Tips on Writing

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A university degree, whether undergraduate or postgraduate, usually depends quite heavily on the submission of written work for formal assessment. That is, the grades you get, and your final degree classification, are dependent on things you've written – essays, reports, dissertations, and of course the answers that you write on exam-papers. And it doesn't stop there: for very many graduate- or postgraduate-level jobs, there is an expectation, or indeed a need, for you to be able to clearly and concisely express facts, ideas, and opinions in written form.

This brief document contains some tips on writing, some tips on things to do to improve your written work, and some tips on things to avoid. Each of the tips here are things that I have found myself saying frequently, year after year, to very many students, in feedback on essays and reports and dissertations and MSc theses and PhD theses.

Tip 1. Write for an audience.

When you sit down to write, have some idea in your head of who it is that you're writing for, or at least of what group of people your writing is aimed at: your *audience.* The language and style of your writing will be affected by this. In particular, it helps you to make assumptions about what the reader already knows. For example, if you're writing for a general intelligent audience, the kind of people who might read broadsheet newspapers, or magazines such as *New Scientist*, *Scientific American*, or *The Economist*, then you may need to take care in explaining technical terms and concepts; whereas if you're writing for an academic peer-review international conference or journal, you can reasonably assume that the audience already has some specialist knowledge. If you're writing for school children, you would probably use an entirely different style.

Whoever you are writing for, bear in mind that almost definitely there are lots of other things that your reader could be doing, rather than reading what you've written. If you write clearly, and engagingly, you are likely to keep the reader's attention. If what you write is littered with errors, or is confusing to follow, or has lots of irrelevant waffle in it, then the reader is likely to lose interest in what you've written, and maybe even to doubt that you really know what you're talking about. Every sentence in what you write should be there for a reason, should be doing a job; and if you find that you have written a sentence that isn't doing a job, you should delete it.

Tip 2. Say what you want to say.

The aim of good technical/academic writing is usually to clearly articulate some set of ideas, of points that you want to make, and for longer items of writing probably also to draw conclusions from the set of points. Be as clear as possible, from the outset, what it is that you want the reader to learn, to understand, from reading what you've written. This is one reason why most academic documents have an abstract at the start, and why

commercial/business documents often start with an "executive summary": the text commences with a short summary statement of what is coming in the rest of the document; it's almost like an advert for a product or a trailer for a movie.

Also most documents close with a summary or conclusion that review the points raised, the arguments made. There is an old saying about how to structure a paper or a talk: *tell them what you're going to say; say it; then tell them what you just said.* For any document of more than a few paragraphs in length, this is a useful thing to remind yourself of when you're writing. This doesn't just apply to academic writing: journalists are usually taught that the first paragraph of a news story should tell the whole story in summary form, and preferably so should the first sentence of the first paragraph; then the remaining text explains things in more detail.

In longer texts, like major reports, dissertations, and theses, it is useful to have some "linking text" at the start and end of each chapter, reminding the reader where they are, what's been said so far, what's coming next, and how that fits into the bigger picture, into the "narrative arc", of the whole text.

Tip 3. Remember the reader.

Someone has to actually read what you've written, so try to make it easy for them. Tip 2 is about helping the reader to understand what's coming, so that your text doesn't seem like a guessing game or a confusing mystery story. But there is more that you can do to help the reader: one very useful thing, when you finish a sentence or a paragraph or a page or even your whole essay/report, is to have someone read it out loud. Either you read it out loud to a friend, or have a friend read out loud to you, or read it out loud to yourself in private. If you can find a friend to help, asking your friend to explain back to you what they understood from what you have written can help to identify parts of your writing that are difficult for a reader to understand or where you have not explained things clearly. If you're reading on your own, the act of actually saying the words out loud can still help you identify problems such as sentences that are too long, or text that is repetitive, or ideas/concepts/phrases that are introduced in the wrong sequence. This can be quite time-consuming, but it can really help improve the quality of the writing. Also it is useful to be always asking yourself *"What will this sound like when someone reads it out loud?"* while you are writing, to keep yourself focused on writing clear text.

Tip 4. Improve it by not working on it.

If you only finish your writing a few moments before the submission deadline, then what you submit will not be as good as it could have been if you'd given it more time, by not working on it. This may seem like strange advice, but in practice it is really simple: unless you're writing to a very tight deadline, any piece of writing can usually be improved by finishing it ahead of time, and then leaving it totally alone for one or two days (or longer). Come back to what you've written after a break of a few days, sit down and read the whole thing from start to finish – quickly mark any changes you need to make (e.g. using a red pen on a hardcopy printout of your text) but don't interrupt the flow of reading by getting drawn into editing/rewriting chunks of text – save that for after you have finished reading the whole thing through and marking up what needs to be worked on.

Tip 5. Don't plagiarise.

