ASSORTED THOUGHTS ON WRITING AND PRESENTING TECHNICAL PAPERS
Patricia L. Mokhtarian

WRITTEN PAPER

General Advice:

< First and foremost: Consider learning to write an important part of your education, every bit as important as the subject matter you master. It doesn't matter what you master if you can't communicate effectively with others. Not being able to communicate your ideas is, in the words of the Chinese proverb quoted by one of our graduate school applicants, "like a dumpling cooked in a teapot B you have the dumpling, but you can't pour it out." Therefore, be prepared to work as hard at writing as you do at learning other new knowledge and skills. Understand that good writing is more a matter of effort than of innate talent. "Bad" writers can learn to be good, and even "good" writers struggle to write well and can always improve.

There is a selfish payoff for your efforts. Good writers are so scarce (and becoming more so, in this MTV generation!) that they are highly sought-after and rewarded. Conversely, career-wise you will be at a disadvantage the rest of your life if you don't learn to write well.

< Need for explanation/interpretation: Probably the most common substantive shortcoming I see in the documents I edit is the failure adequately to explain, interpret, and place in context an observation or result. Don't just describe what was done, explain why it was done! Don't just plop a result down in the middle of nowhere B what does it mean? Is it good, bad, expected, unexpected, does it have significance for policy, theory, or practice? Of course it's hard work and you're not sure of yourself! But it's part of the experience in learning to communicate effectively. Discuss procedures and results with me, the research team, or a colleague until you think you know the "why" and the "what it means". And even after you think you know, it will be a struggle to express it in words! But exercise makes you strong...

< A related shortcoming is the lack of transition phrases and sentences, without which the document has a "choppy" feel. Try to put yourself in the shoes of someone reading the document for the first time, and think through what they would need to know for it to make sense. Develop an argument logically, don't just put down your thoughts at random.

Purpose:

The most important thing is to start with a specific question. What question are you trying to answer with this paper? What issue are you trying to address? If your question is too broad or ill-defined, your paper will not succeed. Mentally, if not on paper, your first sentence should be: "This paper addresses the question of (how, what, why, when, where, who, whether)..." Of course your question should be interesting B to you and to others!
Once you have a clear question, sub-questions should emerge that will define your subsections. Make sure that everything you write about has some direct relationship to your question. Don't let the literature write your paper for you. In other words, don't necessarily follow the structure that another author has used to develop your own structure and fit what others have said into your structure. Even if you are doing a literature review, you should be making a new contribution, such as structuring a known body of findings in an original way, or critiquing the literature. Always critically evaluate research methods, analyses, and conclusions. (S. Handy)

Procedures for Writing Reports/Papers for Me:

*General rule:* At each stage of the process, do the best you can. Be as complete, well-written, consistent as you can.

*Consistent:* Make an effort to be consistent about acronyms or abbreviations, capitalization, numbering/outlining system, formatting/style (fonts, bullets, etc.) from the beginning. Inconsistencies will have to be corrected sooner or later; it's easier to do it right the first time by just paying a little more attention.

*Well-written:* Inform yourself about good writing practices. (I have a small book I can lend you; make me happy by asking for it). *Plan* to improve your writing; it won't happen automatically. Learn from others' examples, from my comments on your writing, etc. It's frustrating to have to keep correcting the same types of mistakes (by the same person) over and over again!

And nothing irritates me more than an attitude of, "Oh, Prof. Mokhtarian will catch [whatever], so I don't have to be careful". *From my perspective,* it's an insult and a waste of my time to expect me to do something you are capable of doing yourself. Equally importantly, *from your perspective* it's unhealthy to rely too heavily on someone else instead of developing your own expertise (does your mom still tie your shoes for you?). *For the benefit of both of us,* it is most efficient for me to spend my limited time helping you with substantive issues you *can't* resolve on your own. The more time I spend on editing the style, the less time I have to improve the quality of the substance.

*Complete:* Even first drafts should have the pages numbered (I may need to make a reference on one page to something on another page), references included, tables and figures named (not necessarily numbered), be spell-checked, and so on. *Proofread and edit your own work before turning it in, preferably after letting it rest for at least a day.* Everyone can find ways to improve their own work on a new reading. Several students have started a "peer review" practice, of reading and critiquing each other's writing. I strongly support that!

Speaking of proofing, I digress to say that I hope you already have the habit of checking your work B analytical as well as textual. When you are analyzing data, check your results multiple times in multiple ways. Do a micro-check: do things
"add up", are they internally consistent? And a macro-check: do they make sense, are they what would be expected? As Douglas A. Samuelson wrote, "Answer the questions, then question the answers" ("The Sanity Check", OR/MS Today, April 2000, p. 14).

