How to write about numbers

The Chicago Guide to Writing about Numbers. By Jane E. Miller. Chicago, The University of Chicago Press, 2004, 312 pp., $17/paperback.

Trying to bridge "the gap between correct quantitative analysis and good expository writing," Jane Miller explains how to effectively convey numeric information in *The Chicago Guide to Writing about Numbers*. Miller, a Rutgers University professor, draws from her "experience as student, practitioner, and teacher" to provide advice, style considerations, and strategies for communicating about data. Miller's text is one of the newest additions to the more than 20 Chicago Guides to Writing, Editing, and Publishing.

The author, however, cautions that she did not intend this to be a writing manual. Instead, she concentrated "on those (principles) that are unique to writing about numbers and those that require some translation or additional explication." The end result differs from other writing handbooks because it specifically covers the practical application and integration of writing techniques related to data analysis. Nevertheless, good writing alone does not ensure an effective presentation of data, as Miller elaborates in individual chapters dedicated to chart and table design. An additional chapter demonstrates that the principles of good writing, such as visual accompaniment and organization, also apply to good public speaking.

Over the years, many have published writing manuals. Perhaps it is in response to what seems to be an increasing number of managers who lament the writing skills of recent college graduates. Despite new hires having the ability to compute and manipulate data, apply statistical techniques, and interpret numbers, many have not had adequate training in how to explain their findings to a general audience. Business students and entry-level technicians may benefit from this guide, but it has just as much to offer to nontechnical writers who desire to enter the new world of data analysis and presentation.

A strong point of this work is the author's style. First and foremost, Jane Miller is a teacher, and her personality is very evident throughout the text. Pedagogic while personal, the voice of the author is that of a caring mentor. Ideas are introduced and then explained, and interesting, effective examples abound. In addition to summarizing the main points, the author also provides a checklist at the end of each chapter that captures the main points that she taught, whether it be guidelines for writing about distributions and associations or choosing analogies and evaluating contrasts.

Miller instructs writers who are inexperienced in presenting data—first through basic principals, such as establishing context, and then through the tools of numeric comparison: table and chart construction. It is also somewhat refreshing to see the author stress the importance of being familiar "with how the data were collected, to ensure that you make sensible choices about calculations, consistency checks, and ways of presenting the information." Even those who are familiar with communicating about numbers may gain some new insights with the guidelines that Miller reviews.

Part of the advice that Miller provides is in approach, and she provides ample reinforcement. For example, 1 of Miller's 12 fundamental principles is to summarize data patterns. In her discussion, she relates that she coined a simple "mantra," "GEE"—Generalize, Examples, Exceptions—for describing data. Not only does she illustrate this concept through example, but she references it throughout the text, devoting an appendix to the implementation of the approach.

She illustrates many of the concepts introduced by using examples of "poor," "better," and "best" versions of sentences. Accompanying these sentences are concise descriptions of what is weak and what is helpful. Later in the book, in the "Putting it All Together" section, Miller has examples of writing summaries with notations indicating strengths.

Just as she advises the reader, the author uses real-world examples throughout the text that are relevant and effective. Particularly interesting is her demonstration of numbers use in a general interest article about the impact of the planes on the twin towers. In another section, the author wryly cites the Mars Climate Orbiter experience—"Even rocket scientists make basic, easily avoidable mistakes about units. Don't emulate them."

Miller's chapter on "causality, statistical significance, and substantive significance," covers confounding, bias, and z-scores, as well as the problems related to measurement. With an excellent discussion on writing about causality, this chapter is one of the highlights of the *Guide*. In describing the tools and terms of quantitative comparisons, Miller also utilizes tables to summarize some of her guidelines. For example, a table identifies types of ratios, examples, and writing suggestions. Another table contains guidelines on the number of digits and decimal places by type of statistic and table. Although she provides a thorough overview, the author leaves more in-depth information about standard error, reliability, and regression comparisons to her recently released *Chicago Guide to Writing about Multivariate Analysis.*

Miller, reminding the reader that guidelines vary by discipline, reiterates the need to consult an appropriate manual of style. Writers who do this, while integrating the ideas and approaches the author presents, are that much closer to increasing their "virtuosity at writing about numbers," as the author hopes.

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