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MASTER OF NURSING

WRITING STANDARDS & SKILLS
TOOLBOX

Table of Contents

Really Useful Style Tips	2
Hit Parade of Errors in Grammar, Punctuation, and Style.....	4
Transitional Words and Phrases That Create Logic in Writing	12
A Brief Guide to Verb Tense and Voice in Scientific Writing	14
A Brief Guide to Writing A Literature Review	16
A Brief Guide to Reviewing Research Articles.....	20
Critical Reading Toward Critical Writing	22
How to Analyze Issues: A Brief Guide.....	24
A Guide to Critical Argument	25
How Not To Plagiarize	31

Really Useful Style Tips

1. Be precise.

X Adidas Canada made a very big profit last year.

Y Adidas Canada's profit rose forty percent in fiscal 2006.

Avoid all-purpose adjectives like **unique, significant, important, meaningful**. All are meaningless unless the reader is told why and to whom something is unique, significant, important, or meaningful. Also, remember that **unique** and **perfect** are absolutes; there are no degrees of uniqueness or perfection. Something is either unique/perfect or it is not.

2. Don't be redundant.

X As well as being costly and financially extravagant, the project is reckless and foolhardy.

Y The project is both costly and foolhardy.

3. Don't be wordy. Never use six words when one will do.

X A large number of athletes, both recreational and elite, practice some type of a warm-up activity prior to exercising. The goal of warming-up is to prepare the athlete physically and mentally for exercise.

Y Many athletes, both recreational and elite, perform warm-up activities to prepare physically and mentally for exercise.

the reason for this is the fact that the reason is

due to the fact that because

at this point in time now

consensus of opinion consensus

when all is said and done [omit]

in the eventuality that if

4. Avoid 'it is' and 'there is' beginnings.

X It is certain that needs will increase.

Y Needs will certainly increase.

5. Be direct: where possible choose active over passive verbs; personal subjects over objects.

X The materialistic implications of Darwin's theory led to a long delay before it was published.

Y Darwin delayed publication of his theory for a long time because of its materialistic implications.

6. Avoid clichés.

X Carpal tunnel syndrome (CTS) exists *in today's modern society* as the most common entrapment neuropathy diagnosed and treated.

Y Carpal tunnel syndrome (CTS) is currently the most common entrapment neuropathy diagnosed and treated.

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Hit Parade of Errors in Grammar, Punctuation, and Style

Markers look at four general areas in deciding on a mark for a written assignment:

- how well you've handled the topic and followed the assignment
- the quality of your ideas
- the way you've organized your paper
- the quality of your writing style and grammar.

This means that grammar is only one of a number of factors determining your grade. Still, too many errors in grammar, punctuation, and style will lose you marks. This guide describes the ways to avoid the most common errors.

1. Faulty Agreement

a. Subjects and verbs must agree in number:

X Recent discoveries about the weather reveals that several cycles are involved.

Y Recent discoveries about the weather reveal that several cycles are involved.

X The media was biased in its reporting of the event.

Y The media were biased in their reporting of the event.

b. Nouns and pronouns must agree in number:

X A student is free to express their opinion.

Y A student is free to express his or her opinion.

Y Students are free to express their opinions.

c. Pronouns must agree with each other:

X Once one has decided to take the course, you must keep certain policies in mind.

Y Once you have decided to take the course, you must keep certain policies in mind.

2. Sentence Fragments

A sentence fragment is a group of words that is punctuated to look like a sentence (i.e., begins with a capital letter and ends with a period), but doesn't fulfil the requirements of a complete sentence.

A complete sentence must contain both a subject and a predicate (verb). The subject is what (or whom) the sentence is about, while the verb tells something about the subject or expresses an action. In this example, there's no subject. We don't know who needs to know about the regulations:

X All of these regulations should be made aware.

Y Athletes should be made aware of all these regulations.

Also, a complete sentence must contain at least one "independent clause," that is, a group of words that stands by itself as a complete thought. A sentence may also have "subordinate clauses," that is, a group of words that needs another to complete its meaning. In this example, the first sentence forms a complete thought. However, the second is a fragment because it depends on the verb "was poured"—it answers the question why the liquid was poured but doesn't itself express any action:

X We poured the acid into a glass beaker. Being the only material impervious to these liquids.

Y We poured the acid into a glass beaker, being the only material impervious to these liquids.

Y Because it is the only material impervious to these liquids, we poured the acid into a glass beaker.

Note: Many people have been told that it is wrong to begin a sentence with "because." However, it is perfectly correct when it is also introducing a subordinate clause.

3. Run-on [fused] Sentences

A sentence should express only one central idea:

X Home care has been expanding tremendously over the past decade partly due to technological advances that enable treatments to be a part of the home setting which at one time could only be performed within the hospital environment.

Y Home care has expanded tremendously over the past decade. This increase is partly due to technological advances that now make more treatments possible in the home rather than the hospital environment.

4. Overuse of Passive Voice

Prefer active verbs to passive verbs. They are more direct and less wordy:

ΨIt is through this paper that the proposed benefits of active exercise for Chronic Lower Back Pain (CLBP) will be examined.

YThis paper will examine the proposed benefits of active exercise for Chronic Lower Back Pain (CLBP).

Also, be careful not to shift voice unnecessarily:

X I gave the patient 10cc orally, and 5 more were given intravenously.

YI gave the patient 10cc orally and 5cc intravenously.

5. Faulty Parallelism

Building parallel elements into a sentence adds clarity and elegance. Make sure that the different elements are grammatically the same (i.e., “parallel”):

X Eating huge meals, snacking between meals, and too little exercise can lead to obesity.