Typical L/R margins: one inch. Typical T/B margins (with page numbering on the bottom): 0.75"/0.5". "Widows/orphans protection" should be on (to prevent single stray lines from ending up at the top or bottom of a page). Text should be full-justified. At least for drafts, line-and-a-half spacing is good (single-spacing doesn't allow enough room for editing; double-spacing wastes trees).

I will mark up your draft and return it to you. When I do that, before you read my comments, re-read your unmarked version of the draft, to see what you find on your own fresh reading (you might be amazed!). You develop your judgement and critical skills more by exercising them on your own than by passively accepting the corrections I hand you. Similarly, don't just dutifully record the edits I've made: try and understand the principle or rule behind them, otherwise you'll never be able to apply the principles yourself. Sometimes it's just a matter of personal taste or style, but often the edits are based on objective standards of good writing or correct grammar. Feel free to ask about the reason for any edit I make! Sometimes I jot the reason down on the document, but that gets messy and time-consuming to do all the time. But ask!

When you return a revised version of the document to me, you should return my original marked-up version as well. For intermediate drafts, this saves me the time of having to re-read the document as if for the first time; rather I will typically check back on my earlier comments to see that they are addressed. (On a near-final draft I will read it "fresh" one last time). Therefore, you should double-check that you have in fact addressed all my comments. Again it is an insult and a waste of time to force me to point out the same problem twice. You should feel free to argue with any comment that you disagree with: if it is a minor issue you can just write me a note next to my original comment; if it is more substantive we should discuss it in real time. I am capable of being persuaded to change my mind! But what you can't do is ignore a comment and hope I won't notice.

Don't expect to be finished on your second draft! Usually there is so much to respond to the first time around, that a second reading of the cleaner version brings out plenty of things that I missed the first time. Also of course, changing some things can create new problems. Expect perhaps 4 or 5 cycles on a document B as many as it takes to get it right! Excellence takes time and energy.

Citations:

The Mishnah of Judaism notes, "He who repeats a thing in the name of him who said it brings redemption to the world" (Pirke Aboth, Chapter 6, Paragraph 6); this has been popularized as the proverb, "When you identify the source you are citing, you bring salvation to the world." Isn't that inspiring?! In any case, the principle is: if you include a fact or an observation found in the literature, you must cite the source. If you do not
properly credit observations to their source, you are in effect falsely claiming the idea to be your own, which is plagiarism (and which is wrong!). The exceptions are if the fact or observation is considered common knowledge, or if the fact is an original finding derived from your own data. There is obviously some subjectivity as to what is "common knowledge", and indeed that may legitimately vary depending on your audience. However, a good rule is, *when in doubt, cite*. You can't get into trouble for citing too much. (S. Handy) See attached UCD guidelines on plagiarism.

**Careless citation practices that should be avoided:**

1. **Citing a secondary source as if the thought were original to it**, when in fact the secondary source is only citing previous sources. For example, a student co-author recently attempted to cite an earlier paper of mine in support of the point that currently-used air quality models are inaccurate. Now I have never done original research on that question; my paper did make that assertion, but on the basis of, and citing, work by others. So to use *my* paper as the source for that point is lazy on the part of the co-author, and makes *me* look presumptuous B as though I am claiming an authority in that area which I do not possess. Whether or not my own credibility is at stake, it is of course poor practice regardless. Again, it is investing that secondary source with a false authority.

2. **Citing a source without looking it up**, on the basis of someone else's citation. Don't trust others' citations; it is lazy scholarship and you may be guilty of perpetuating a sloppy or incorrect use of someone else's work.

3. **Citing an article in the popular (or even trade) press as an authority**. The press has its place in academic research, but that place is generally last! Although some reporters are doubtless better than others, the pressure of deadlines, (often) a lack of expertise in the area they are reporting on, and (sometimes) biases toward attention-grabbing results lead to numerous inaccuracies.

4. Along the same lines: **uncritical acceptance of a source**. *Don't believe everything you see in print*, even in academic journals! *Don't accept someone's opinion as fact.* Weigh the source for blatant biases: an automobile association report may slant things one way, a report from an environmental group another way. This advice applies in spades for the Web as a source! See attached notes on the article by Joanne Gainen, and the guide for evaluating Internet sources.

