second paragraph is an evaluation of the source's applicability to the topic of the research paper. Notice that Tran specifically explains its potential use: the scenarios given allow readers to understand success and failure as related to healthy diets from sustainable resources.*

Chai, Bingli Clark, et al. "Which Diet Has the Least Environmental Impact on Our Planet? A Systematic Review of Vegan, Vegetarian and Omnivorous Diets." *Sustainability*, vol. 11, no. 15, 2019, www.mdpi.com/2071-1050/11/15/4110. Accessed 6 Dec. 2020.

> Bingli Clark Chai and secondary authors Johannes Reidar van der Voort, Kristina Grofelnik, Helga Gudny Eliasdottir, Ines Klöss, and Federico J. A. Perez-Cueto are associated with the Design and Consumer Behaviour Section, Department of Food Science, Faculty of Science, University of Copenhagen, Denmark. They present a systematic review of the environmental impacts of human diets, based on 16 published studies and 18 published reviews. Most of the studies were done in the United States or Europe, and they ranged in duration from seven days to 27 years. Separate tables compare the design, intervention, duration, diets, quality assessment, and main outcomes of the studies, as well as the diets, quality assessment, and main outcomes of the reviews. In addition to the studies and reviews analyzed, the reference cites additional journal articles for further information.

> This is a secondary source in that it evaluates published work rather than presenting original research. Its value lies in the compilation, comparison, and summation of information from a variety of credible sources.

Evaluation. *Tran summarizes the credibility of the source by noting the authors' academic association and explaining that the source is actually a compilation of study research.*

Reflection. *Tran notes the source's usefulness as a secondary source whose authors compile, compare, and summarize research valuable to the paper's argument. Notice, however, that she does not analyze the impact of the*

source on her argument.

> Lusk, Jayson L., and F. Bailey Norwood. "Some Economic Benefits and Costs of Vegetarianism." *Agricultural and Resource Economics Review*, vol. 38, no. 2, 2009, pp. 109–124, www.cambridge.org/core/journals/agricultural-and-resource-economics-review/article/abs/some-economic-benefits-and-costs-of-vegetarianism/1C2CB85022A54F27504A7DA65576C5C4.

> Jayson L. Lusk is a distinguished professor and department head of the Department of Agricultural Economics at Purdue University, and F. Bailey Norwood is an associate professor in the Department of Agricultural Economics at Oklahoma State University. They report the findings of a detailed cost-benefit analysis examining production costs and nutrient content of corn, soybeans, wheat, peanuts, hogs, cattle, chickens, and milk to determine cost per nutrient produced at the farm level and the retail level. The discussion includes the monetary value consumers place on these foods, based on price and demand. The text is supplemented by tables of data plus details of calculations.

Summary. *This annotation provides a robust summary of the article's content.*

> This approach is valuable because of its transparency as to methods and the detailed calculations shown. Unfortunately, the numbers are dated; the article was published in 2009. However, because of the specificity of the presentation, it is possible to extrapolate trends that would be applicable today.

Evaluation. *Tran points out a flaw in the data—namely, that it is old. However, she explains how she might use it anyway through analysis. Other than this short explanation of the potential to extrapolate trends, Tran does not reflect on how she could use the source in other ways.*

> Schulz, Lee. "Would a Sudden Loss of the Meat and Dairy Industry, and All the Ripple Effects, Destroy the Economy?" *Department of Economics*, Iowa State U, www.econ.iastate.edu/node/691. Accessed 6 Dec. 2020.

> Schulz is an associate professor in the Department of Economics at Iowa State University. In response to a question about the effects of removing livestock-related industries from the United States, he cites statistics on the contributions these industries make to the economy, both domestically and globally. No references are provided, but the author's contact information is given for further questions.

> Although this article is less scholarly than other sources cited here, it is included to show a viewpoint that differs from the general pro-vegetarian stance of most sources.