YEating huge meals, snacking between meals, and exercising too little can lead to obesity.

X Our coach is paid too much, obese, over forty, and a former champion wrestler.

YOur coach is a former champion wrestler, but now he is overpaid, overweight, and over forty.

6. Vague Pronouns

Make sure that pronouns such as “it” and “this” refer to something specific. “It is” and “There are” beginnings not only add meaningless words, they can also create confusion. In this example, what does “it” refer to? The ischaemic heart disease or the hypertension? It could mean either one:

X Hypertension is an established risk factor for the development of ischaemic heart disease. It is also present in many patients who develop stroke.

YHypertension is an established risk factor for the development of ischaemic heart disease. Hypertension is also present in many patients who develop stroke.

X In the report they suggest that moderate exercise is better than no exercise at all.

YThe authors of the report suggest that moderate exercise is better than no exercise at all.

7. Dangling Modifiers

Make sure that a modifying phrase or clause doesn't "dangle" without the subject it is intended to modify. Here, the first example implies that the pain was doing the manipulating. The second implies that the hobbies go to school:

X By manipulating the lower back, the pain was greatly eased.

YBy manipulating the lower back, the physiotherapist greatly eased the pain.

X When not going to school, my hobbies range from athletics to automobiles.

YWhen I am not going to school, my hobbies range from athletics to automobiles.

8. Squinting or Misplaced Modifiers

A modifying phrase or clause is said to "squint" if it applies equally to two different parts of a sentence. Make sure the modifier clearly refers to the element you want it to. In the following example, is the council advising at regular intervals, or should the physicians be administering the drug at regular intervals?

X The council advises physicians at regular intervals to administer the drug.

YThe council advises physicians to administer the drug at regular intervals.

YAt regular intervals, the council advises physicians to administer the drug.

A "misplaced" modifier (usually an adverb) is positioned so that it changes the meaning of the sentence. This example raises an image of an elderly gentleman climbing through a window:

X I could see my grandfather coming through the window.

YThrough the window, I could see my grandfather coming.

9. Mixed or Dead Metaphors

Recognize the literal meanings of your metaphors. The following example offers a ludicrous image of lightning grabbing someone and then becoming a wooden toy:

X Like a bolt from the blue the idea grabbed him, and it quickly took its place as one of his hobby-horses.

YThe idea grabbed him as soon as he heard of it, and it quickly became an obsession.

Also, avoid clichés. Instead, give a precise description. The cliché in this example suggests that, at some point in their lives, Canadians may begin to age 48 hours for every 24 that pass:

X We studied pain management techniques for Canada's rapidly aging population.

YWe studied pain management techniques for the elderly in long-term care institutions in urban settings.

10. Faulty Word Choice [Faulty Diction]

Don't use "fancy" words for their own sake; use a dictionary to check words whose meaning you are not sure of:

X Explaining the rationale for treatment can help distil patients' fears.

YExplaining the rationale for treatment can help dispel patients' fears.

11. Wordiness

Don't spin empty words; instead, use the minimum number of words to express your idea. In the first example, the idea can be stated much more simply. The second example is so wordy and its idea so vague that it should simply be omitted.

X A definition that can be employed usefully, according to LaPlante et al. (1993), states that "assistive technology..."

YLaPlante et al. (1993) state that "assistive technology..."

X It is evident that this term is associated with much ambiguity. Many concepts and ideas come to mind upon first hearing this phrase; however, a true grasp of its meaning is quite difficult to establish.

12. Comma Splices

A comma splice is the joining (“splicing”) of two independent clauses with only a comma. Here are the rules for avoiding them:

a. Use a period or semicolon to separate two independent clauses, or join them with a subordinating conjunction:

X We started to unpack our equipment, pretty soon we were ready for the test.

Y We started to unpack our equipment; pretty soon we were ready for the test.

Y We started to unpack our equipment, and pretty soon we were ready for the test.

b. Use a semicolon as well as a conjunctive adverb to join two independent clauses:

X Much of the literature advocates stretching preparatory to exercise, however, the mechanisms are not well understood.

Y Much of the literature advocates stretching preparatory to exercise; however, the mechanisms are not well understood.

These are the most common conjunctive adverbs:

however

thus

as a result

rather

therefore

nevertheless

moreover

indeed

then

accordingly

even so

for example

13. Misuse of Comma, Semicolon, and Colon

a. Use a comma after each item in a series of three or more:

X Many studies indicate favourable results in function, decreased pain and range of motion.

Y Many studies indicate favourable results in function, decreased pain, and range of motion.

Note: The final comma is generally omitted when the series consists of single-word items, for example, “red, yellow and blue.”

b. Use a comma when you join independent clauses with one of the seven coordinating conjunctions (and, or, nor, but, so, yet, for):

X Power corrupts and absolute power corrupts absolutely.

Y Power corrupts, and absolute power corrupts absolutely.

c. Use a semicolon when you join independent clauses without a coordinating conjunction:

X Power corrupts, absolute power corrupts absolutely.

Y Power corrupts; absolute power corrupts absolutely.

d. Do not use a comma to separate subject and verb:

X His enthusiasm for the project and his desire to be of help, led him to volunteer.

Y His enthusiasm for the project and his desire to be of help led him to volunteer.

e. Use a colon to introduce a list or a long or formal quotation after a complete sentence. Otherwise make the quotation part of the grammar of your sentence:

X Strunk (1995) asserts that: “Too many programmes are already underfinanced” (p.87).

Y Strunk (1995) asserts: “Too many programmes are already underfinanced” (p.87).