5. **ABSOLUTELY UNACCEPTABLE**: A verbatim quote without quotation marks. *JUST CITING THE SOURCE IS NOT ACCEPTABLE HERE B IF YOU USE ANOTHER PERSON'S WORDS YOU MUST ENCLOUSE THEM IN QUOTES.* And guess what B just changing a couple of words in a sentence is not sufficient either! It's easy to fall into the trap of near-verbatim language when you are writing that section of the paper immediately after reading the source. Often, by reading the source until you are familiar with it, but then letting even a little time elapse before writing about it, you will find it easier to put the source's message into your own words.
6. **Letting a quote replace understanding.** We sometimes choose to quote rather than to paraphrase because, although we see the relevance of the point and acknowledge the credibility of the source, we don't understand what the author said well enough to put it into our own words! You might be able to get away with it up to a point, but (1) making the effort to understand brings its own reward (of course!), and (2) teachers, referees and the like generally recognize this practice for what it is, and discount your credibility accordingly. Obviously quotes have their place, when they make a point succinctly or colorfully or with authority.

**A Couple of other Principles about Direct Quotes:**

1. Suppose you are making a direct quote, but because you are not including the entire context you need to make an explanatory comment. Your comment needs either to go outside the quote:

   "The shorter the previous trip to a leisure activity, the longer the travel time" of the current trip;

   or be placed in *square brackets* if it is more readable to put it inside the quote:

   "The shorter the previous trip to a leisure activity, the longer the travel time [of the current trip] is."

   If you use parentheses () within a quote, it is assumed that the phrase is a parenthetical comment in the original quote, which is not appropriate when it is your addition.

2. When you reference a direct quote, many journal styles require the page numbers as well as the author and the date: (Smith, 1999, pp. 27-28). Do it in any case, so you won't have to look it up later! Similarly, bibliographic references for book chapters often require the page numbers, so include them from the beginning. If it's a book you checked out from the library, you don't want to have to hunt it down again when the galley proofs come back for your review and you've got a 24-hour turnaround time.

3. Don't put the citation inside the quote! It is not part of the quote.

   **WRONG:** "Fourscore and seven years ago, our fathers brought forth on this continent a new nation (Lincoln, 1865)". Lincoln did not say, "Lincoln, 1865", so it does not belong in the quote.

**Clarity vs. brevity:**

In writing technical papers, an important goal is to find the optimum balance between economy and clarity. That is, you want to say just enough to be clear, while avoiding redundancies and excessive ornateness. If you can say the same thing more briefly or directly, do it!
Useful reference:

Wydick, Richard (1985) *Plain English for Lawyers*, 2nd. ed. Durham, NC: Carolina Academic Press. Guess what B plain English for lawyers turns out to be much the same as plain English for engineers and other people too. This is a great little book with lots of examples. It used to be on sale for $3.00 at the Law Bookstore by the Silo B if the bookstore still has it I can't recommend strongly enough that you pick one up. Otherwise, I have a spare copy that I would be thrilled to loan you as an investment into your writing competence.

Common Specific Issues/Problems:

< Many students will have come from a British English background. Now there is nothing wrong with the "Queen's English", but there are some differences with the American dialect, and when in America we should do as the Americans do. This is especially important for consistency, when more than one person is working on a document. In particular:

B Initial quotations should be double quotes " " B not single quotes B '." A quotation within another quote takes single quotes. Example of a title: "Telecommuting: A Case of the Preferred Impossible Alternative".

B -or (e.g. honor) instead of -our (honour), -er (center) instead of -re (centre), etc. Avoid "viz"; use "namely" or another alternative.

< Terminal punctuation (including periods that end sentences, question marks, and exclamation points) and colons (:) should be followed by two spaces, not one. Commas, semicolons (;), and periods denoting an abbreviation (unless ending the sentence) are followed by one space. As a rule, there should be a space between a word or number and a left parenthesis, and no space between the parenthesis and the content it encloses: Jonathan (1993), not Jonathan(1993) or Jonathan (1993).

< Numbers less than ten should be spelled out: "seven", etc. Numbers 10 or greater may be written as numerals: 17. Never start a sentence with a numeral: "66% of respondents were female." Either rewrite the sentence to start with a word B "Nearly two-thirds of the sample was female" B or as a last resort, spell out the numeral: "Sixty-six percent of the respondents were female."

< And don't say "The sample was [or the respondents were] 66% female." We all do have both "feminine" and "masculine" characteristics in varying proportions, but that wasn't what you meant.

< There seems to be an incredible confusion between percent change and percentage points change. Suppose an indicator is at 50% in 1994 and at 80% in 1995. This represents an increase of 30 percentage points, NOT 30 percent. In terms of percents,
it is an increase of \((.8 - .5)/.5 \times 100\% = 60\%\). There is a difference, you see!

Also, it makes a difference what base you use. Going from 50\% to 80\% is an increase of 60\% (from the base of 50\%); going from 80\% back down to 50\% is a decrease of \((.8 - .5)/.8 \times 100\% = 37.5\%\) (from the base of 80\%). The appropriate choice of base will generally be clear from the context; where time is involved, the base will normally be the earlier of the two indicators.

