MEMORIAL UNIVERSITY

Faculty of Engineering and Applied Science

PRIMARY, SECONDARY, AND TERTIARY SOURCES

Citing information properly is of great importance in academic and technical writing. Citations must be properly formatted, and much of the instruction on citations often ends there. However, the selection of the appropriate source to cite must also be considered. This document covers three different types of sources and explains why primary sources are the most utilized for citations in technical writing.

TYPES OF SOURCES

When doing research, every source falls into one of three categories: primary, secondary, or tertiary. In some cases, the line between the categories might be blurred, or parts of one source might fall into different categories. Their usage is highlighted in Figure 1 and described in detail on the following page.
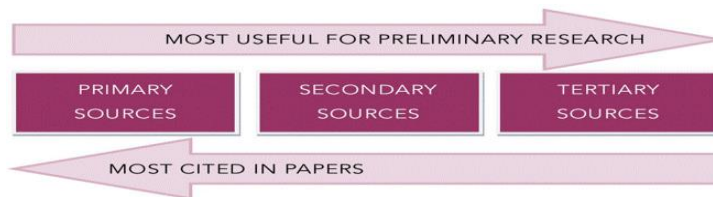

Figure 1. How the types of sources are used in research

PRIMARY SOURCES

Primary sources are typically the most highly valued sources in research. For a source to be considered primary, it must be a "firsthand account" that comes from people who were involved directly in the action being described.[1] This information has not been interpreted or explained through a person uninvolved with the described action. Common examples of primary resources include **original research** (perhaps published in academic journals or as books), **interviews** with participants, and **official records** from government sources.

SECONDARY SOURCES

Secondary sources are a step removed from the firsthand nature of a primary source. Secondary sources often use primary sources in their content, but the author of the secondary source was not directly involved in the activity that is being described. Secondary sources attempt to provide explanations for or commentary on the event. Common examples of secondary sources include **literature reviews, academic articles** that do not involve original research, and **newspaper articles** that do not involve direct observation of the event.

TERTIARY SOURCES

Like secondary sources, tertiary sources do not involve original experimental research or direct observation. The key difference between secondary and tertiary sources is that tertiary sources make no attempt to analyze or comment on an event. Examples of tertiary sources include **encyclopedias, dictionaries,** and **textbooks.**

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[1] University of Lethbridge. (2021, December 15). *5) Evaluate Sources: Primary, Secondary & Tertiary Sources.* Retrieved August 17, 2022, from https://library.ulethbridge.ca/evaluatingsources/pstsources

USING PRIMARY SOURCES

Almost all of the sources used in technical writing should be primary sources. Whenever possible, writers should seek out the original source of information and use that source in the document. Note that using the source involves not only citing that primary source but also *reading* it.

A primary source is free from interpretation (and potential misinterpretation) by others. Readers will respect the writing more if the author demonstrates that the original source was consulted rather than another source that simply summarizes the original.

Consider the following example. In a research paper by Dr. Joseph Daraio, he says, "Simulations indicate that significant decreases in recharge in both autumn and winter in the Maurice basin offset increased recharge in spring and summer" ([Daraio, 2017, p.16](#)). This sentence is found in the Discussion section of the paper, and it is a result of his original research. It is therefore appropriate to cite Daraio when using this information in a report.

USING SECONDARY SOURCES

In most cases, secondary sources should not be used as sources in a technical document. Returning to the previous paper, Daraio states, "The complexity of processes that determines the hydrologic response of a watershed makes it difficult to predict the potential impacts of changes in land use and climate without a high degree of uncertainty ([Chen et al. 2011](#))" ([Daraio, 2017, p. 1](#)). In this case, Daraio did write the sentence, but the idea was attributed to other authors. It would be inappropriate to use this information from Daraio and cite Daraio. Instead, a writer should find Chen et al.'s 2011 article, read it, and cite that document as the source for the information.

In addition to the concept of citing primary sources being the accepted practice for academic and technical writing, it is also a much safer option. Because a secondary source is reporting information secondhand, there is no assurance that the understanding of the information was correct in that secondary source. In some cases, authors have used secondary sources only to find that the information cited does not exist in that source. In one prominent case, more than 400 papers cited a source that was never even written.[2]

All of this is not to say that secondary sources should not be used at all. These types of sources are invaluable when doing research on a topic. These documents can give a reader a good overview of a subject, and they often provide insight through comparisons and analyses. They can also help a researcher determine which other sources should be read. As cited sources, however, there are few reasons to use secondary sources. The APA Blog lists out-of-print, unavailable documents and documents written in other languages as acceptable times to cite a secondary source of information.[3] Some referencing styles do not allow secondary sources to be used in this way. For example, only original ideas in secondary sources may be cited in IEEE.

USING TERTIARY SOURCES

Tertiary sources have very limited use in academic and technical writing. As reference books, they are useful for finding out about something in a general sense, so they are used primarily in the early stages of research. They can be useful when defining a concept or supplying background information. It should be noted that Wikipedia is technically a tertiary source. However, [other sources](#) are far more acceptable for academic use.

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[2] Stern, V. (2017, November 15). *The "Phantom Reference:" how a made-up article got almost 400 citations.* Retraction Watch. Retrieved August 17, 2022, from https://retractionwatch.com/2017/11/14/phantom-reference-made-article-got-almost-400-citations/

[3] American Psychological Association. (2019, September). *Secondary sources.* American Psychological Association. Retrieved August 17, 2022, from https://apastyle.apa.org/style-grammar-guidelines/citations/secondary-sources