

# SCHOOL OF PUBLIC HEALTH

## Writing Guide

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The writing of any report, essay or dissertation is a process of development. It takes time to read, think, make notes and draft a piece of work, but organising your thoughts on paper is an invaluable part of the way we learn complex facts and concepts.

### **The writing process**

The first part of the process is to research, read and think about your topic. The next step is to write a rough draft, and then you will spend time working on that to produce the final product. We have briefly covered sources of information if you are not familiar with the writing process or with scientific writing. After that we have provided some hints for you to improve your rough draft. Worrying about your expressions and use of language when you are making notes or writing a rough draft may hold you up. It is when you have your ideas on paper, however rough the form, that you can work on the flow, style and structure of your material.

There are many books and websites you can consult if you are not familiar with the process of formal or academic writing. This guide has only distilled a framework of the process for your guidance. The books are listed at the end of this guide, with the best ones marked for you. One of the best introductory websites on writing process is the following:

<http://owl.english.purdue.edu/handouts/general/index.html>

This site has handout sheets that cover everything from planning and writer's block through to proofreading. Although the examples may seem banal, the process of planning and writing is covered in detail and may be helpful to you if you feel completely lost about how to write at this level.

If you are new to scientific writing there are many articles and websites to help you. The first url will take you to a classic article on scientific writing which is well worth your while studying. It includes some cogitation on how readers interpret texts, as well as some very practical pointers to improving your sentence structure.

<http://www.research.att.com/~andreas/sci.html>

Here is one that covers scientific writing in general, including getting published:

<http://mel.lib.mi.us/science/writ.html>

### **Working with your draft**

#### **Grammar**

This is not a grammar guide. If you are not sure of the elements of grammar, there are many resources available to you on the Web. Here is one for you to browse if you need to brush up on the basics:

<http://owl.english.purdue.edu/handouts/grammar/index.html>

The next site is the most comprehensive searchable guide to English grammar on the net at time of writing. You will find everything you ever need to know about grammar here, explained clearly and simply:

<http://webster.commnet.edu/grammar/>

Here is another useful simple guide, which has little self tests at the end of each section:

<http://www.grammarbook.com/>

The next guide is an excellent and comprehensive one, specifically for technical and scientific writers:

<http://stipo.larc.nasa.gov/sp7084/index.html>

Finally, here is another good site that lists some common errors and problems alphabetically. It also has a helpful list of further on-line resources.

<http://www.wsu.edu:8080/~brians/errors/errors.html>

Have a look at each of these guides. You may want to print one, or parts of one, for future reference. The decision about which one will best suit your purpose will depend on your previous knowledge of and confidence with English grammar.

## Other tips

Assuming you are fairly confident about grammar, or at least know where to find the information you need to correct your errors, here are some other tips for improving your writing.

### **Be simple and concise**

Express yourself in the simplest possible terms. Check each word, phrase and sentence. Can it be shortened or simplified? Is it really necessary? Can a word or expression be deleted without affecting the meaning?

#### *Aim for a simple style*

A fancy literary or overblown style is not appropriate in scientific writing. Avoid the use of literary allusions, pompous words instead of simple ones, metaphorical expressions and hyperbole (exaggeration for effect). Use short words instead of long ones. For example:

do	<i>not</i>	accomplish
cause	<i>not</i>	aetiology
part	<i>not</i>	component
use	<i>not</i>	utilisation
use	<i>not</i>	utilise
begin	<i>not</i>	commence, initiate or inaugurate
before	<i>not</i>	prior to

Choose the concrete over the abstract; words over symbols, initials or abbreviations; English words over foreign, familiar words over unfamiliar. Compare the following pairs of examples:

In studies pertaining to the identification of phenolic derivatives, drying of the paper gives less satisfactory results.

Phenolic derivatives are more easily seen and identified if the paper is left wet.

It has been a mooted question in the minds of microbiologists whether the gonococcus possesses a capsule.

Microbiologists question whether the gonococcus has a capsule.

In the present report the results of a series of experiments are described in which wine and beer drinkers were tested to see whether...

We tested wine and beer drinkers to see whether...

The aetiology of dependency in elderly people, and therefore the need to seek residential care, is multifactorial.

There are many reasons why elderly people become dependent and need to seek residential care.

Various types of household appliances were found to have differing amounts of sales attraction in different areas of Australia.

Refrigerators sold better in Queensland, radiators in Victoria.

### *Avoid verbosity*

Verbosity wastes space. Short articles are more likely to be accepted by journals, whose space is always limited. When unnecessary words are deleted, the grammatical construction and style of expression are improved and the work is easier to read and understand.