Tables and figures presenting empirical results should always be accompanied with a sample size, either (preferably) as part of the table/figure itself (title, legend, footnote, whatever) or prominently mentioned nearby in the text. The reader shouldn't have to hunt a couple of chapters back to find out if 20\% means one person or 763.

The text accompanying a table should not just verbally repeat the content of the table ("33\% of the sample was 25-34 years old, 26\% was 35-44,..."), but should summarize, synthesize, and/or interpret the table: "The respondents were predominantly young, affluent professionals..."

When reporting the distribution of responses from a survey question (whether in tabular or graphic form), don't restrict yourself to the order in which the responses appeared in the survey. Display and discuss them in order of descending frequency of response. You are then giving the most important information first, and it's easier mentally and visually to process the information when there's an obvious pattern to it. An exception would be when there is some other logical grouping to the response categories (for example, based on conceptual similarity or to preserve a consistent ordering of the same categories across several tables) then that logic may prevail. Also, your discussion may want to call attention to categories with low response, if that is a surprising or important result: [After discussing job and manager constraints resulting in termination of telecommuting,] "Importantly, no one reported quitting telecommuting because of intrinsic dissatisfaction with the arrangement."

Great rules for writing (original list from William Safire, New York Times, sent by Brett Koenig, 1/3/96; later augmentations over the Net):
(in case you can't tell, each rule violates itself...)

1. Verbs HAS to agree with their subject.
2. The pronoun also must agree with their antecedents.
3. Prepositions are not words to end sentences with.
4. If any word is improper at the end of a sentence, a linking verb is.
5. And don't start a sentence with a conjunction.
6. It is wrong to ever split an infinitive.
7. Avoid cliches like the plague (they're old hat).
8. Also, always avoid awkward or affected alliteration it's annoying.
9. Be more or less specific.
10. Parenthetical remarks (however relevant) are (usually) unnecessary.
11. Also, too, never, ever use repetitive redundancies.
12. Do not be redundant; do not use more words than necessary; it's highly superfluous.
13. If you reread your work, you will find on rereading that a great deal of repetition can be avoided by rereading and editing.
14. No sentence fragments.
15. Contractions aren't necessary and shouldn't be used.
16. Foreign words and phrases are not apropos.
17. One should NEVER generalize.
18. Comparisons are as bad as cliches.
19. Don't use no double negatives.
20. Avoid ampersands & abbreviations, etc.
22. Analogies in writing are like feathers on a snake.
23. The passive voice is to be avoided.
24. Eliminate commas, that are, not necessary. Parenthetical words however should be enclosed in commas.
25. Never use a big word when a diminutive one would suffice.
26. Kill all exclamation points!!!
27. It is incumbent on one to avoid archaisms.
28. Eschew obfuscation.
29. De-accession euphemisms.
30. Avoid trendy locutions that sound flaky.
31. Use words correctly, irregardless of how others use them.
32. Understatement is always the absolute best way to put forth earth-shaking ideas.
33. Unqualified superlatives are the worst of all.
34. Use the apostrophe in it's proper place and omit it when its not needed.
35. Eliminate quotations. As Ralph Waldo Emerson said, "I hate quotations. Tell me what you know."
36. If you've heard it once, you've heard it a thousand times: Resist hyperbole; not one writer in a million can use it correctly.
37. Puns are for children, not groan readers.
38. Avoid colloquialisms, from soup to nuts.
39. Even if a mixed metaphor sings, it should be derailed.
40. Who needs rhetorical questions?
41. Exaggeration is a billion times worse than understatement.
AND FINALLY
42. Proofread carefully to see if you any words out.

Common Grammatical Mistakes/Issues:

<  

Affect and effect are confusing because they can both be nouns or verbs, but they are by no means interchangeable:

Affect as a noun means feeling or emotion (related to the word "affection"). Commonly used in behavioral research. Effect as a noun means a consequence or result. Thus, unless the result you are looking for is a feeling or emotion, it is incorrect to write of "bringing about a desired affect".

Revised 3/03
Affect as a verb means (most commonly) to change, influence, produce an effect (the noun). Effect as a verb means to bring about or make happen. Thus, to effect an outcome is slightly different than to affect an outcome. In the former case you are actually bringing it about, while in the latter case you are only influencing it (you can affect or influence something toward a desired result without actually effecting or achieving that result).

Apostrophes: (See attached Newsweek column). Apostrophes are used with possessives or contractions. They are NOT used with simple plurals. This applies even when you are pluralizing a numeral or an acronym:

"In the 1990s, TMAs have become increasingly common."
NOT
"In the 1990's, TMA's have become increasingly common."