YStrunk (1995) asserts that “Too many programmes are already underfinanced” (p.87).

14. Incorrect Comparison

“Compared to” is often used incorrectly. It shouldn’t be used if the sentence contains a comparative term such “higher,” “greater,” “less,” or “lower.” For example,

X The blood serum levels in the control group were higher when compared to the treatment group.

YThe blood serum levels in the control group were higher than in the treatment group.

Another error that creeps into comparison sentences is the comparison of items that are unlike each other:

X Our results are similar to our previous studies.

YOur results are similar to the results of our previous studies.

15. Double Constructions

This is a form of grammar overkill in which a part of speech is unnecessarily duplicated:

X Since the legislation has passed, therefore we will have more nurse practitioners.

YSince the legislation has passed, we will have more nurse practitioners.

YThe legislation has passed; therefore, we will have more nurse practitioners.

X The new procedure was popular with both doctors as well as nurses.

YThe new procedure was popular with both doctors and nurses.

YThe new procedure was popular with doctors as well as nurses.

X The reason for the legislation was due to the long waiting lists.

Transitional Words and Phrases That Create Logic in Writing

To show addition:

a second point
again
and
also
another
as well
besides
first, second...
for one thing...for
 another
further
furthermore
in addition
moreover
next
or/nor
too

To compare:

also
by comparison
equally
in the same manner/in
 the same way
likewise
similarly
than

To contrast:

although
but
conversely
however
in contrast/by contrast
nevertheless
nonetheless
on the contrary
on the other hand
rather
still

To give examples:

for example
for instance
in fact
in particular
namely
particularly
specifically
such as
that is
to illustrate/as an
 illustration

To emphasize a point:

above all
certainly
chiefly
especially
indeed
in fact
in particular
more/most importantly
primarily
unquestionably

To restate a point:

again
in brief
in effect
in other words
in short
in simpler terms
that is
to put it another way
to repeat

To summarize or conclude:

in conclusion
in other words
in short
in summary

To indicate logical relationship:

as a result
consequently
for this reason
if...then
since
so
therefore
thus

To introduce a qualification or concession:

admittedly
after all
all the same
despite
doubtless
even if/even though
frequently
generally
granted
in a sense
in general
in spite of
it is true that
naturally
no doubt
notwithstanding
occasionally
of course
otherwise
provided
surely
to be sure
unfortunately
usually

though
unlike
whereas
yet

that is
therefore
to sum up

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A Brief Guide to Verb Tense and Voice in Scientific Writing

A. Present Tense

Use present tense:

1. To describe something that is happening now:
 - Appendix A summarizes the results of the survey.
2. To describe published research, articles or books whose conclusions you believe are currently valid and relevant. It doesn't matter whether the publication is recent or centuries old:
 - Malone (2003) discusses nursing care in the context of nested proximities.
 - In her *Notes on Nursing* (1860), Florence Nightingale includes practices for cleanliness and observation of the sick.
3. To indicate a general truth or fact, a general law, or a conclusion supported by research results. In other words, something that is believed to be always true:
 - The provincial government regulates the delivery of health care. [fact]
 - For every action there is an equal and opposite reaction. [law]
 - Our results demonstrate that cimetidine can improve mean fat absorption in adolescents with cystic fibrosis. [conclusion]
4. To describe an apparatus (because it always works the same way):
 - This temperature gauge gives an accurate reading in all weather conditions.
5. To state research objectives: [note: past tense is also commonly used]
 - The purpose of this study is to examine imagery use by elite athletes.

B. Simple Past Tense

Use simple past tense:

1. To describe something that began and ended in the past, e.g., the Methods or Results sections of a research report:
 - We administered four doses daily to 27 participants for 14 days.

- The transgenic plants showed up to eight-fold PAL activity compared to control.
2. To describe previous work on which the current work is based:
 - Smith et al.'s (2005) study collected data on the drug's effect in a pediatric population similar to ours.
 3. To describe a fact, law, or finding that is no longer considered valid and relevant:
 - Nineteenth-century physicians held that women got migraines because they were "the weaker sex," but current research shows that the causes of migraine are unrelated to gender.

Note the shift here from past tense (discredited belief) to present (current belief).

4. To state research objectives: [note: present tense is also commonly used]
 - The purpose of this study was to examine imagery use by elite athletes.

C. Perfect Tense

This tense is formed with the auxiliary ["helping"] verb **have** plus the main verb:

1. Use a **present perfect tense** to describe something that began in the past and continues to the present:
 - Hassanpour has studied the effects of radiation treatment since 1982. [and still does]
 - Researchers have demonstrated a close link between smoking and morbidity rates.
2. Use a **past perfect tense** to describe an action completed in the past before a specific past time:
 - Nightingale had begun her reforms of nursing practice prior to the Crimean War.

D. Future Tense

Use future tense in outlines, proposals, and descriptions of future work:

- The proposed study will examine the effects of a new dosing regimen. Twenty-seven participants will receive four doses daily for 14 days.

E. Progressive Tense

Use a progressive tense for an action or condition that began at some past time and is continuing now. It is formed from the auxiliary verb **be** plus a present participle. A progressive form emphasizes the continuing nature of the action:

- I am collecting data from three sites this month.

In places where conciseness is important (such as an abstract), it is often possible to use a simple verb form instead:

- With this new method, we are attempting to demonstrate....
- With this new method, we attempt to demonstrate....

F. Active and Passive Voice

Active (direct) voice: The normal pattern of English sentences is subject—verb—object, which we call active voice:

- Southern analysis indicated a single site of insertion.