Plagiarism, passing off someone else's words/work as your own, is one of the worst things a writer can be accused of. In the context of formally assessed written work in universities, it is always treated as a very serious matter: plagiarised work is usually given a zero grade if it is the student's first offence; and repeat-offenders may be given much harsher penalties, potentially being excluded from their degree. A lot of academic writing involves summarising and synthesizing the work of other writers, but to avoid any doubts you must always be crystal clear about if and when you are copying verbatim chunks of text from another author's work into your own. For short phrases or sentences, it is sufficient to enclose the copied words in quotation-marks, keeping the quoted text typeset in-line with your words, and immediately follow the quotation with a reference (including a page number, if at all possible) for the source. For quoting larger chunks of text, the usual convention is to typeset the quoted text as separate paragraph(s), with indented margins, and again immediately follow the quoted text with a reference and page-number for the source.

A frequent giveaway of plagiarism is when a student submits written work where the writing style varies widely between paragraphs: for instance the opening paragraphs might have some obvious issues with poor grammar and vocabulary, and then suddenly there is some text where the writing style is much more coherent and polished. For the person who is grading the essay, it usually only takes a few seconds on Google to find the source that has been copied from – and indeed most universities now automatically process all student essays/reports/theses through automated plagiarism detection systems that compare each submitted item of work to all other submitted items, and also to reference data gathered from many hundreds of thousands, or millions, of machine-readable documents on the Web.

It is definitely not an acceptable defence against plagiarism to merely include the work you have copied from as one of the sources listed in the References or Bibliography section at the end of your text. If you copy phrases/sentences/paragraphs from some other source into your writing then you need to make it unambiguously clear which words have been copied, and precisely where you copied them from. Similarly, at the conceptual level, you should not copy someone else's argument or explanation without giving the original author due credit; to fail to do so may give the reader the impression that you are trying to pass off someone else's work as your own.

Tip 6. Write like a grown-up, not a school-kid.

By the time you graduate, you're expected to be able to write with a mature sense of authority, originating texts that are useful to the intended reader. The longer forms of written assessments, essays and reports and theses, are opportunities for you to practice and develop the appropriate skills. When you are reading a paper or an article or a chapter by someone else that you find easy to read, try to analyse what the author has done, and compare that to your own writing style. Similarly, if you find a text that you think is poorly written, or difficult to understand, try to work out what it is about the writing style that is making the author's message difficult for you to understand. Do the same with non-fiction things you read for pleasure, especially journalism and blogs, but

also maybe some fiction too.[2] Try to develop your own writing style, your own "voice", but *please* don't write in a style that addresses your essays to your lecturer or which assumes that the reader has sat through the lectures on your course (e.g. sentences like "As we know from the content of Lecture 3, …" or "As Prof Cliff mentioned in his lecture, …"); and don't start your report with sentences such as "The purpose of this report is to describe my programming coursework for Unit XYZ".

Tip 7. Get the basics right.

Just for completeness: use a spell-checker to make sure there are no spelling errors, but be aware that a spell-checker cannot help you to correctly use a word that you do not know the meaning of. Use a dictionary, and a thesaurus can be handy too to avoid repetitive use of the same word. There are a large number of types of error that a typical spell-checker simply won't help you with. Some extremely common issues are:

- Compound words, such as *another*, *furthermore*, *somewhat*, and *whatever*, are single words. If you split them into their constituent sub-words, the spell-checker will tell you that you have spelled each of them correctly but you'll probably not have a grammatical sentence any more.

- Incorrect use of apostrophes and of similar-sounding words. The word *its* is a pronoun, like *his* or *her*; while *it's* is an abbreviation of *it is*. The words *there*, *they're*, and *their* mean different things. *Hear* and *here* do not mean the same thing, nor do *where* and *wear*. It matters where you place a possessive apostrophe: *student's* and *students'* do not carry the same meaning, and both mean something different to *students*.

- Incorrect use of capitalization. Remember that internal labels like *Figure 1* or *Section 3* are compound proper nouns, and so should be capitalised. Randomly capitalizing words that you happen to think important in the context of your text is simply not correct grammar. If it was then I would be able to write sentences like: "It is important that you have correct Spelling and also no errors of Grammar"; but I can't. If there are specific words you want to emphasize, try typesetting them in italics (the most common form of emphasis) or maybe bold or underlined font, but remember to be consistent with the typesetting. So this is OK: "It is important that you have correct *spelling* and also no errors of *grammar*."