Possessive pronouns, however, do not take apostrophes. Just as we write "his, hers and theirs" instead of "hi's, her's and their's", we use its rather than it's for the possessive pronoun. Use it's ONLY as a contraction of it is or it has:

"It's amazing, but a wild animal caught in a trap will gnaw its own leg off to save its life."

Similarly, whose is the possessive pronoun ("the person whose grade was highest"; "whose book is this?"); who's is ONLY the contraction of who is or who has ("who's that knocking at my door?"; "Button, button, who's got the button?"). And don't forget that for the possessive form of a plural noun, it's s apostrophe, not apostrophe s:

"The protests of the students regarding the multiple fee hikes became increasingly vociferous"
becomes
"The students' protests...", NOT "The student's protests... " (The latter refers to just one lonely student).

In general, use between for two items; among for three or more:

"The relationship between transportation and land use is complex."
"The relationships among telecommunications, transportation, and land use are especially complex."

Similarly, the words former and latter B and other comparatives like better or worse B are only used to distinguish between two groups. It is not correct to say, "The latter [or better] of the three concepts". Rather, "The last [or best] of the three...".

Avoid broken down by; use categorized by, or divided or disaggregated by:

"The respondents were broken down by age and sex" doesn't exactly bring the desired image to mind (I assume).
For the same reason, I generally use gender rather than sex. It's not so much prudery, as just keeping the reader focused on your point! And avoiding potential faux pas like the above. A colleague once asked if I would join an advisory group to add some "sexual diversity". I replied that I was sexually pretty conventional and just what kind of a meeting did she have in mind anyway, but I would be happy to add gender diversity...

A compliment is something nice you say about someone; complimentary can refer to a compliment or mean "free, without charge": as in complimentary tickets to a World Series game.

A complement is something that completes a whole; it can mean opposite, or balancing: yin and yang are complements. Complementary is the corresponding adjective: "The two members of the team had complementary skills: one was good with numbers and the other was good with people."

Compose and comprise are not synonyms; in fact they are somewhat complementary. To comprise means to be composed of. Thus,

"A week is composed of seven days." OR "A week comprises seven days."
NOT
"A week is comprised of seven days."

Equations are sentences or parts of sentences too, and should be punctuated with commas, connector words, and periods accordingly:

"We can model the parameter $\lambda$ in a Poisson regression model as

$\lambda = \epsilon + \sum a_i X_i$, where

$X_i =$ the $i$th explanatory variable (observed),

$a_i =$ the (unknown) coefficient of the $i$th explanatory variable, and

$\epsilon =$ an unobserved error term."

Farther means more distant; further means additionally. You should say "We went farther" rather than "We went further". (Just learned that recently myself. At least one of my published papers uses the word "further" incorrectly. But we are never too old to learn...)

Forgone means given up. Foregone means past, settled in advance:

"I had forgone an offer from industry to take the university position."

"The winner of the contest was a foregone conclusion."
<Hyphenation: When do you hyphenate between two words? Do NOT hyphenate when the first word is an ordinary adjective for the second word, or when both words act as a verb. DO hyphenate when the entire phrase becomes an adjective for another word:

"The telecommuting center was partly funded by the private sector, and was accessible 24 hours a day."

IS EQUIVALENT TO

"The telecommuting center was partly funded through private-sector donations of equipment, and offered 24-hour access."

"It takes six months to three years to start up a telecommuting center."

IS EQUIVALENT TO

"Start-up times for telecommuting centers range from six months to three years."

For an example of how confusion can arise when needed hyphenation is omitted, consider the following:

"Average trip speeds are categorized in 5 mph increments"

sounds like there are 5 categories, where mph is the unit. What was meant was,

"Average trip speeds are categorized in 5-mph increments" [the 5 and mph together becoming an adjective modifying increments].

The latter statement means that there are an indefinite number of categories, whose widths are 5 mph: 0-5 mph, 6-10 mph, etc.

Another example:

"Ford Motor Co. began offering its Crown Victoria factory equipped to run on natural gas..." (Newsweek, Oct. 6, 1997, p. 52)

sounds like the Crown Victoria factory was equipped to run on natural gas, when was meant was that a Crown Victoria car could be equipped at the factory to run on natural gas. In other words, "factory-equipped" should be hyphenated!

Avoid ambiguities that arise from piling too many nouns-as-adjectives together.

Example: "a 750 page book review" B wow, that is one mighty darn long book review! Even hyphenation B "750-page book review" doesn't entirely solve the problem. Better to say "review of the 750-page book [such-and-
such].