Passive (indirect) voice reverses the order (object—verb—subject). Passive voice is constructed by using a form of the verb **be** followed by a past participle (**-ed**). The phrase “by [the subject]” is included or implied:

- A single site of insertion was indicated by Southern analysis.
- Southern analysis was performed [by us] and a single site of insertion was indicated [by the analysis].

Use passive voice:

1. to de-emphasize the subject in favour of what has been done:

- Red or blue outfits were randomly assigned to competitors in four elite sports.

2. to discuss background that exists as part of the body of knowledge of the discipline, independent of the current author:

- Colour is thought to influence human mood, emotions and expressed aggression.

As a general principle, use active voice in preference to passive. It is both more direct and more concise:

- Chen performed the experiment in 2006.
- The experiment was performed by Chen in 2006.

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A Brief Guide to Writing A Literature Review

What is a Review of the Literature?

A “review of the literature” is a classification and evaluation of what accredited scholars and researchers have written on a topic. Occasionally you will be asked to write one as a separate assignment, but often it is part of the introduction to an essay, research report, or thesis. In writing the literature review, your purpose is to convey to your reader what knowledge and ideas have been established on a topic, and what their strengths and weaknesses are. As a piece of writing, the literature review must be defined by a guiding concept (e.g., your research objective, the problem or issue you are exploring, or your thesis). It is not just a descriptive list of the material available, or a set of summaries.

A literature review consists of an **overview**, a **summary**, and an **evaluation** (“critique”) of the current state of knowledge about a specific area of research. It may also include a discussion of methodological issues and suggestions for future research.

Besides enlarging your knowledge about the topic, writing a literature review lets you gain and demonstrate skills in two areas:

1. **information seeking:** the ability to scan the literature efficiently, using manual and computerized methods, to identify a set of useful articles, books and documents;
2. **critical appraisal:** the ability to apply principles of analysis to identify unbiased and valid studies.

A literature review must do these things:

- a. be organized around and related directly to the thesis or research question you are developing;
- b. synthesize results into a summary of what is and is not known;
- c. identify areas of controversy in the literature;
- d. formulate questions that need further research.

Why are Literature Reviews Important?

To become an expert in any field of endeavour, you must know your field comprehensively. Critical reviews of state-of-the-art literature permit the professional to make informed decisions, to act in an expert manner, and to set policy in his or her field of expertise.

Researchers conduct reviews of the literature to justify proposed studies, to uncover patterns of findings in the field, to enter into scientific debate, and to discover gaps in knowledge that lead to future research questions. Research reviews are often the first step toward making discoveries and social interventions in our society.

Questions to Ask Yourself about Your Review of Literature

1. Do I have a specific thesis, problem, or research question which my literature review helps to define?
2. What type of literature review am I conducting? Am I looking at issues of theory? methodology? policy? quantitative research (e.g., studies of neural pathways)? qualitative research (e.g., studies of loneliness among migrant workers)?
3. What is the scope of my literature review? What types of publications am I using (e.g., journals, books, government documents, popular media)? What disciplinary databases am I searching? (e.g., nursing, psychology, sociology, medicine)?
4. How good are my information-seeking skills? Has my search been wide enough to ensure I've found all the relevant material? Has it been narrow enough to exclude irrelevant material? Is the number of sources I've used appropriate for the length of my paper?
5. Is there a specific relationship between the literature I've chosen to review and the problem I've formulated?
6. Have I critically analyzed the literature I use? Do I just list and summarize authors and articles, or do I assess them? Do I discuss the strengths and weaknesses of the material I cite?
7. Have I cited and discussed studies contrary to my perspective?
8. Will the reader find my literature review relevant, appropriate, and useful?

Questions to Ask Yourself About Each Book or Article You're Reviewing

1. Has the author formulated a problem/issue?
2. Is the problem/issue ambiguous or clearly articulated? Is its significance (scope, severity, relevance) discussed?
3. What are the strengths and limitations of the way the author has formulated the problem or issue?
4. Could the problem have been approached more effectively from another perspective?
5. What is the author's research orientation (e.g., interpretive, critical science, combination)?
6. What is the author's theoretical framework (e.g., psychoanalytic, developmental, feminist)?
7. What is the relationship between the theoretical and research perspectives?
8. Has the author evaluated the literature relevant to the problem/issue? Does the author include literature taking positions s/he does not agree with?
9. In a research study, how good are the three basic components of the study design (i.e., population, intervention, outcome)? How accurate and valid are the measurements? Is the analysis of the data accurate and relevant to the research question? Are the conclusions validly based upon the data and analysis?
10. In popular literature, does the author use appeals to emotion, one-sided examples, rhetorically-charged language and tone? Is the author objective, or is s/he merely "proving" what s/he already believes?

11. How does the author structure his or her argument? Can you “deconstruct” the flow of the argument to analyze if/where it breaks down?
12. Is this a book or article that contributes to our understanding of the problem under study, and in what ways is it useful for theory or practice? What are its strengths and limitations?
13. How does this book or article fit into the thesis or question I am developing?

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A Brief Guide to Reviewing Research Articles

A review of a “research article” (i.e., a published report of a research study) has two parts: a summary and a critique. In fact, this type of review is often called a “summary and critique.” The summary is generally much shorter than the critique.

Summary:

Give a concise and accurate summary of the study purpose, design, findings, and conclusions:

1. Type of study (e.g., randomized clinical trial, quasi-experimental)
2. Purpose of study (e.g., to test the hypothesis that....)
3. Materials and methods:
 - subject population (numbers, sex, ages, demographics, characteristics, etc.)
 - variables/measures/indicators, and the methods of observation
 - numbers of trials, length of time intervals, etc.
 - statistical analyses (or lack thereof) in the study design
4. Results:
 - actual results (e.g., means and variance, distribution)
 - statistics derived from the data; significance (or lack thereof) of statistics
5. Discussion/Conclusions:
 - how did the authors interpret the results or their significance and answer their research question?