Evaluation and Reflection. *Noting that this source is less scholarly and provides fewer citations than others, Tran nevertheless considers it important for presenting a different viewpoint from the other sources collected. Although she does not explicitly explain the impact of the viewpoint on the argument, readers can assume she will address this influence in her argument paper.*

> Willett, Walter, et al. "Food in the Anthropocene: The EAT–*Lancet* Commission on Healthy Diets from Sustainable Food Systems." *Lancet*, vol. 393, no. 10170, 2019, pp. 447–492, www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)31788-4/fulltext.

> The EAT–*Lancet* Commission on Healthy Diets from Sustainable Food Systems is composed of physicians and researchers from Germany, Sweden, Norway, England, Switzerland, Lebanon, Mexico, Netherlands, Zimbabwe, Australia, Indonesia, Italy, India, Pakistan, and the United States. Lead author Walter Willett, MD, is affiliated with Harvard University's T. H. Chan School of Public Health, Harvard Medical School, and the Brigham and Women's Hospital, Boston, MA. The commission report quantitatively describes a universal healthy reference diet with the goals of alleviating hunger and increasing nutrition, saving water, minimizing agricultural land use, and reducing the effects of climate change. This in-depth study cites 357 professional references available for further information.

Summary. *In this annotation, Tran provides a summary listing the key ideas.*

Authority and Evaluation. *Tran lists the lead author's credentials and establishes the authority of the commission sponsoring the report, showing the breadth of research involved.*

> Directly related to the topic at hand, this is a major source because of its global scope, thorough treatment, and realistic assessment of the current situation and future challenges. This will be the most important source for this paper.

Reflection. *Tran reflects on the quality of the source and explains its impact on the research, revealing it to be the most important source for the paper.*

Discussion Questions

1. Why does Lily Tran evaluate the credibility of the authors in the annotations? How does this practice help the research?
2. Which of Tran's sources will likely increase knowledge of the subject matter she is researching? Why is this increased knowledge an important step in forming an argumentative research project?
3. How can Tran use these sources to refine her own opinion?
4. How might Tran use the source from *Agricultural and Resource Economics Review* to find more recent data?

14.4 Writing Process: Informing and Analyzing

LEARNING OUTCOMES

By the end of this section, you will be able to:

- Successfully apply citation conventions to your writing, understanding the ideas of intellectual property that motivate their use.
- Evaluate research materials for credibility, sufficiency, accuracy, timeliness, and bias.
- Compose to discover and reconsider ideas.
- Compose an annotated bibliography that uses correct style conventions and integrates the writer's ideas with ideas from related sources.

Now it is time to try your hand at creating your own annotated bibliography. As you work through identifying and writing about your sources, you may want to seek out additional ones to help support your argument or thesis. This recursive process is similar to the fine-tuning that occurs during the writing process, in which a writer moves fluidly among drafting, editing, and revising. You can return to your annotated bibliography during the course of research and writing to modify, further develop, analyze, and add to your sources. Remember, using a variety of sources can broaden your perspective about your topic by showing how different scholars and popular publications approach it.

Summary of Assignment: Annotated Bibliography

For this assignment, you will create an annotated bibliography based on your research for one of the writing assignments in this course, preferably Writing Process: Integrating Research. After collecting and choosing sources, you will write citations using MLA Documentation and Format and compose a one- or two-paragraph annotation for each source. Remember, the purpose of the annotation is to provide

- a brief summary that allows readers to understand the background of the source and its basic claims; and
- an evaluation and reflection on the source's reliability, its usefulness, and the author's or organization's credibility.

While the format for your MLA citation should follow the prescriptive pattern from the Handbook, you will

decide on the language and structure of the annotations you include. While your topic, personal style, and ideas may lend themselves to a more standardized format, it is possible that they may instead challenge codified conventions in favor of a style more authentic to you.

Another Lens 1. Consider alternatives to a formal annotated bibliography that complements differing learning styles or abilities. If your instructor is amenable, you may informally annotate sources in their margins or use an online annotation program such as Kami (https://openstax.org/r/Kami).

Another Lens 2. Another alternative is to discuss, with a partner or in a small group, each source's credentials, key ideas, and usefulness to your project. In either case, using a graphic organizer similar to the one in the next section should help you organize your ideas.

