Integrating and Citing Sources

Introduction

Integrating sources that contain useful information into your scientific written work makes for a credible document, but it is very important to cite these sources correctly. Many people get this wrong and fall into the trap of committing intentional or unintentional plagiarism as a result. While incorporating sources and citing them correctly in your work will increase your credibility, plagiarizing sources will reduce the credibility of your work and get you into trouble with your instructors.

Proper referencing includes two parts: in-text citations and a complete **reference list of sources** from which these arose. In-text citations show the reader that specific information you have used to strengthen your paper comes from the work of others. The list of sources at the end of your paper gives the exact references you used, which allows anyone to easily find and refer back to them.

What (and when) to Cite

Often, it can be difficult to know what you need and do not need to cite in your work. Table 1 (below) outlines specifically what information you should and should not cite. However, if you are ever unsure, you should probably cite the information, just to be safe. Alternatively, you could talk to your instructor to clarify.

**Table 1:** What you need and do not need to cite

|  |  |
| --- | --- |
| What you NEED to cite | **What you DO NOT NEED to cite** |
| * Ideas, concepts, opinions, etc. of others
	+ Direct quotes, summaries, paraphrases
 | * Common knowledge
	+ General (Shakespeare wrote Hamlet)
	+ Field-specific (a double bond is stronger than a single bond)
 |
| * Facts used as evidence
	+ Findings, conclusions, theories
 | * Facts which are easily verifiable and for which no controversy exists (Penicillin was discovered in 1928)
 |
| * Distinctive or authoritative ideas
 |  |

Citation Formatting

Whether you are including a quote or a paraphrased sentence (see below for tips on paraphrasing) in your writing from someone else’s work, it **must** be cited. In science writing there are two general styles for citing **references** in text: expanded referencing or abbreviated referencing (see below). We generally cite information from journal articles more often than other sources in science writing because they typically contain the most up-to-date information, but the same formatting is used for books as well.

1. **Expanded referencing (author-year):** Includes the author’s last name and the year of publication for in-text citing, and an **alphabetical** list of references at the end of the article.

**Rules:**

* if there are only **one** or **two** author names, cite both names in-text
* if there are **more than two** author names, only write the **first** name followed by “et al.”
1. **Abbreviated referencing (author-number):** Includes a number in parentheses or superscript for in-text citing and a **numerical** list of references at the bottom of the article (i.e. the order in which they are found in the text).

Some Examples

These examples are designed to highlight how each style of citing can be used. Although there is sometimes flexibility when citing, remember to check with your instructor which style you should use. If he/she is happy for you to use either one, make sure you are always **consistent** in your formatting style (e.g. don’t mix the two styles in one piece of writing).

**Expanded Referencing:**

1. Blue, left-handed widgets are actually wodgets (Smith, 1993).
2. Bloggs et al.(1995) confirmed that …
3. Smith and Jones (1995) wrote that…

**Abbreviated Referencing:**

1. Blue, left-handed widgets are actually wodgets*3*.
2. Bloggs et al.*2* confirmed…
3. Smith and Jones [2] wrote that…

Advantages

Table 2: Advantages of each style of citing

| Style of citing | Advantage |
| --- | --- |
| Expanded Referencing | * author/researcher is found in text (easily recognizable for a researcher in the field)
* show date of research (current)
* easy to find a particular paper
 |
| Abbreviated Referencing | * saves time
* saves space (no extra words- names, dates)
* easier to read the article
 |

When deciding which **style of citing** to use, keep in mind the advantages of both, but make sure you ask your instructor which style they prefer, or require. Once you choose a style, you **must** stick to it throughout your whole article. It is very important to be **consistent** with your formatting; it makes it easier for the reader to follow!

Using Quotations and Paraphrasing

In science writing, it is rare to use direct quotes; they can be long and sometimes very confusing for a reader. It is more beneficial to your writing to **paraphrase** or **summarize** rather than to use quotes. This shows you have an understanding of the material, whereas using quotations of the work of others doesn’t often show that you understand - or are able to - synthesize what you’ve read and tailor it appropriately to what you are writing about.

In science, **only** use quotations if a piece of information is **well-phrased** or **unique** and cannot be simply rephrased to have the same effect.

For more information on this, see the ‘Using Quotations and Paraphrasing’ page on our site.

For example, don’t write: Cliff et al. (1989) reported that “A total of 591 great white sharks *Carcharodon carcharias* were caught between 1974 and 1988 in the gill nets which are maintained along the Natal coast to protect bathers from shark attack.” Instead, write something like: Nearly 600 great white sharks were caught in gill nets along the Natal coast between 1974 and 1988 (Cliff et al. 1989).

**Choosing Descriptive Words to Introduce Citations**

Because you must interpret a source when you paraphrase or summarize it, you must be very careful not to misrepresent the author in any way, which is easier than you might think. For example, writing that Reilly (2010) *found* that more than one cup of morning coffee slows response rates in people, **is not** the same thing as writing that Reilly (2010) *argued* that more than one cup of morning coffee slows response rates in people.

Although it is sometimes important to use ‘strong’ descriptors such as *argue, challenge, confess, attack* etc. it is generally a good idea to use ‘neutral’ descriptors whenever possible, as these cannot be misinterpreted so easily.

For example, writing that Reilly (2010) *wrote* that more than one cup of morning coffee slows response rates in people cannot be misinterpreted, and therefore removes any concern that you might have about paraphrasing his/her work.