Critique:

Discuss the strengths and weaknesses of the study:

1. Introduction: clarity and rationale of background and stated purpose/questions
2. Methods:
 - are they valid for studying this problem?
 - could the study be duplicated from the information given?
 - are there flaws in the methods (e.g., inadequate sample selection, inappropriate experimental design?)
3. Results: accuracy and reliability of observations
 - are the data presented in tables and illustrations organized for ready comparison and interpretation?
 - are there discrepancies between text and tables?
 - do the results reveal what the researcher[s] intended?
4. Discussion:
 - does the interpretation arise logically from the data, or is it too far-fetched?

- is the interpretation at odds or in line with other researchers' thinking?
- have all key studies been considered?
- have the authors discussed the strengths and limitations of their own research?
- do they suggest further work?

Be sure to consider the following, too:

1. Bias:
 - is the study biased in any way?
2. Disclosure:
 - do the authors share their results?
3. Logical reasoning: validity of design and conclusions
 - internal (did they answer the research question?) AND
 - external (is the study generalizable to another population or a currently held theory?)
4. Clarity of presentation:
 - does the title precisely state the subject of the paper?
 - does the abstract accurately summarize the article?
 - is all material organized under the appropriate headings?
 - are sections subdivided logically?
 - reflect on the writer's thinking and writing style: is it clear, concise, and precise?

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Critical Reading Toward Critical Writing

Critical writing depends on critical reading. Most of the essays you write will involve reflection on written texts -- the thinking and research that have already been done on your subject. In order to write your own analysis of this subject, you will need to do careful critical reading of sources and to use them critically to make your own argument. The judgments and interpretations you make of the texts you read are the first steps towards formulating your own approach.

Critical Reading: What is it?

To read critically is to make judgments about how a text is argued. This is a highly reflective skill requiring you to “stand back” and gain some distance from the text you are reading. (You might have to read a text through once to get a basic grasp of content before you launch into an intensive critical reading.) THE KEY IS THIS:

- don't read looking only or primarily for information
- do read looking for ways of thinking about the subject matter

When you are reading, highlighting, or taking notes, avoid extracting and compiling lists of evidence, lists of facts and examples. Avoid approaching a text by asking “What information can I get out of it?” Rather ask “How does this text work? How is it argued? How is the evidence (the facts, examples, etc.) used and interpreted? How does the text reach its conclusions?”

How do I Read Looking for Ways of Thinking?

1. First determine the central claims or purpose of the text (its thesis). A critical reading attempts to identify and assess how these central claims are developed or argued.
2. Begin to make some judgments about context. What audience is the text written for? Who is it in dialogue with? (This will probably be other scholars or authors with differing viewpoints.) In what historical context is it written? All these matters of context can contribute to your assessment of what is going on in a text.
3. Distinguish the kinds of reasoning the text employs. What concepts are defined and used? Does the text appeal to a theory or theories? Is any specific methodology laid out? If there is an appeal to a particular concept, theory, or method, how is that concept, theory, or method then used to organize and interpret the data? You might also examine how the text is organized: how has the author analyzed (broken down) the material? Be aware that different disciplines (i.e. history, sociology, philosophy, biology) will have different ways of arguing.

4. Examine the evidence (the supporting facts, examples, etc) the text employs. Supporting evidence is indispensable to an argument. Having worked through Steps 1-3, you are now in a position to grasp how the evidence is used to develop the argument and its controlling claims and concepts. Steps 1-3 allow you to see evidence in its context. Consider the kinds of evidence that are used. What counts as evidence in this argument? Is the evidence statistical? literary? historical? etc. From what sources is the evidence taken? Are these sources primary or secondary?

5. Critical reading may involve evaluation. Your reading of a text is already critical if it accounts for and makes a series of judgments about how a text is argued. However, some essays may also require you to assess the strengths and weaknesses of an argument. If the argument is strong, why? Could it be better or differently supported? Are there gaps, leaps, or inconsistencies in the argument? Is the method of analysis problematic? Could the evidence be interpreted differently? Are the conclusions warranted by the evidence presented? What are the unargued assumptions? Are they problematic? What might an opposing argument be?

Some Practical Tips

1. Critical reading occurs after some preliminary processes of reading. Begin by skimming research materials, especially introductions and conclusions, in order to strategically choose where to focus your critical efforts.

2. When highlighting a text or taking notes from it, teach yourself to highlight argument: those places in a text where an author explains her analytical moves, the concepts she uses, how she uses them, how she arrives at conclusions. Don't let yourself foreground and isolate facts and examples, no matter how interesting they may be. First, look for the large patterns that give purpose, order, and meaning to those examples. The opening sentences of paragraphs can be important to this task.

3. When you begin to think about how you might use a portion of a text in the argument you are forging in your own paper, try to remain aware of how this portion fits into the whole argument from which it is taken. Paying attention to context is a fundamental critical move.

4. When you quote directly from a source, use the quotation critically. This means that you should not substitute the quotation for your own articulation of a point. Rather, introduce the quotation by laying out the judgments you are making about it, and the reasons why you are using it. Often a quotation is followed by some further analysis.

5. Critical reading skills are also critical listening skills. In your lectures, listen not only for information but also for ways of thinking. Your instructor will often explicate and model ways of thinking appropriate to a discipline.