< The past tense of the verb "to lead" (pronounced "leed") is "led". When "lead" is pronounced "led", it is referring to the metal.

< Less versus fewer: Use "fewer" when referring to discrete, countable subjects like people, and "less" when referring to continuous quantities:

"Fewer than 500 respondents are expected"
NOT
"Less than 500 respondents are expected" (as I incorrectly used recently!)

More subtly, either of the following are correct:

"Less than 50% of the sample had ever telecommuted"
OR
"Fewer than 50% of the respondents had ever telecommuted".

In the first sentence, "sample" can be thought of as continuously divisible, but in the second sentence, "respondents" are clearly discrete entities.

< Construct lists with parallel structure. WRONG:

"Telecommuters felt considerable job stability, no isolation from their peers, and good about the kind of work they did.

This is a list of noun (job stability), noun (no isolation), adjective (good). The last item in the list should be re-written in the form of a noun:

"Telecommuters felt considerable job stability, no isolation from their peers, and satisfaction with the kind of work they did.

< Principal (an adjective, meaning "main", except when used as a noun in "school principal" or in the financial context of e.g., "payments on the principal and on the interest") versus principle (a noun, meaning "truth, basis, foundation"): Let the "a" in "principal" remind you of "main" (well if you have a better idea, let me know!). So it's:

"The principal (main) characteristic of the process"
AND
"The principle underlying the solution methodology" (H. Mahmassani).

Of course, you could speak of the principal principle as opposed to lesser principles, but that would be contrived...

< Pubic versus public: This is one common but no less embarrassing mistake that's incredibly easy to make, and I don't think you want to be the one with "pubic policy" displayed on your overhead transparency to an audience of hundreds (or
even twos). It's also very easy to avoid, now that word processors have the ability to automatically correct frequently misspelled words. Just declare "pubic" as a misspelling of "public" in the appropriate list (not being in a medical or related field, the legitimate need to use "pubic" is not likely to arise), and it will automatically be corrected. Failing that, get in the habit of routinely doing a search-and-replace for that word in particular (an ordinary spell check won't catch it, obviously B unless you remove it from the dictionary, which is possible in some cases). Failing that, make "public" one of those words (like "its", "their" and other problem words are for me) that automatically rings an alarm bell in your brain for taking a second look.

References: Use an accepted bibliographic style; there are enough out there already without you making up one of your own! Italicization or underlining is reserved for books, journals, or otherwise full-length works. Quotation marks (or increasingly commonly, no special markings) are used for stories, articles, or other parts of a full-length work.

Repetition: Generally, you want to avoid repeating the same word or variations of the word too close together. A thesaurus (manual or computerized) can be useful in helping you find alternatives. Sometimes, however, deliberate repetition can serve the purpose of focusing the reader, making it clear that you are still talking about the same thing as before, or acting as a transition from one thought to the next.

Don't use a singular subject with a plural verb, or vice versa. This generally happens when there is a modifying phrase between the subject and the verb:

WRONG: "The information provided by the community networks are easy to use."

Just mentally remove the modifying phrase "provided by the community networks" to see that it should read:

RIGHT: "The information ... is easy to use."

So get in the habit of checking verb against subject, mentally stripping away any intervening obfuscation!

WRONG: "The performance of these activities require the person to be at a certain place."
RIGHT: "The performance ... requires the person to be at a certain place."

Don't use the plural pronouns they or their to refer to a singular noun: This is (unfortunately) becoming so common that probably one day it will be accepted practice. But it is not now. Thus,

"Each person interviewed believed that they should have taken more time to develop their particular center"

is incorrect unless the respondent is speaking for more than one person. The temp-
tation to do this often arises from a commendable effort to avoid the potentially sexist "he" when gender is non-specific. But it is almost always possible to rewrite the sentence in such a way as to avoid the problem (some ways more natural than others):

"Each person interviewed believed that more time was needed to develop that particular center."

As a last resort only, I use "(s)he" or "his/hers" when I wish to remain gender-neutral.

This practice also arises (more correctly, by some standards) when the noun, though singular, refers to a group of people such as a company:

"The company decided to allow their employees to telecommute"
should be replaced with
"The company decided to allow its employees to telecommute".

Again, it is only one company (although in British English, the former wording is considered correct). On the other hand, if multiple employers were involved, it would be correct to say:

"Some companies decided to let their employees telecommute."

**Personal Preferences** (to keep in mind if you ever write a formal research report for me!):

< Avoid verb forms ending in prepositions. These usually sound more "slangy" and are more awkward syntactically, making the sentence more difficult to process cognitively. Almost always, an alternative can be found. E.g., use

"viewed" instead of "looked at";
"appeared" instead of "showed up" in the model;
"completed" instead of "filled out" the survey; etc.