Quick Launch: Organizing Information

Begin by collecting sources. A good way to start is to make a list of keywords, known authors, organizations, and previously identified sources related to your topic. For example, imagine you have been assigned an argument project and chosen artificial intelligence as the topic. Begin, then, with the keywords *artificial intelligence*. A Google search will reveal a wealth of information on the topic, likely too much to help you craft a meaningful argument. However, a basic search will allow you to

- effectively define *artificial intelligence* as "the simulation of human intelligence by machines programmed to mimic human thought and actions";
- name four types of artificial intelligence: reactive machines, limited memory, theory of mind, and self-aware;
- identify leading industries in which artificial intelligence is already present, such as self-driving cars and virtual butlers; and
- recognize the existence of a spectrum of thought surrounding the ethics and governance of artificial intelligence.

You also may discover some alternative search terms to use, such as *machine learning*, *data mining*, *robotics*, and *neuroscience*. Although you may not ultimately use them in your argument, the sources that you find may point you toward a focused thesis.

When you finish your keyword search, the next step is to search academic databases. Use your library's resources to find scholarly sources such as journal articles, books, textbooks, expert interviews, and reputable periodical pieces. Aim for five to seven sources to begin with, though you likely will add more as you work on your project. You may already have an idea of what claims you want to make in your argument, but the sources may shape them as well. As you review the sources you collect, choose those that give you a varied range of perspectives on the topic. Remember that you can return to this procedure at various points in your research, adding sources as your needs change and as you refine your claims. While you search for sources, keep in mind the specifics of your research project, and limit your search to sources that specifically support your argument, inform a counterargument, or otherwise add information that enhances your research.

Thesis

Before you choose sources, you must have an idea of what you want to say. If you're creating an annotated bibliography for the argument described Writing Process: Integrating Research, you likely have already drafted a thesis statement. If you are creating an annotated bibliography for another topic, you will need to draft a working thesis. Your thesis will state your position on the topic. It is often a single clear, concise sentence that reveals your side in the argument. You will use your sources to support the thesis you draft.

These frames may be useful when you draft your working thesis:

- Because _____, [someone] should _____.

- _____ saves _____, reduces _____, and helps _____.
- The lack of _____ shows _____.
- _____ influences _____ and, by extension, _____.
- _____ accurately (inaccurately) portrays _____ because _____.
- _____ is a result of _____, _____, and _____.
- Although some argue that _____, a close examination shows that _____.
- _____ and _____ prove that _____.

Citations and Annotations

For each source you choose, first write the source citation in MLA format. An example of a citation for the research project on artificial intelligence might be:

> Buiten, Miriam C. "Towards Intelligent Regulation of Artificial Intelligence." *European Journal of Risk Regulation*, vol. 10, no. 1, 2019, pp. 41–59, www.cambridge.org/core/journals/european-journal-of-risk-regulation/article/towards-intelligent-regulation-of-artificial-intelligence/AF1AD1940B70DB88D2B24202EE933F1B. Accessed 23 Jan. 2021.

After preparing citations for each of your sources, write the annotations. To do this, consider the following:

- The purpose of the work
- For whom the work is written
- How to summarize the content
- The author/organization producing the work
- Distinctive or interesting features of the content (particularly in comparison with other sources)
- The relevance of the work to your topic
- Strengths, weaknesses, and bias present
- Conclusions and implications

To annotate, you will typically begin with a summary of one to three sentences. For longer or more complex sources, the summary may be longer. Then discuss unique features of the content, an evaluation of the source, and a reflection on how the source is useful to your research. For each source, use a graphic organizer such as Table 14.3. It will help you collect the needed information, organize your thoughts, and get started summarizing and analyzing your sources.

Source Citation	
Intended Audience	
Main Ideas, Arguments, and Themes Present	
Author's Point of View, Bias, and Expertise	

TABLE 14.3 Source evaluation organizer

Comparison with Other Sources on the Topic	
Evaluation of Source's Relevance to Topic	
Evaluation of Strengths and Weaknesses	
Conclusions Drawn by Author	

TABLE 14.3 Source evaluation organizer

Drafting:

Creating an annotated bibliography requires you to read your sources critically. As you first collect your sources, briefly review and examine the information they contain, specifically through the lens of how each can add to your research. As you read more critically, choose those that represent different perspectives on your topic as well as those that have similar viewpoints but arrive at them in different ways or from various angles.

