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Guides to Developing Research Skills that Involve Statistics **October 2003** **Revised 2012**

Statistical thinking and practice play a role in many steps of the research process, but the quantitative knowledge about statistics differs from the logical and organizational knowledge and skill needed to incorporate statistics into these steps. This knowledge and skill is typically gained through years of experience, mistakes, and hopefully, advice from helpful advisors and colleagues. The purpose of this newsletter is to highlight some resources that lower the learning curve on three of these steps: proposal preparation, data analysis, and manuscript preparation.

When preparing proposals, statistical content may be needed to describe the study design, justify the sample size, and describe the statistical methods for analysis. Six statisticians at St. George's Hospital Medical School, London, have written an excellent handbook entitled "Statistics Guide for Research Grant Applicants" to help in preparing the needed statistical content. The handbook is intended to provide information to those with basic statistical knowledge already about how to practically obtain and convey the needed information, and to facilitate working with a statistician on aspects of the proposal. The guide is accessible by clicking [here](#).

Good process management can make data analysis faster, more accurate, and more enjoyable, and can greatly reduce confusion and mistakes. Benjamin Earnhart of the University of Iowa has written a short (and humorous) article entitled "Respect Your Data" that provides 23 practical hints. This article was published in the newsletter of the American Statistical Association, and has since been expanded and annotated. To read it, go to: http://www.uiowa.edu/~soc/datarespect/data_training.html. Of the several versions, choose "Annotated Version" (pdf).

Often the hardest part of the research process is preparing a manuscript to report on our findings. For studies with quantitative data, the manuscript will require reporting the results of the statistical analysis. Daryl Bem of Cornell University has written an excellent chapter on manuscript preparation entitled: "Writing the Empirical Journal Article" from Zanna and Darley's edited volume, *The Compleat Academic: A Practical Guide for the Beginning Social Scientist*. Although the entire chapter is very useful, the section on reporting results is particularly so, with specific steps for reporting each result, as well as organizing the results section as a whole.

Each of these resources has been developed from long experience, and we encourage you to capitalize on that. If anyone has identified other useful resources, please let us know about them.

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