< Data is the plural of "datum". Hence, "the data were collected".

< I avoid the use of *etc.* in formal writing (not in informal!). For one thing, it is often used by sloppy writers when they don't quite know what else is out there, but want to make you think they do! For another thing, it generally suffices to give one or two examples of what you mean, and let the "etc." be implied: "Certain variables have been consistently significant in mode choice models, such as travel time and cost [etc.]." When I do use a "trailer", I prefer *and so on* to *etc.* because "and so on" is not an abbreviation, requiring extra periods in the middle of sentences.

< The phrase *in order* is usually unnecessary. It's a habit, but once you break it your writing is that much cleaner:

"In order to study the commute mode choice process, a survey was designed
and administered to a random sample of 1000 Sacramento residents.

versus

"To study the commute mode choice process, a survey was designed ...

< Insure involves paying a premium to an insurance company. Ensure means to make certain.

< As you may have noticed, I prefer italics to underlining. Latin phrases such as ad hoc and et al. should be italicized.

< Don't use over when more than is appropriate. For example, I prefer:

"More than 800 respondents completed the survey"

instead of

"Over 800 respondents completed the survey."

You can see how the word "over" could take on its prepositional role and be ambiguous:

"After circulating over 1000 door hangers, the site administrator received only three inquiries." (Don't you get the image of the site administrator flying around in circles over a pile of door hangers?)

The same goes for under and less than.

Along the same lines, most editors will routinely replace while with although or whereas when appropriate: "While the automobile is a status symbol for some people, for others it is simply a means of transportation" would get changed to "Although the automobile..." Again, the reason is that "while" can also mean "as long as", which is not quite what you meant, so why not avoid ambiguity? I'm not hard and fast on that one, but I am myself starting to use "although" and "whereas" more often in those situations.

The same reasoning leads to preferring because over since B because "since" can mean "from the time that" as well as "because".

< Don't use the possessive form when referring to concepts: "Telecommuting's contribution to congestion reduction may be minimal." I hate that! Say instead, "The contribution of telecommuting to congestion reduction may be minimal."

< Split infinitives: In general, I try to avoid splitting infinitives unless it would sound completely contrived not to do so. Thus, I would prefer,

"Few of the telecenters were able adequately to accommodate this requirement."

INSTEAD OF

"Few of the telecenters were able to adequately accommodate this requirement."

I do tend to observe grammarians' absolute prohibition against splitting the verb "to
be". Thus, I would accept the phrase, "To boldly go where no man has gone before" (with proper citation, of course), but not, "To really be sure of his results, he repeated the experiment three times." Replace it with, "To be completely certain..."

Purists will also not split forms of "to be". For example, "He really could have been precise" is better than "He could have really been precise" (splitting "have been").
Personal Abbreviations:

dep.: dependent
indep.: independent
ME: mutually exclusive
rec.: necessary, necessarily
NORL: not on reference list
NSD: no significant difference
SD: significant difference
s.d.: standard deviation
o/w: otherwise
pax: passenger
Q: questionnaire
q: question (not always consistent re upper and lower case)
7 respondent
re: regarding
r.t. rather than
s.t. such that
TT: travel time
IVTT, OVTT: in-vehicle, out-of-vehicle travel time
var.: variable or variance, depending on context
w/o: without
w.r.t.: with respect to
x-: trans-, e.g. xfer = transfer, xlate = translate
xp: transportation

because
therefore
for all, for every
there is, there exists
there isn't, there doesn't exist
change (in)
psychological
paragraph
section
sections
PRESENTATION

You should always respect the time limit you are given, even for a class presentation. It will give you good practice for future presentations on the job and at conferences. (S. Handy) The Golden Rule is still in effect: if you don't like being the last of four people in a session to speak, and being asked to make your remarks in five minutes while people are pouring out of the room because the previous speakers went way overtime, then don't do it to others.

In most presentation settings (job and conference), you will have a relatively short amount of time (15 minutes is typical) in which to speak. You will likely not be able to discuss everything that you put into the paper or report on which your talk is based. Don't ramble over a lot of preliminary detail and then have to rush through your most important findings in the last two minutes! Focus on a few specific points to convey, and plan to leave out much of your written material (referring the interested listeners to it for more details, obviously). If you make a few points well, people will remember your talk far better (and will have a more favorable impression of you as a speaker) than if you cover a lot of ground superficially. (S. Handy)
One weekend after making the same type of straightforward grammatical correction literally dozens of times on several different theses, the inspiration for this checklist struck. It is intended to make sure you address some common deficiencies that you are perfectly capable of finding and fixing yourself before turning in your document, thereby sparing me the time required to point them out to you and freeing me to spend more time on substantive issues that you may not be able to identify on your own.