- Be consistent with your citations in the main body of your text, and in the References/Bibliography section at the end of your text. Some publications require the citations to be numeric tags (e.g. *[1]*) and for the references to be listed at the end in the order that they were cited in the main text; but it is more common to list the references at the end in alphabetic order of the first-author's surname, and to then use date of publication as a secondary sort-key, with the in-text citations being either numeric tags, or parenthetic author-name and publication-year (e.g. *(Cliff, 2013)*). If an author has multiple publications in a single year, differentiate them with letter suffixes (e.g. *(Cliff, 2013a; Cliff, 2013b)*). Page-references can be included inside the

[2] When I was a student, someone told me to read the short stories of Ernest Hemingway, and to try to learn from his writing style. Hemingway had trained as a journalist, and ended up winning the Nobel Prize for literature. He could make a few words go a very long way. I found it useful. He is good.

citation (e.g, *[1, p.42]* or *(Cliff, 2010, pp.1-52)*). Bear in mind that a citation in the text is part of the sentence so it should come before the full stop, not after; and like any other word it should be separated from the word in front of it with a space. Only use the first-names of authors in the text where it is necessary to disambiguate between different authors who have the same family name (e.g. "*Vernon Smith's seminal early work (Smith, 1963) on auction-market experiments helped illuminate the workings of the market's 'invisible hand' first noted by Adam Smith (Smith, 1776) almost two centuries earlier.*"). Similarly, it is not usually necessary to spell out first-names in full in the References section at the end of your text: initials should be enough, unless you need to disambiguate between authors who share first-name initials. One reason for having the References section at the end of the document is so that the text itself does not get cluttered up with details of article/book/journal titles and associated details. Nevertheless the details given in the References section should be as complete as possible: so, for entire books, give details of the author, the year of publication, the title, and the publisher. For chapters in edited-collection books and papers in conference-proceedings, you need to give the title of the chapter/paper, and also the title of the collection/proceedings; and also list the page-numbers and also give the name(s) of the editor(s), because they are the names that will be on the front cover of the book and hence in any bibliographic database. For journal articles, give the author name, the year of publication, the title of the article, the name of the journal, and the page-numbers, the volume number, and the issue number that the article appeared in. If you choose to, you can give URLs for downloadable copies on the Web (as some URLS can be very long, you may want to typeset them in a small font, or use a shortening service such as bit.ly to abbreviate the URLs). Also it is now increasingly common to give DOI (Digital Object Identifier) numbers, which can help a reader to track down an online copy of a reference.

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Tip 8: Use figures sensibly.

There is an old saying that "a picture paints a thousand words". I'll use the one word "figures" to refer to diagrams, graphs, and photos inserted into the flow of the text of what you write. It's almost believable that a picture paints a thousand words, but only if you do it properly. Unfortunately, the use of figures seems to be one area in which very many people find it very easy to screw things up, often quite spectacularly. Here, in no particular order, is a list of tips on figures; things I seem to have to tell people every single year…

- Make sure your figure is legible, to the naked human eye, when printed on regular A4 paper and held at a plausible reading distance. If I need a microscope to read and understand the figure (or, equivalently, if I need to set the magnification to 500% in an on-screen document viewer) then your figure is effectively useless. So, no tiny font sizes (the smallest font-size in your figures should ideally be no smaller than the smallest font-size used in the main text). On graphs, do not have so many lines and/or markers that they can't readily be told apart. If you use colour-coding in a graph or figure, remember that some people are colour-blind, and lots of people still print hardcopies of documents on monochrome (grey-scale) printers.
- Treat figures (and data-tables) as "floating objects" within the text – don't rely on them appearing in a specific position in the text. So give them a name and refer to them by that name (e.g. "Figure 3", "Table C") rather than "As you can see in the above figure...". Giving figures a name means that you can very easily refer back to them later in the text too.
- Insert the figure after the first reference to it in the text, not before, otherwise the unannounced appearance of a figure in the text can be a confusing surprise to the reader.
- Make sure that the figure caption explains what is shown in the figure, because many readers skim the figures and want to understand them without having to read the text -- if the explanation needs to be very detailed, and would make the figure-caption too long, then say "See text for further explanation" or "See text for discussion".
- As with the words you write, it is important to be careful and check that diagrams do actually explain things clearly to a reader who does not already know exactly what you're talking about. You can only write something like "As Figure 3 illustrates…" or "As is made clear in the diagram shown in Figure 4,…" if the figures in question really do offer clear, informative, explanatory illustrations. Merely drawing a figure and hoping for the best is usually not a good tactic, which is why you need to take care to explain each figure in the caption.
- Free clip art is, in general, worth exactly what you paid for it: avoid.
- Edward Tufte has written some beautifully produced books on the visual display of information (and a brief pamphlet on just how totally horrendous he thinks Microsoft Powerpoint is). It is well worth getting copies from the library, or buying for your bookshelves. His first book, *The Visual Display of Quantitative Information* (1983) is an absolute classic, and the three that followed (*Envisioning Information; Visual Explanations,* and *Beautiful Evidence)* are each just as good. At the moment you can get all four, in hardcopy, for $100 from www.edwardtufte.com.