If you have been using a graphic organizer for each source, as suggested, the information you need and your ideas about the source will be right there for you. If you haven't organized your research in this way, now is a good time to do it, when you do not yet need to structure good paragraphs. When it is time for you to write your annotations, having your thoughts already mapped out will make your work easier. For the hypothetical artificial intelligence project, you might organize information for the article cited earlier as shown in Table 14.4.

Source Citation	Buiten, Miriam C. "Towards Intelligent Regulation of Artificial Intelligence." *European Journal of Risk Regulation*, vol. 10, no. 1, 2019, pp. 41–59, www.cambridge.org/core/journals/european-journal-of-risk-regulation/article/towards-intelligent-regulation-of-artificial-intelligence/AF1AD1940B70DB88D2B24202EE933F1B. Accessed 23 Jan. 2021.
Intended Audience	The journal is published by Cambridge University Press. Therefore, it is peer reviewed and intended for an academic audience.
Main Ideas, Arguments, and Themes Present	Discusses the unpredictability and difficulty of controlling artificial intelligence and examines what, if anything, can be done to increase transparency, specifically as it relates to biases of algorithms

TABLE 14.4 Completed source evaluation organizer

Author's Point of View, Bias, and Expertise	Buiten is a law and economics professor at the University of Mannheim. She is the author or coauthor of nine publications, and contributed to others, about law and technology and digitalization, competition law, and European law.
Comparison with Other Sources on the Topic	Other sources call for total transparency in legal matters regarding artificial intelligence. This article questions whether such transparency is useful and/or feasible on the basis of current laws
Evaluation of Source's Relevance to Topic	Focuses on legal transparency for artificial intelligence, related to the question of whether artificial intelligence is harmful or helpful to society
Evaluation of Strengths and Weaknesses	Well-researched; uses dozens of peer-reviewed sources
Conclusions Drawn by Author	Transparency for artificial intelligence will be difficult and expensive to comply with and should be better defined in legal contexts before it is required.

TABLE 14.4 Completed source evaluation organizer

For some sources, you may be unable to find information for each category. In particular, for sources that are very short or from which you use only one or two bits of information, your annotations will not be long or complex, and your graphic organizer may seem sparse. That is to be expected. What is important at this stage is to identify how you will use your resources as they relate to your argument or thesis.

After you have outlined your sources by using the graphic organizer or a similar method, it is time to start writing the actual annotations. Remember the three tasks in writing an annotation:

1. **Summary** the central idea or scope of the source, particularly as it relates to your research project.
2. **Evaluation** the source for authority, author's perspective, reliability, validity, and bias.
3. **Reflect** on how the source affects your research and your thinking.

Your annotated bibliography should include at least some of these functions and, depending on the source, may contain all of them. Below is an example of an annotated bibliography entry for the article on artificial intelligence. The entry begins with the correctly formatted citation, followed by two paragraphs summarizing, evaluating, and reflecting. Because you already have completed the graphic organizer, much of the analysis is already done there. Simply take that thinking and shape it into useful paragraphs, like those the writer created here.