Each blank should be filled with either a checkmark indicating compliance, or (rarely!) a "N/A" indicating "not applicable", before you turn your document (or any part of it) in to me for review. The discovery of egregious violations will result in my returning the document to you for correction before I read any farther.

_____ I have reread your technical writing handout in its entirety, and have tried to follow its advice as much as possible.

_____ All references cited in this draft are included in the bibliography, which is submitted with this draft.

_____ Conversely, every reference in the bibliography has been cited somewhere in the text.

_____ I have used an officially accepted bibliographic style, not one I made up myself or borrowed from a non-authoritative source.

_____ When using the exact words of another author, I have enclosed them in quotation marks, and included the cited work's page number(s) on which the quote appears in my reference (e.g., Bacon, 1992, pp. 36-37). I do not enclose the reference within the quotes, but I do make it part of the sentence rather than standing alone. Example: "The buck stops here" (Truman, 1936, p. 12).

_____ Formatting and numbering of section headings, tables/figures themselves, their titles, and bibliographic references are consistent throughout. (I will not be picky about this one IF the document in question is your thesis or dissertation AND I am just a committee member, not the chair. But if it's a report, paper, or thesis for me, this applies!)

_____ Pages have been numbered.

_____ I have searched for all occurrences of the words "they" and "their", and have fixed any places where the plural pronoun was matched with a singular antecedent.

_____ I have searched for all occurrences of the words "its" and "it's", and determined whether an apostrophe was required or not.

_____ I have searched for all occurrences of the strings 's (apostrophe-s-blank) and...
s' (s-apostrophe-blank), and checked whether I was incorrectly using the possessive form when a simple plural (-s) was required, or incorrectly using the singular possessive ('s) rather than the plural possessive (-s'), or conversely.

I have searched for all occurrences of the string "comprise", and have changed "is comprised of" to "comprises" or "is composed of".

I have correctly distinguished between percent and percentage points changes.

I have not begun a sentence with a numeral. Integers less than ten are spelled out as words, unless part of a table or figure or other title ("Part 3", "Model 4"), or a percent ("5% of the sample").

Tables and figures reporting empirical results include the sample size.

Discussions of other empirical studies (e.g. in a literature review) include, where available and appropriate, the following information:
< date and location data collected;
< sampling unit (adult, household, driver, elderly person, welfare recipient, adult resident of North Carolina, etc.);
< sample size;
< type of survey (e.g. stated response, travel diary);
< analysis methodology.
E.g., "the results were based on a sample of 1,523 retired residents of Innsbruck, Austria, who completed a 7-day activity diary in October 1998. Chi-squared and t-tests were used to examine significant differences in duration of different activity types by gender and employment status."

I have spell-checked this document after the last changes have been made.

I have let each section sit for at least a day and re-read it and edited it myself before handing it in.

(For revisions:) I have carefully reviewed each of your edits/comments. With respect to your substantive comments, I have either adopted them as is, made a different modification in response, or communicated with you (in person or by note) about it. I have double-checked that each of your substantive comments has been addressed in one of those ways.

[Note: Some of my routine edits (i.e. to the narrative style, as opposed to issues of substantive content) will be of grammatical errors that of course must be corrected. Others will be alternate suggestions that you are welcome to take or leave. Yet others are intended to establish a more professional tone to the document. How strongly I feel about those will depend on how "far out" the original language is, whether the document is a report or journal article with my name on it too (as opposed to your thesis), etc. Aside from the first category of routine edits (outright grammatical errors that must be corrected), you can use your judgment initially in whether to...]

Revised 3/03 20 20
adopt routine edits in the second and third categories B if I feel strongly about something I'll keep making the same edit, and/or we can hash it out in person.]
PLAGIARISM

A letter from Donald Dudley of the Office of Student Judicial Affairs, citing the UC Davis Code of Academic Conduct, makes the case against plagiarism very articulately:

"Citing one's sources stimulates original thought and shows respect for our intellectual heritage by acknowledging the work of those upon whom we rely in researching, analyzing, and/or writing about a topic. Campus rules regarding plagiarism reflect the fact that individual effort is required to learn from doing homework, solving problems, or writing a paper. Those who rely too heavily on the words and ideas of others do not fully develop their own skills, and therefore do not receive the educational benefit of doing their own work. Working independently and crediting sources helps a student clarify his/her own strengths and weaknesses, and builds self-confidence and good judgment, while encouraging creativity. Similarly, carefully and accurately acknowledging one's sources helps the student to identify what is truly his/her own work, and ensures that the feedback from the instructor corresponds to the student's individual needs and skills."