

## Appendix 3: Thoughts on Writing Well

Frank Ritter, 20 may 2012

Many of the exercises and exams that might accompany this book require writing. The theories and data in this book make strong recommendations about writing. For example, human recognition memories that can arise fairly quickly from reading are much easier to generate than declarative memories, but they are not as useful as declarative memories that can be recalled and then used. These declarative memories are harder to form and require deliberate study to create. Writing is one way to create these declarative memories (so, that's one reason teachers want you to write in courses); reading is a less powerful way to create these memories. So we include some thoughts here both as a summary and to help students working with and presenting this material.

Also, the outputs from work in this area must also be usable themselves. The British Psychological Society (in *The Psychologist*, 24(3), p. 179) summarizes it very well: "the best way chance of changing the minds of non-believers would be an artful combination of clear, strong logical argumentation mixed with value-affirming frames and presented in a humble manner that produces positive emotional reaction." So, designers and commentators must make their work usable by others that they want to convince; this too means writing well, broadly defined to include well done and appropriate figures and formatting so that managers and implementers will follow your recommendations. This is particularly important when the suggestions are expensive, not expected, or run counter to folk psychology.

Declarative memories are useful, but writing, as a skill, appears to be predominately based on procedural memory. Declarative memories can be formed by active reading, but they are best exercised and learned through practice. Procedural memory is learned exclusively through practice. Declarative memories about how to do a task and what are useful results and outcomes can be very helpful and even necessary when learning, however. So, writing and expressing knowledge requires practice of that skill.

Thus, we encourage the use of short answer and essay questions to accompany this text. These types of questions will encourage the ability to retrieve the information later, rather than merely recognize the information. The exercises at the end of each chapter invite lab reports, which also require the skill of writing. The courses we imagine this text being used for thus are likely to require writing in several ways.

Writing is a learnable skill. It is not always pleasant, but in time we have found it rewarding enough to take on a task of even writing a book. Practice, as noted above, improves every skill, and writing is no exception. Ohlsson (1992), for example, has shown that it applies directly to writing. With enough practice, you too can write a book in two weeks!

A useful thought to keep in mind is that if you want to be a writer, you will almost certainly fail. If you wish to write, well then, that often leads to being a writer.

In writing up lab reports we strongly recommend the *APA Publication Manual* as a guide to referencing, citing, and the formatting of papers and manuscripts. Versions of it and aids to help learn it can be found online. It provides what is in essence a theory of how to help readers read scientific manuscripts. We have generally followed it in the preparation of this book. There are four exceptions we make based on the previous chapters: the first is that references that are outdented are easier to scan (this corresponds to an earlier version of APA); the second is that putting figures inline rather than at the end of a manuscript (mss) make it easier to read; third, we use "subjects" or "users" rather than participants to refer to users or subjects (Roediger, 2004); and, finally, we number our sections as this book is longer than a journal article. Other manuals of style may be more appropriate for your final profession. But like a language (computer or natural or even graphical language), once one style manual is mastered, others are easily learned.

For tactical writing skill development, it is hard to beat Strunk and White's often reprinted (e.g., 1979) book *The elements of style*. Their book could be seen as presenting a theory of writing similar to task analysis, that of knowing your reader, and then providing your thoughts to them in the most efficient way, with some nod to esthetics along the way. Similar books and articles are available; they all tend to provide some rules that are best not routinely violated, and nearly all can be explained based on psychology theories about reading (e.g., Gopen & Swan, 1990).

If you have trouble writing, there are numerous textbooks on writing, particularly as a design process and as a problem-solving process. One that we can recommend is Flower's (1981) book, but there are others. Find one you like and learn from it repeatedly. Lewis and Reiman (1998, p. 121) includes some notes on writing a manual, and there are further books on how to write technical manuals and technical reports.

Finally, our writing has also been influenced by several parts of Van Leunen's (1992) book. Perhaps the largest take away messages she provides are (a) the point of references is to help others find the material, thus, URLs can be referenced (if you think they are stable), and obscure tech reports should include enough information that readers can find them without asking you. And (b) abstracts are not teasers or adverts—if they are designed to present a very short version of a manuscript as an accurate and concrete description, and as an aid to memory. They should not coyly report that "results will be discussed", but note the primary results and conclusions directly. The abstract of the paper in Appendix 2 follows this approach of providing a direct summary rather than a coy advertisement.

There are also tools to help writing. Using outline tools and spelling correcting are examples of the high and low level tools available. These tools will help your writing, and we encourage you to learn them early so they can help you more often and particularly when you are facing deadlines. These are included in modern document preparation software; so you should use them.

## References

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