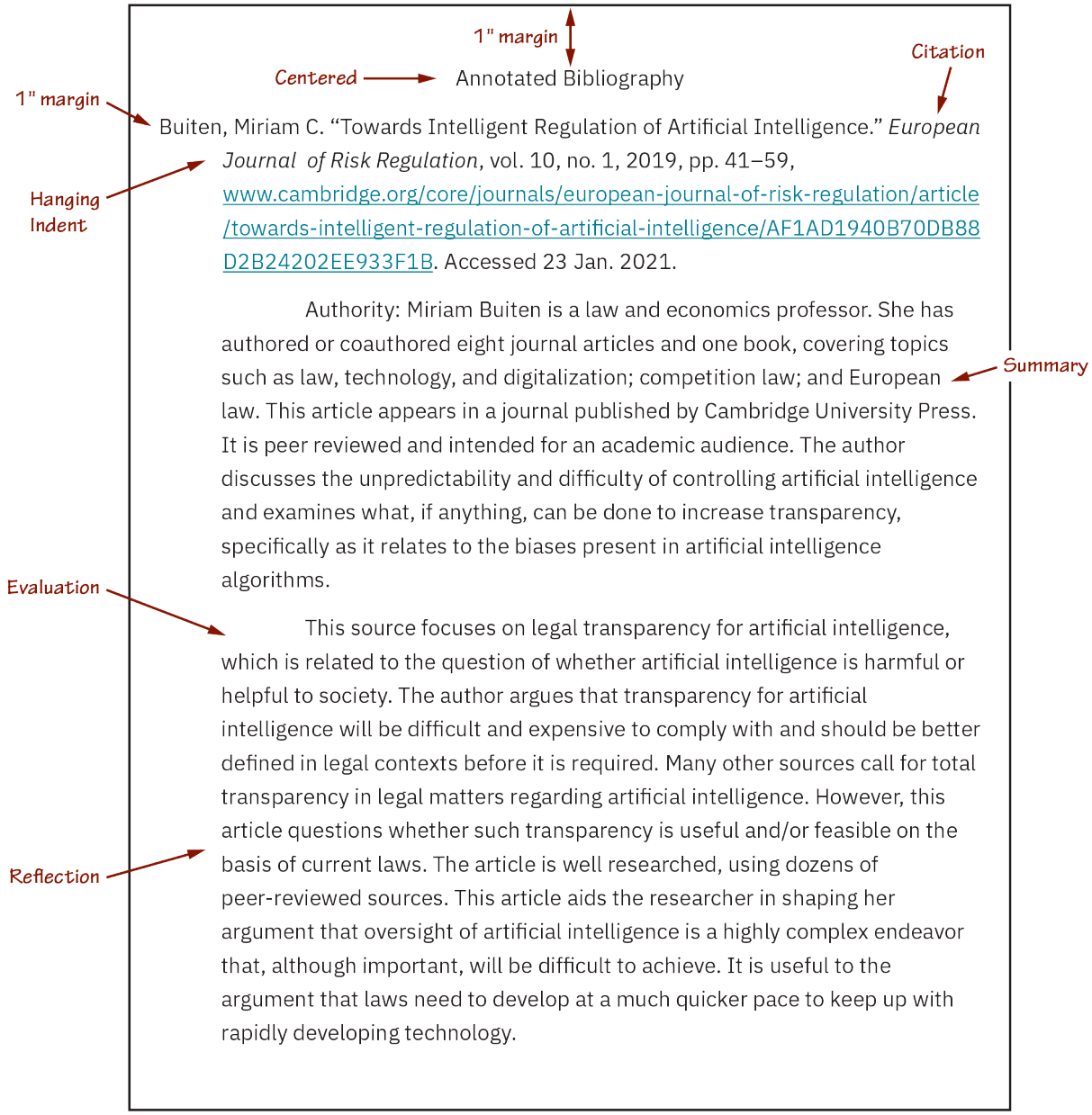


FIGURE 14.13 Sample annotated bibliography entry (attribution: Copyright Rice University, OpenStax, under CC BY NC-SA 4.0 license)

You can break down this sample annotation, analyzing each part separately as shown in Figure 14.13.

Buiten, Miriam C. "Towards Intelligent Regulation of Artificial Intelligence." *European Journal of Risk Regulation*, vol. 10, no. 1, 2019, pp. 41–59, www.cambridge.org/core/journals/european-journal-of-risk-regulation/article/towards-intelligent-regulation-of-artificial-intelligence/AF1AD1940B70DB88D2B24202EE933F1B. Accessed 23 Jan. 2021.

Format. *Notice the MLA format, including information listing the author, title, publishing journal, and DOI or link to the article. The reader will be able to find and read the article easily.*

> Authority: Miriam Buiten is a law and economics professor. She has authored or coauthored eight journal articles and one book, covering topics such as law, technology, and digitalization; competition law; and European law. This article appears in a journal published by Cambridge University Press. It is peer reviewed and intended for an academic audience. The author discusses the unpredictability and difficulty of controlling artificial intelligence and examines what, if anything, can be done to increase transparency, specifically as it relates to the biases present in artificial intelligence algorithms.