How to Analyze Issues: A Brief Guide

Issue: Often defined broadly as a problem, but the connotations of the word "problem" are simplistic and negative. What we really mean by "issue" is a complex human situation, often involving conflicting interests and solutions. Critically analyze: By "analyze" we mean to break something down into its parts, so that we can understand the whole. By being "critical" we DON'T mean finding fault. We mean judiciously assessing what we have analyzed, evaluating both its strengths and weaknesses for a specific purpose (i.e., making recommendations for improvement). In analyzing issues, ask yourself these sets of questions:

1. The Issue:

What are there issues of?

Why do we care about this issue?

What does the literature say about this issue?

2. The Stakeholders:

Who is affected by the issues? (stakeholders)

How are the individual stakeholders affected? Who benefits most? least?

Who has the most power? least?

What bias/perspective does each stakeholder have? Is there a model or theory involved? (e.g., medical vs holistic)

3. The Solutions:

What solutions will benefit the various stakeholders?

How do the stakeholders justify their solutions?

Where do these solutions converge?

Where do these solutions conflict?

What is the "best" solution or solutions? (your recommendations)

How would you justify these solutions? (theory or model)

What are the strengths and weaknesses of the "best" solutions? (evaluation)

How do we implement them? (recommended process)

Where do we go from here? (implications for future theory/research/practice)

Note: "Best" is a relative term. The best solution possible may not be very satisfactory to anyone, but still be the best possible under the circumstances.

A Guide to Critical Argument

“Scientific papers are not just baskets carrying unconnected facts like the telephone directory; they are instruments of persuasion. Scientific papers must argue you into believing what they conclude; they must be built on the principles of critical arguments.” (Huth, 1990, p.55)

What is a Critical Argument?

An “argument” is a logically connected series of reasons, statements, or facts (evidence) used to support or establish an idea or point of view (a claim; see Huth, 1990, p.56). The purpose of argument is to persuade the reader to accept the claim as true, and/or to undertake some action.

To be “critical” is to analyze and evaluate ideas and evidence. The purpose is to understand the strengths and limitations of research, theory or practice for both its stated purpose and your own topic.

Arguments are frameworks designed to help us approach solutions to difficult problems. Critical argument allows us to judge the strengths and weaknesses of our options in a logical fashion.

A critical argument is NOT a set of unsupported opinions. For example, the claim that “Pharmacy is the best profession in the world” cannot be argued. It reflects the writer’s personal definition of “best,” which no amount of evidence could prove. On the other hand, a claim such as “Pharmacists are essential members of the health care team” can be argued—by defining in what ways and to whom pharmacists are essential, and by providing supporting examples.

We can argue deductively (start with a general principle and deduce consequences and applications) or inductively (start with facts or situations and infer a general principle). Another way to understand deductive and inductive reasoning is this:

- in deductive argument, we advance an idea and support it with evidence;
- in inductive argument, we start with the evidence and interpret it to come up with an idea.

Writing that manipulates data technically (such as a lab report) or mathematically (such as statistical analysis) relies on deductive argument. Outside of the realm of mathematical proof, however, most written argument is primarily inductive. In research writing, for example, researchers use statistical analysis to deduce the significance of their results. Then, however, they interpret the evidence (the significance) to argue for a particular answer (e.g., their research hypothesis) to their question or issue. This is an inductive process.

See below for an explanation of the basics of formal logic.

Some Features of Well-written Arguments

- They are constructed logically. That is, they are coherent and have a logical flow.
- They have an appropriate balance of ideas and evidence.
- They can be summarized clearly and briefly (e.g., in a thesis statement, or in an abstract).

Well-written arguments are constructed logically. That is, they are coherent and have a logical flow.

Any written argument can be broken down, or “deconstructed,” to reveal its logical underpinnings. Here is an example of writing that advances a persuasive and logically structured argument, followed by its deconstruction. It was written by a graduate student seeking renewal of a grant:

My project within the laboratory is to investigate the role of TNFa in aneurysm formation. Specifically, I will determine the role of TNFa in smooth muscle cell apoptosis as a mechanism leading to aneurysm formation. My hypothesis is that TNFa is necessary for development of coronary artery lesions in an animal model of Kawasaki Disease (KD). First, I will delineate the kinetics of TNFa production during disease evolution using real-time reverse-transcriptase polymerase chain reaction. I will also determine the requirement for TNFa in the early immune response, both by using genetically-modified animals with mutations in the TNFa p55 receptor and by using a soluble TNFa receptor to try to ameliorate the disease early in its course, thus mimicking treatment in the acute phase in children with KD. Secondly, I will examine the affected organ (heart) both in a whole animal model and in an ex-vivo coronary artery organ culture system to determine the role of TNFa in apoptosis of various vessel wall components. To date, I have mastered the fundamental techniques in basic immunology and basic molecular biology required to answer my research questions, and look forward to exciting results in the near future.

I. Introduction

1. My project is to investigate the role of TNFa
 - 1.1 Specifically, I will determine
2. My hypothesis is

II. Method

1. First, I will delineate
 - 1.1 I will also determine
 - 1.1.1 both by using
 - 1.1.2 and by using
2. Secondly, I will examine
 - 2.1 both in
 - 2.2 and in

to determine the role of TNFa.

III. Conclusion

1. To date, I have mastered...fundamental...basic...basic
2. and I look forward ...exciting...near future.

Arguments have an appropriate balance of claims and evidence. In this sentence, for example:

- I. Claim: I will also determine the requirement for TNFa in the early immune response,
- II. Evidence (the method): both by using genetically-modified animals with mutations in the TNFa p55 receptor and by using a soluble TNFa receptor to try to ameliorate the disease early in its course.

