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Teaching Graduate Students How to Write Clearly By Eric-Jan Wagenmakers

Almost every English boy can be taught to write clearly, so far at least as clearness depends upon the arrangement of words. Force, elegance, and variety of style are more difficult to teach, and far more difficult to learn; but clear writing can be reduced to rules. — Rev. Edwin A. Abbott (1883), preface.

Writing the academic paper should be easy. Unlike novelists, academics do not need to worry about character development, description, dialogue, back story, and symbolism. All academics need to worry about is writing clearly — and according to the Reverend Abbott, this merely requires the mechanical application of a set of simple rules.

This perspective on academic writing may sound too good to be true. Graduate students generally struggle for years to overcome their writing problems — can this learning process really be accelerated by the application of a set of simple rules? My experience in teaching graduate students suggests that it can: Academic writing skills can be tremendously improved with only a little instruction. This is hardly surprising when one considers that most students — and, in my experience, most tenured professors — have learned about academic writing only through *trial and error*, a method of learning that is often painfully slow and inefficient.

To illustrate how instruction can help students write more clearly, the next section lists 10 guidelines, all of which are motivated by a single underlying principle: In order to write clearly, academics should make the life of their readers as easy as possible.

Guidelines for Graduate Students

In their first papers, graduate students are likely to violate several of the guidelines outlined below. A good writing course makes students aware of these guidelines, and lets students experience how they can use these guidelines to write more clearly. For the writing course at the University of Amsterdam (developed in association with Jos van Berkum), my feedback for students generally falls into the following categories:

1. State the goal of your paper explicitly, and state it early. Do not test the patience of your academic readers by letting them know what you are up to only at the very end of the introduction. Students tend to write lengthy introductions in which they summarize all of the literature that is remotely relevant. This is bad form, but boredom quickly turns into annoyance when the writer altogether forgets to state whether the paper contains experiments, a literature review, a formal model, a new statistical method, or some combination of the above.

2. Use concrete examples. When you start your article with "Resolving competition between two operations invited by a stimulus configuration requires a form of cognitive control," you'll do well to follow this up with something like "For example, the operations of word reading and color naming come into conflict in the standard Stroop (1935) task, in which naming the color of a written word is slower than naming the color of a neutral stimulus, such as a row of Xs. To resolve the conflict experienced in this paradigm, the powerful tendency to read the word must be overcome in favor of responding to the color dimension." (Bub, Masson, & Lalonde, 2006, p. 351)

In general, abstract theoretical concepts need to be clarified with concrete examples. For many readers (especially the lazy ones) the phrases "for instance" and "for example" seem to attract attention almost automatically. Concrete examples work well in every section of a paper — they can be used to clarify the introduction, the method section, and the discussion section.

3. Combat wordiness. Do not say "It has been suggested that the mood someone is in influences the level of creativity this person displays. Specifically, it has been hypothesized that affect and creativity correlate positively." Instead, say "Previous work suggests that people are more creative when they are in a good mood."

4. Avoid statistical prose. Do not say, "A significant positive correlation between the amount of dissociation and satisfaction of one's sex life was found." Instead, say "Participants dissociated more when they were happy with their sex life than when they were not."

5. Integrate the presentation of your results and their interpretation. Students often use the result section to summarize their findings (i.e., they provide a lengthy and sometimes unstructured list of experimental effects and associated *p* values). These students postpone the interpretation of their findings until the discussion section. Although this procedure may appear to be objective and scientific, it does not help the reader. The reader wants to know what the results mean. The reader does not want to be forced to work hard and come up with his or her own interpretation (which might furthermore be mistaken or irrelevant within the context of your work). Try to integrate your results and their interpretation as much as possible, providing maximum guidance for the reader. Use the discussion section to summarize what you have found, deal with alternative explanations, and transition to the next experiment.

6. Add structure through consistent constructions. First example: When you state in the abstract that you will discuss topics A, B, and C, retain this order throughout the entire paper. Second example: When you start a paragraph with the statement "Our first hypothesis was confirmed...", the reader expects a future paragraph to start with "Our second hypothesis was [not] confirmed..." In general, academic writing is clear when it delivers information in accordance with what the readers expect. Do not set up false expectations.

7. Add structure through subheadings. Graduate students are often hesitant to add subheadings in their introductions, results sections, and discussion sections. Yet, few revisions add clarity as effectively as informative subheadings (e.g., "Analysis of accuracy" followed by "Analysis of response times").

8. Add structure through transitional phrases. In a clearly written article, several paragraphs will start with transitional phrases such as "However", "In contrast to", "To this end," or "In sum," connecting what has been presented earlier to what will be presented next. Academics use these transitional phrases much more than novelists do. This is perhaps because transitional phrases leave little to the reader's imagination, as their main purpose is to provide structure by setting up strong expectations. Lazy readers will be on the lookout for a transitional phrase all the time. You'll do well to oblige them.

9. Do not express more than one or two ideas in a single sentence. Sentences can be too long because they are wordy, or they can be too long because the writer wanted to express multiple ideas in a single sentence. Consider the following example: "Our findings suggest a practice-induced tradeoff in auditory processing rather than a general improvement that benefits perceptual dimensions relevant for survival at the expense of those that are less relevant." In such cases, Strunk and White advise "...do not try to fight your way through against the terrible odds of syntax...the sentence needs to be broken apart and replaced by two or more shorter sentences." (Strunk & White, 2000, p. 79). Accordingly, one could rewrite the example sentence as follows: "Our findings suggest that practice does not lead to a general improvement in auditory processing. Instead, practice leads to a bias that speeds up processing in some dimensions (e.g., pitch) only at the cost of delaying processing in other dimensions (e.g., loudness)."