Authority. *The author is named and introduced with background information establishing her authority in the field. The publishing organization is also named, establishing credibility as a peer-reviewed journal.*

Summary. *The contents of the text are summarized briefly, allowing readers to quickly understand the topic and scope of the article and to begin to piece together its relevance to the overall research project.*

> This source focuses on legal transparency for artificial intelligence, which is related to the question of whether artificial intelligence is harmful or helpful to society. The author argues that transparency for artificial intelligence will be difficult and expensive to comply with and should be better defined in legal contexts before it is required. Many other sources call for total transparency in legal matters regarding artificial intelligence. However, this article questions whether such transparency is useful and/or feasible based on current laws. The article is well researched, using dozens of peer-reviewed sources.

Evaluation. *This paragraph includes an evaluative statement that shows the article's validity.*

> This article aids the researcher in shaping her argument that oversight of artificial intelligence is a highly complex endeavor that, although important, will be difficult to achieve. It is useful to the argument that laws need to develop at a much quicker pace to keep up with rapidly developing technology.

Reflection. *This part of the paragraph reveals how the source fits into the research puzzle, noting that it indirectly supports the claim that developing oversight for artificial intelligence is not a simple task and would require the law to evolve quickly.*

Style. *The annotation is written in third person, referring to "the researcher" and "her," as opposed to using first-person pronouns such as me and I.*

Formatting

The format of an annotated bibliography can vary depending on the discipline and purpose. Therefore, be clear at the outset which style you need to use. In academic writing, that information often will come from your instructor. Generally, annotated bibliographies will be written in MLA Documentation and Format, APA Documentation and Format, or Chicago style.

This text uses MLA style. MLA source citations follow several principles in place of specific rules. The style has been adapted in recent years to respond to the evolving nature of text in an increasingly digital world. Thus, the *MLA Handbook* is organized by the *process* of citation, rather than listing rules for every type of source. However, certain overall guidelines apply. When you cite a source, first identify core elements that are present. Remember from earlier in this chapter that these are author(s), title of source, title of container, version, number, publisher, publication date, and location.

> Buiten, Miriam C. "Towards Intelligent Regulation of Artificial Intelligence." *European Journal of Risk Regulation*, vol. 10, no. 1, 2019, pp. 41–59, www.cambridge.org/core/journals/european-journal-of-risk-regulation/article/towards-intelligent-regulation-of-artificial-intelligence/AF1AD1940B70DB88D2B24202EE933F1B. Accessed 23 Jan. 2021.

Author. *The entry with gold highlighting begins with the author's last name, followed by a comma and the remainder of the name. The author's name is followed by a period.*

Title of Source. *The title of the source follows the author's name in purple highlighting. The title is either italicized*

or placed within quotation marks, depending on the type of source, and followed by a period. Book titles are italicized, while print or online articles are placed in quotation marks, as shown.

Title of Container. *The container, highlighted in teal, is the larger work to which a source belongs. An article may belong to a website or journal, a song to an album, or a video to a video-sharing site. This container comes next in the citation. It is generally italicized and followed by a comma. However, some sources do not have containers; for example, a book (versus a chapter in a book) or an entire website (versus a single page on a website) is self-contained and thus has no container to cite.*

Version. *Next, the version is listed, if there is one. For example, a textbook edition or version of a text would appear here, followed by a comma. This citation example doesn't have a version, so that information is skipped.*

Number. *Some sources, especially academic journals, are part of a numbered sequence as shown in green highlighting. Journals usually have both volume and issue numbers; include both in your citation, separated by commas.*

Publisher. *The next element in the citation is the publisher, followed by a comma. The publisher does not have to be listed for some sources, including periodicals, works published by the author or editor, websites with the same name as the publisher, or websites that host works but do not actually publish them. Because this sample source is a periodical, no publisher is listed in the citation.*

Publication Date. *List the most recent date of publication available for the version of the source you used. The date is followed by a comma as shown in red highlighting.*

Location. *Location, shown in dark and light gray highlighting, refers to where in the source you found the information, including page numbers and URLs. Be as specific as possible, as this information allows readers to return to your source to read it for themselves. When listing a URL, remove the beginning tag of http:// or https://.*