Some superfluous noun phrases:

the amount of  
the case of  
the character of  
the situation where  
the extent of  
the concept of  
the magnitude of  
the purpose of

### Superfluous verbs

the numbers shown in – the numbers in  
the data taken/extracted from – the data from

### Superfluous relative pronouns, articles and prepositions

many of the subjects – many subjects  
people who had been interviewed – people interviewed

### The openings 'It...' and 'There...'

It was Dr X who first described – Dr X was first to describe  
There are some people who think – Some people think

It appears that }  
It goes without saying that } are usually superfluous  
It should be noted that }

## Overweight prepositions

in regard to	–	on, about
with respect to	–	on, about
with reference to	–	of, on, for, about

## Weak modifiers

actually	fortunately	rather
available	hopefully	several
certainly	particularly	
fairly	quite	

## Avoid jargon

Jargon complicates expression, is often inaccurately used, and may make meanings ambiguous. Use technical words only where necessary and appropriate. Consider this phrase: 'Optimal reaction conditions are approximated when...'. The word 'approximate', a mathematical expression meaning 'approach', is used incorrectly. The phrase is simple and precise when translated into 'The reaction goes most quickly when...'.

Fishbein gives this delightful example of what he calls 'gobbledygook': Can you understand it easily? How would you improve it?

There is little heuristic value in erecting a specific hierarchy of the neuroses and psychoses as correlated to a multiple stage account of the development and vicissitudes of the libido. Instead it can be contended on both theoretical and clinical grounds (a) that the so-called libidinal stages of development have a temporal existence only in so far as the growing infant become physiologically capable of expressing them, and (b) that in later life the 'psychological' counterparts of these libidinal organ-cathexes overlap and mingle in terms of simple 'orality', 'anality' or 'genitality' analogous to committing mayhem on the facts.

## Avoid ambiguity

Are you sure that what you have written means to others what it means to you? If in doubt, ask others to read your work and tell you what it means to them. Ask yourself: will a reader without experience in this field understand my work? Can it be understood by someone whose English is their second language?

## **Choose the correct word**

Use general and technical dictionaries whenever you have doubts about the correct meaning. Guides to accepted usage, such as *Fowler's Modern English Usage* or Strunk and White's *The Elements of Style*, an early edition of which can be found at this address:

<http://sut1.sut.ac.th/strunk/>

are also helpful tools in writing well.

Make sure that you are using words correctly. Does the context change the meaning of the word? The following words are often used incorrectly as synonyms:

amount	alternate	minimal	equal
concentration	alternative	negligible	equivalent
content		slight	
level			

various	imply	delete	anticipate
varying	infer	exclude	expect
varied		eliminate	
a variety of			
different			
differing			

The following commonly used words often have an imprecise meaning, depending on their context. If you have used them, check that the meaning you intend is clear and that haven't used them as 'filler' words, substituting for a more precise word.

area	level	situation	character
nature	structure	conditions	problem
system	field	process	

### **Common grammatical problems**

As these are common problems it would be worthwhile for you to check them out on one of the grammar sites listed above if you are not already familiar with them:

#### *Dangling or misrelated participles*

After completing the questionnaires, blood pressures were measured.  
(Dangling – the test subjects/patients have disappeared completely and there is no indication of who completed the questionnaires or whose blood pressure was measured).

After completing the questionnaires, the blood pressure of subjects was measured. (Misrelated – although the subjects are there, the participle 'completing' is here related to their blood pressure, not to themselves.)

After completing the questionnaires, subjects had their blood pressures measured.  
(Correct)

#### *Unidentified or ambiguous antecedents of pronouns*

Failure of treatment with penicillin could not have been predicted because of the defective assay method used. Unfortunately, this occurs in many hospitals.  
(Does the 'this' refer to the failure of treatment, the defective assay method, or the inability to predict?)

Cimetidine is highly effective in suppressing gastric acid secretion in such cases. It is unfortunate that it is not prescribed more often.  
(The first *it* is an 'opening *it*' that has nothing to relate back to, and the second is intended to relate back to *cimetidine*, but the reader must search past 'gastric acid secretion' to find its antecedent.)

Unfortunately, this drug is not prescribed often enough.  
(This is clearer.)

#### *Relative pronouns*

*That*, *which* and *who* are often misused. If you aren't clear which one to use where, look it up on one of the grammar web sites listed above.

## **Abstract nouns instead of verbs**

Scientific writing often contains too many abstract nouns that have been derived from verbs. Avoid writing with these; using the original verb is clearer and more vivid. A tip: look out for words ending in ‘-ation’ – they are often abstract nouns derived from verbs.