Admittedly, some writers produce long sentences and still write clearly. For instance, the novelist Friedrich Dürrenmatt has produced a 123-page murder mystery in a mere 24 sentences (Dürrenmatt, 1988). Those academics who write as well as Dürrenmatt may try to follow in his footsteps. Others do well to use considerably more than 24 sentences for their papers.

10. Start sentences with old information, and end with new information. When a sequence of sentences has flow, one sentence seamlessly transitions to the next. A text that has flow makes life easy for the reader — each sentence provides information that the next sentence elaborates on, so that the reader is never confronted with unexpected changes in topic or emphasis.

In order to achieve flow, the main rule is to start sentences with old information, and end with new information. Consider the following example, taken from Williams (2007, pp. 76–79):

"Some astonishing questions about the nature of the universe have been raised by scientists studying black holes in space. **A black hole is created by the collapse of a dead star into a point perhaps no larger than a marble.** So much matter compressed into so little volume changes the fabric of space around it in puzzling ways."

Note that the sentence in bold is in the passive tense. Rewriting it in the active tense (generally a good idea) yields

"Some astonishing questions about the nature of the universe have been raised by scientists studying black holes in space. **The collapse of a dead star into a point perhaps no larger than a marble creates a black hole.** So much matter compressed into so little volume changes the fabric of space around it in puzzling ways."

It is evident that the second fragment lacks flow, because the information is presented in exactly the wrong order. Present the information in the right order: first the old, then the new.

It is evident that graduate students can greatly benefit from taking a class on academic writing. But considerable benefits await you, the teacher, as well. First, students are easily convinced that your course enhances their chances of academic survival, and this tends to increase their motivation. Second, students will start to notice improvements in their writing almost immediately, and this shows them that your course is worthwhile. Finally, as a result of teaching a writing course you are likely to improve not only your students' writing skills but also your own. Unfortunately, it is not trivial to design and teach a good course on academic writing. The next section lists tips for those who would like to do so.

Tips for Teachers

The decision to teach a graduate course on academic writing is not one to be taken lightly. Designing a writing course is hard work, as it is unlikely that you are already up to date with the relevant literature. In addition, a certain amount of creativity is required to keep your course from becoming boring. Below are 10 specific suggestions that may help you set up a successful and rewarding course on academic writing.

1. Control your work load. A proper writing course needs writing assignments, and these need to be commented on and graded. This can be a lot of work. To keep your work load manageable: (1) try to limit the class size, (2) share the burden with one or two TAs who write well (I prefer to work with the star students of the previous year), and (3) provide a strict upper limit on the number of words for each assignment (I prefer 400 or less). Often, a few paragraphs of prose are enough to identify key problems in writing style and clarity of communication.

2. Make students realize that writing clearly takes effort. One of my students, Bob, had been watching me rewrite his text at pace of about one paragraph an hour. After a few paragraphs, Bob told me "I didn't know writing takes this much effort. If I were to put in *this* much time and energy, my writing would be incomparably better." Students need to have the right expectation of the effort and dedication it takes to write clearly.

3. Motivate your students. It is easy to make students realize that their writing skills are important for their future careers, either inside or outside of academia. It is also easy to have students experience firsthand that writing skills can be learned. Together, these insights make students want to invest considerable energy in your course.

4. Give advice that is practically relevant. Students sometimes do not realize how much time they can save by, for instance, starting the writing process only after they have discussed and agreed on a detailed outline of a paper with their advisor. Use your academic experience to provide concrete and helpful advice.

5. Follow the structure of the empirical paper. At the University of Amsterdam, my classes cover, in turn: the abstract, the outline, the introduction, the method section, the results section, the general discussion, and the review process (i.e., how to produce a proper revision and a compelling cover letter). This provides students with structure and it also highlights the research-oriented focus of the course.

6. Choose a good course book. According to Stephen King (2000, p. 11), "(...) most books about writing are filled with bulls**t." Most, but not all. For writing on a detailed, sentence-by-sentence level I recommend "Style: Lessons in Clarity and Grace" (Williams, 2007). This book can be considered an extended version of the classic text by Strunk and White (2000), which Stephen King identified as a "notable exception to the bulls**t rule" (King, 2000, p. 11). For writing on a more global, what-information-goes-where level, I recommend "Guide to Publishing in Psychology Journals" (Sternberg, 2000). This book largely follows the structure of the empirical paper and is therefore a good companion to a course that does the same.

7. Read and discuss empirical research papers in class. Reading is the most fun part of learning how to write. Pass out a set of abstracts and have students discuss the quality of the writing in small groups. Then discuss each abstract at a time, and indicate in concrete terms what is good and what could be improved. For this exercise, I recommend using articles published in *Psychological Science*, because the writing is generally above par and the research topics are accessible to non-experts.

8. Discuss students' writing assignments in class. In a "fun with sentences" section, I present the entire class with 5 to 10 educational sentences selected from their previous writing assignments. The selected sentences do not work — it is the job of the class to figure out what is wrong and propose improvements. Students pay keen attention when their sentences may be up for group discussion. Don't forget to point out that the sentences have been selected because they illustrate a point of general interest. Also, do not reveal the names of the students who authored the defective sentences.

9. Focus on clarity, not on grammatical details. A class on academic writing can easily escalate into a class that focuses solely on grammar and syntax. Do not make this mistake. Your job is to teach students to communicate clearly. A student that does all the right things for clarity (see the above guidelines) might occasionally slip up and use a split infinitive or produce a sentence starting with "But" (see above for an example). This is relatively unimportant; in academic writing, clarity takes precedence over grammatical correctness.

10. Mix things up. To keep your writing course from becoming monotonous, you need to vary the pace. In class, use a mix of different activities: have students discuss papers in groups, include a "fun with sentences" section, discuss the writing exercises in the Williams book, and give a lecture on the central topic.

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