Optional elements

You may want to add optional elements to help readers identify the source more easily. These can include the following:

- City of publication, generally only for books that were published before 1900 or whose publishers either have offices in more than one country or are unknown in North America (MLA 8)
- Access date, which is present in the sample annotation
- DOI (digital object identifier), which may be used in place of a URL if available
- Original publication date, if it differs from the publication date used for the citation

Alphabetizing and Indenting

Other rules also apply to MLA citations in a research project. Most of these are formatting and style rules that add to a polished final product. Remember to list sources in alphabetical order according to the author's last name. If the source has more than one author, list it according to the last name of the first author mentioned. If the source has no author named, insert it into your alphabetical list according to the first word in the title. For example, if Miriam C. Buiten's name were not mentioned, you would enter the item under *T*, the first letter of the first word in the title, *Towards*. In your bibliography, double-space the citation, and do not leave a space between entries.

In an annotated bibliography, indent the entire annotation in the same manner as the source citation after the first line. In most word processing programs, you can create this formatting by highlighting the citation and annotation paragraphs and then creating a hanging indent. In Microsoft Word, open the Paragraph Settings icon on the Home tab. Under the tab that reads Indents and Spacing, find the section labeled Indentation. On the right side of that section is the label Special. Click the drop-down menu, and choose Hanging. Different word processing programs may require you to create hanging indentations in another way. Consult an MLA guide often to ensure that your citations are correct.

Annotations

Annotations are the most important part of an annotated bibliography. Although there is no set format for writing annotations, remember to write them in paragraph form and to summarize, evaluate, and/or reflect. Annotation lengths will vary depending on the length of the source, how it is used in your project, and how much analysis you do within the annotation. However, a general length of one to two paragraphs consisting of 100 to 200 words is roughly the standard.

Descriptive/Informative and Analytical/Critical Annotations

There are two major types of annotated bibliographies. The first is **descriptive annotations**, or informative, summarizing the material and explaining why the source is useful for your topic. This type of annotated bibliography also points out special features of the text, including any data, graphics, or other characteristics. Although you discuss the author's main arguments and conclusions, you do not analyze or evaluate them. Descriptive annotations are useful for helping readers understand an author's main ideas but less helpful for showing how the source has influenced the research project as a whole.

The other type of annotated bibliography is **analytical bibliography**, or critical. This type includes all the features of a descriptive annotated bibliography, including a summary of the material. In addition, it includes your analysis of the information in each source and explanation of how the source has influenced the development of your research. With analytical or critical annotations, you examine the strengths, weaknesses, and biases present in the author's information and explain how the author's work and conclusions apply to your research.

In projects for this course, especially those using arguments, you will almost always create analytical or critical annotated bibliographies, though the detail in which you analyze may vary from source to source. The detail in these bibliographies will contribute to your knowledge base and provide information for others.

Further Reading

To learn more about creating an annotated bibliography, consider the following sources:

"Annotated Bibliographies." *OWL: The Purdue Online Writing Lab*, Purdue U, owl.purdue.edu/owl/general_writing/common_writing_assignments/annotated_bibliographies/index.html.

Beatty, Luke, and Cynthia A. Cochran. *Writing the Annotated Bibliography: A Guide for Students and Researchers*. Routledge, 2020.

"How to Prepare an Annotated Bibliography: The Annotated Bibliography." *Cornell University Library*, Cornell U, 5 May 2021, guides.library.cornell.edu/annotatedbibliography.

Works Cited

Krause, Steven D. *The Process of Research Writing*. 2007, www.stevendkrause.com/tprw/.

"MLA Citation Guide (8th Edition): Annotated Bibliography." *LibGuides at Columbia College (BC)*, LibGuides, 16 June 2021, columbiacollege-ca.libguides.com/mla/annot_bib.

"MLA Formatting and Style Guide." *OWL: The Purdue Online Writing Lab*, Purdue U, 2021, owl.purdue.edu/owl/research_and_citation/mla_style/mla_formatting_and_style_guide/mla_general_format.html.