Arguments can be summarized clearly and briefly (e.g., in a thesis statement, or in an abstract):

- I. My research will advance our understanding of Kawasaki Disease in children.
- II. My methodology is thorough.
- III. I'm ready to get started. Please send money.

Using Language to Build an Argument

We use language to build and strengthen our arguments through

- Key words and concepts repeated and added to in a logical sequence
- Connectors: transitional words and phrases that establish relationships such as addition, contrast, comparison, causation. Click here for a list of useful [transitions](#).

This next example is part of the introduction to a policy analysis. The sentence identifies the main argument (the “central claim”) of the paper, and lists the three factors that the analysis focuses on:

In the 1990s, several factors led to a reduction in long-term care services in the Greater Toronto Area: cuts in provincial funding, changes in societal attitudes, and the new market economy.

In the body of the policy analysis, the writer develops the same information into a paragraph that advances an argument. The writer creates a causal chain of argument by repeating the key words of the introduction, logically connected into a sequence of claims and evidence:

In the mid-1990s, the provincial government was influenced by the model of the new market economy and [addition] sought a rationale for cutting its funding of social programs. Thus, [causation] it took advantage of a recent hardening of societal attitudes to accelerate its cuts to these services. As a result, [causation] long-term care services in the GTA were cut by 20% in 1998, as compared with [comparison] a 5% cut in 1997.

Final Example

To bring together everything this Guide has said, let's take a weak argument and revise it. This example is the first paragraph of a research report. You'll notice, among its other weaknesses, that it contains key words but no logical connectors.

1. During the last few decades the interest in fine particulates has increased dramatically.
2. Many studies have shown that there are negative effects of air pollution on human health.
3. Knowledge is growing about the composition of air pollution, mechanisms of toxicity and susceptible populations.
4. This study is one of the attempts to understand how fine particulates and ozone might interfere with the autonomic regulation of heart.

1. The key concepts of this sentence are vague: what does "dramatically" mean? How long is "a few decades"—twenty years? fifty years? It's okay to be broad in a first sentence, but not vague. "Fine particulates," on the other hand, is too specific for a first sentence.

2. This sentence introduces the broader topic of air pollution and human health, which is good, but it would be better to move from broad to specific (air pollution to fine particulates) rather than from specific to broad.

3. There are specific details in this sentence, which is good, but the reader is left unsure whether the current study is on air pollution or fine particulates. This is also the third sentence in a row that makes vague statements about the literature (interest; many studies; knowledge is growing).

4. In this sentence the writer leaps back to the topic of fine particulates. Meanwhile, both ozone and autonomic regulation of heart appear from nowhere.

Now let's revise. We'll set up a sequence of key words and logical connectors to create a persuasive argument:

1. Many studies (e.g., 1-6) have shown that air pollution has negative effects on human health.
2. Further, knowledge is growing about the composition of air pollution, mechanics of toxicity and susceptible populations.
3. In particular, a number of recent studies (7-11) have focused on the effects of fine particulates and ozone.
4. However, no research has been conducted to link fine particulates and ozone with the autonomic regulation of the heart, despite clinical evidence

that such a link might exist. 5. Thus, this study was designed to explore the mechanisms by which fine particulates and ozone might interfere with autonomic regulation of the heart.

1-3. The key concepts in the first three sentences move logically, from a broad idea (air pollution and human health) to more specific aspects about our understanding of air pollution (composition, toxicity and susceptible populations), to the particular topic of the study (fine particulates and ozone).

4. This sentence identifies (however) a gap in our understanding. It links fine particulates and ozone with the autonomic regulation of the heart. Notice that I've added a rationale for the current research (clinical evidence). The original paragraph didn't offer any reason why we would want to investigate these things.

5. This sentence makes the final links that connect the study with fine particulates/ozone and autonomic regulation of the heart.

Basics of Formal Logic

A deductive argument advances from a set problem and will produce a "right" or "wrong" answer (Felder, 1988). The basic form of deductive reasoning is the logical syllogism. Here is a classic example of sound logic:

major premise:	All mammals are warm-blooded animals.
minor premise:	Whales are mammals.
conclusion:	Therefore, whales are warm-blooded animals. OK

In appraising the soundness of a deductive argument, we ask these questions:

- Are all the premises true (or do they at least seem to be true)? If one or more of the premises is false, then the conclusion cannot be known to be true on the basis of those premises, even if the logical structure of the argument is valid:

major premise:	All mammals can fly.
minor premise:	Whales are mammals.
conclusion:	Therefore, whales can fly. X

- Is the argument logically valid? Given the truth of the premises, does the conclusion really follow from the premises? If not, why not?

major premise: All hospitals have beds.
minor premise: The Four Seasons Hotel has beds.
conclusion: Therefore, the Four Seasons Hotel is a hospital. X

This example is a non sequitur (literally, “it does not follow”). Just because all hospitals have beds, it does not follow that all buildings with beds are hospitals.

In an inductive argument, the writer defines the problem, then locates and defends the information that leads us to a “best” solution (Felder, 1988). Whereas deductive reasoning can be used to establish proof, inductive reasoning establishes levels of probability. I might tell you, for example, that I have been a moderate social drinker for 20 years. No one has ever seen me intoxicated. You might conclude that I won't get drunk at the party tonight and you ask me to drive you home. Here, the premises are true and the argument is valid, but the conclusion isn't necessarily true. Maybe tonight's the night I suddenly develop a love of beer. It's highly probable that I'll stay sober, but not certain.