The identification and classification of the various histologic types of lymphomas are vital steps towards the introduction of new therapies and the reduction of mortality.  
Identifying and classifying the histologic types of lymphomas are vital steps towards introducing new therapies and reducing mortality.

An investigation of the underlying causes was carried out.  
The underlying causes were investigated. (Or: We investigated the underlying causes.)

The following words – ‘empty’ verbs – should raise suspicion that a construction with an abstract noun is lurking:

accomplished	experienced	obtained
achieved	facilitated	occurred
attained	given	performed
carried out	proceeded	implemented
conducted	indicated	produced
done	involved	required
effected	made	

## **Noun clusters and stacked modifiers**

In scientific writing, groups of words are often used together to describe an effect or process. When more than two words are used together the meaning may become ambiguous; it is often unclear what is modifying what. The hyphen can be a great help in clarifying these modifiers.

a radiumcontaining argon ionisation chamber

This implies a chamber containing radium that ionises argon. What it is in fact is a chamber that contains both argon and radium. Organic vapours are introduced into the chamber, react with the argon and are ionised. Using hyphens can make this clearer:

a radium-containing-argon ionisation chamber

Here are some non-scientific examples that make the use of the hyphen clear:

A dutch cheese importer is someone from the Netherlands who imports cheese from anywhere.  
A dutch-cheese importer is anyone who imports cheese from the Netherlands.

A small arms dealer is a short person who will sell you any kind of gun.  
A small-arms dealer is a person of any height who will sell you a handgun.

## **Consistency of style**

Be consistent throughout your document with the following:

### *Spelling*

Check words with more than one accepted spelling, plural forms and hyphenated forms.

## *Capitals*

Check how you capitalise proper nouns, names of organisations, units, etc for consistency.

## *Abbreviations and Initials*

It is common to use acronyms in reports and articles. Use the words the first time with the acronym in a bracket, then the acronym thereafter. If your report contains many acronyms make a list in an appendix (preferably Appendix A, to make it easy to refer to).

Alternatively, when a term is repeated (for example the setting of your study) it can be abbreviated without being reduced to initials. For example, South Western Sydney Area Health Service may be referred to the first time in full, then as 'the Area Health Service' or even 'the Area' or 'the Service', whichever seems appropriate, or as 'South Western Sydney', if the context makes it unambiguous.

## *Numbers*

Generally, measurements, percentages and any numbers that are not whole numbers (integers) should be in figures. However, numbers starting a sentence should be expressed in words (or you could rearrange the sentence), as should numbers under 10:

Ninety-two patients were followed over a period of three months by 12 researchers.

Make sure all abbreviations for units are correct SI unit symbols.

## *Punctuation*

If you're not clear about correct punctuation there is a good basic guide at

<http://www.grammarbook.com/>

One check that writers commonly overlook is to make sure every quotation has a beginning and an end.

## **Other style errors to avoid**

### *Impersonal constructions and the passive voice*

Use the active voice where possible. It is a common misapprehension that the first person should not be used in scientific writing. It is not unscientific to report what you (or you and your fellow investigators) did in the first person.

The present study was undertaken in order to investigate...  
(Wordy and impersonal)

We undertook this study to investigate...  
(Better)

We investigated...  
(Even better, if the investigators did what they set out to do.)

'In the opinion of the present author' is just pompous. Say: 'In my opinion', or leave the phrase out altogether.

### *Using two words instead of one*

A laparotomy was performed on the next day and the diagnosis of appendicitis was confirmed.  
(Clumsy.)

A laparotomy the next day confirmed the diagnosis of appendicitis.  
(Better)

### *Overused phrases, fad words and slang*

Try and remove these from your writing wherever you can. They weigh your writing down and make it flaccid, unoriginal and uninteresting.

to impact – to affect, to have an effect

to interface – to work together, to meet

the bottom line is – what this means is

rationale – reason

### *Contractions*

Except in rare cases where they are used for rhetorical effect, contractions are too informal for dissertations and essays.

don't - do not                      it's - it is

### *Dehumanising words*

person *not* individual

patient (or client) *not* case

woman *not* female; man *not* male

patient with diabetes *not* a diabetic

## **Summary**

The process of getting your thoughts onto paper and structuring them into a coherent piece of work is important in academic work. It is a skill that comes more easily with practice. You will learn from the comments that lecturers make on your work where you need to improve your writing.

## Other resources

As well as the websites listed in this guide, there are many books on writing style and scientific/medical writing. In this guide, we have 'borrowed' ideas and examples from some of these. Those marked with an asterisk are particularly useful.

Australian Government Publishing Service. Style manual for authors, editors and printers. 5th ed. Canberra: AGPS Press; 1994.

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