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Video Resource

For a recap and for some extra information on citing and integrating sources, please watch Grammar Squirrel’s video on the UBC Science Writing YouTube channel.

We then suggest you complete the quick quiz (below) to see whether you have mastered some of the important skills relating to effective use of citing and integrating sources.

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Integrating and Citing Sources Quick Quiz

1. Read the following pieces of information taken from real sources. First decide whether they should be quoted directly, or paraphrased and cited (**1 mark each**). Then use the ‘Expanded Referencing’ style of citing to credit the source correctly with an in-text citation (**1 mark each**).

A) ‘Furthermore, although there are no demonstrated health benefits from having selenium intake above physiological requirements, there is a general perception that increased selenium ingestion is beneficial, which has led to a flourishing market in selenium supplements.’

***This information was written by Kevin Andrew Francesconi* and *Richard Pannier* *in 2004.***

B) ‘Telomeres are specialized structures found at the natural ends of eukaryotic linear chromosomes.’

***This information was written by Vicki Lundblad and Jack Szostak in 1989.***

C) ‘I’m so excited – this new discovery blows the old belief clean out of the water.’

***This information was written by Mitchell Tonker in November 2007.***

D) ‘Changes to the conformation of coding and non-coding RNAs form the basis of elements of genetic regulation and provide an important source of complexity, which drives many of the fundamental processes of life.’

***This information was written by Elizabeth A*** [***Dethoff***](http://www.nature.com/nature/journal/v482/n7385/full/nature10885.html#auth-1)***, Katja Petzold, Jeetender*** [***Chugh***](http://www.nature.com/nature/journal/v482/n7385/full/nature10885.html#auth-2)***, Anette Casiano-Negroni and*** [***Mustoe***](http://www.nature.com/nature/journal/v482/n7385/full/nature10885.html#auth-3) ***and*** [***Hasham M Al-Hashimi***](http://www.nature.com/nature/journal/v482/n7385/full/nature10885.html#auth-4) ***in 2012.***

1. Decide whether the pieces of information below **should** or **should not** be cited (**1 mark each, 4 marks total**).
2. You are writing a paper to a chemistry audience on the effects of hydrogen bonding in DNA. Should you include a citation for a basic definition of what hydrogen bonding is?
3. You have been working with a Bessel beam optical trap to determine the changes in aerosol particles in relation to relative humidity changes. As you write your paper, you decide to include background information on Bessel beam traps and previous research into the change in aerosol particles against different relative humidities. Should you cite these?

c) You are doing the research for a paper on the separation of chiral compounds and come across a repeated reference to ‘Pirkle phases.’ This term is new to you and it has never been discussed in class, but you have encountered references to it in several articles. You notice that each author actually cites an original article by Pirkle, the chemist for whom it was named. You include the ‘Pirkle phases’ in your paper. Should you cite this paper?

1. You are writing a newspaper article about the most devastating earthquakes of all time. Should you cite a source that says the Valdivia quake (the greatest magnitude in history) occurred on May 22, 1960?

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Quick Quiz Answer Key

1. Read the following pieces of information taken from real sources. First decide whether they should be quoted directly, or paraphrased and cited (**1 mark each**). Then use the ‘Expanded Referencing’ style of citing to credit the source correctly with an in-text citation (**1 mark each**).

A) ‘Furthermore, although there are no demonstrated health benefits from having selenium intake above physiological requirements, there is a general perception that increased selenium ingestion is beneficial, which has led to a flourishing market in selenium supplements.’

**This should be paraphrased and cited. The in-text citation should be: (Francesconi and Pannier 2004).**

B) ‘Telomeres are specialized structures found at the natural ends of eukaryotic linear chromosomes.’

**This should be paraphrased and cited. The in-text citation should be: (Lundblad and Szostak 1989).**

C) ‘I’m so excited – this new discovery blows the old belief clean out of the water.’

**This should be quoted directly. The in-text citation should be: (Tonker 2009).**

D) ‘Changes to the conformation of coding and non-coding RNAs form the basis of elements of genetic regulation and provide an important source of complexity, which drives many of the fundamental processes of life.’

**This should be paraphrased and cited. The in-text citation should be: (Dethoff et al. 2012).**

1. Decide whether the pieces of information below **should** or **should not** be cited (**1 mark each, 4 marks total**).
2. You are writing a paper to a chemistry audience on the effects of hydrogen bonding in DNA. Should you include a citation for a basic definition of what hydrogen bonding is? **NO – this is common knowledge within this specific field.**
3. You have been working with a Bessel beam optical trap to determine the changes in aerosol particles in relation to relative humidity changes. As you write your paper, you decide to include background information on Bessel beam traps and previous research into the change in aerosol particles against different relative humidities. Should you cite these? **YES – these are facts taken from other sources that you are using as evidence.**
4. You are doing the research for a paper on the separation of chiral compounds and come across a repeated reference to ‘Pirkle phases.’ This term is new to you and it has never been discussed in class, but you have encountered references to it in several articles. You notice that each author actually cites an original article by Pirkle, the chemist for whom it was named. You include the ‘Pirkle phases’ in your paper. Should you cite this paper? **YES – this is an authoritative idea and is not common knowledge within your audience.**
5. You are writing a newspaper article about the most devastating earthquakes of all time. Should you cite a source that says the Valdivia quake (the greatest magnitude in history) occurred on May 22, 1960? **NO – this is a readily verifiable fact.**