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How Not To Plagiarize

You've already heard the warnings about plagiarism. Obviously it's against the rules to buy essays or copy from your friends' homework, and it's also plagiarism to borrow passages from books or articles or websites without identifying them. You know that the purpose of any paper is to show your own thinking, not create a patchwork of borrowed ideas. But you may still be wondering how you're supposed to give proper references to all the reading you've done and all the ideas you've encountered.

The point of documenting sources in academic papers is not just to avoid unpleasant visits to the Dean's office, but to demonstrate that you know what is going on in your field of study. Get credit for having done your reading! Precise documentation is also a courtesy to your readers because it lets them look at the material you've found. That's especially important for Internet sources.

The different systems for typing up references are admittedly a nuisance. See the handout "Standard Documentation Formats" for an overview. But the real challenge is establishing the relationship of your thinking to the reading you've done. Here are some common questions and basic answers.

1. Can't I avoid problems just by listing every source in the reference list?

No, you need to integrate your acknowledgements into your own writing. Give the reference as soon as you've mentioned the idea you're using, not just at the end of the paragraph. It's often a good idea to name the authors ("X states" and "Y argues against X") and then indicate your own stand ("A more inclusive perspective, however, . . ."). The examples on the next page demonstrate various wordings for doing this. Have a look at journal articles in your discipline to see how experts refer to their sources.

2. If I put the ideas into my own words, do I still have to clog up my pages with all those names and numbers?

Sorry—yes, you do. In academic papers, you need to keep mentioning authors and pages and dates to show how your ideas are related to those of the experts. It's sensible to use your own words because that saves space and lets you connect ideas smoothly. But whether you quote a passage directly in quotation marks, paraphrase it closely in your own words, or just summarize it rapidly, you need to identify the source then and there. (That applies to Internet sources too: you still need author and date as well as title and URL. The handout "Standard Documentation Formats" gives examples for a range of types.)

3. But I didn't know anything about the subject until I started this paper. Do I have to give an acknowledgement for every point I make?

You're safer to over-reference than to skimp. But you can cut down the clutter by recognizing that some ideas are "common knowledge" in the field—that is, taken for granted by people knowledgeable about the topic. Facts easily found in standard reference books are considered common knowledge: the date of the Armistice for World War I, for example, or the present

population of Canada. You don't need to name a specific source for them, even if you learned them only when doing your research. They're easily verified and not likely to be controversial. In some disciplines, information covered in class lectures doesn't need acknowledgement. Some interpretive ideas may also be so well accepted that you don't need to name a specific source: that Picasso is a distinguished modernist painter, for instance, or that smoking is harmful to health. Check with your professor or TA if you're in doubt whether a specific point is considered common knowledge in your field.

4. How can I tell what's my own idea and what has come from somebody else?

Careful record-keeping helps. Always write down the author, title and publication information (including the URL and other identifying information for web pages) so you can attach names and dates to specific ideas. Taking good notes is also essential. Don't paste passages from online sources into your draft: that's asking for trouble. As you read any text—online or hard-copy—summarize useful points in your own words. If you record a distinctive phrase or sentence you might want to quote, put quotation marks around it in your notes to remind yourself that you're copying the author's exact words. And make a deliberate effort as you read to notice connections among ideas, especially contrasts and disagreements, and to jot down questions or thoughts of your own. If you find as you write that you're following one or two of your sources too closely, deliberately look back in your notes for other sources that take different views; then write about the differences and why they exist.

5. So what exactly do I have to document?

With experience reading academic prose, you'll soon get used to the ways writers in your field refer to their sources. Here are the main times you should give acknowledgements. (You'll notice many different formats in the following examples; see the sheet "Standard Documentation Formats" for advice on these systems.)

a. Quotations, paraphrases, or summaries:

If you use the author's exact words, enclose them in quotation marks, or indent passages of more than four lines. But it's seldom worthwhile to use long quotations. In literary studies, quote a few words at a time and comment on them. In other disciplines, quote only when the original words are especially memorable. In most cases, use your own words to summarize the idea you want to discuss, emphasizing the points relevant to your argument. Be sure to document these paraphrases or summaries even when you are not using the exact original words. Mentioning the author's name indicates where the borrowing starts and stops and gains you some reflected glory for responding to the experts.

e.g. As Morris puts it in *The Human Zoo* (1983), "we can always be sure that today's daring innovation will be tomorrow's respectability" (p. 189). [APA system]

e.g. Northrop Frye discusses comedy in terms of the spring spirit, which he sees as representing renewal and integration (*Anatomy* 163). The ending of *The Tempest* fits this pattern. [new MLA system]

b. Specific ideas used as evidence for your argument or interpretation:

First consider whether the ideas you're mentioning are “common knowledge” according to the definition in point 3 above; if so, you may not need to give a reference. But when you're relying on ideas that might be disputed by people in your discipline, establish that they're trustworthy by referring to authoritative sources.

e.g. In September 1914, more than 1300 skirmishes were recorded on the Western Front.⁸
[traditional endnote/footnote system]

e.g. Other recent researchers (4, 11, 12) confirm the finding that drug treatment has little effect in the treatment of pancreatic pseudocysts. *[numbered-note system for biomedical sciences]*

c. Distinctive or authoritative ideas, whether you agree with them or not:

The way you introduce the reference can indicate your attitude and lead into your own argument.

e.g. In 1966, Ramsay Cook asserted that Canada was in a period of instability (174). That period is not yet over, judging by the same criteria of electoral changeability, economic uncertainty, and confusion in policy decisions. *[new MLA system]*

e.g. One writer (Von Daniken, 1970) even argues that the Great Pyramid was built for the practical purpose of guiding navigation. *[APA system]*

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