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Book Review

Accounting Horizons publishes reviews of textbooks and other books of interest to accounting scholars and practitioners. All book reviews are solicited by the Senior Editors. However, if you know of a book that you would like reviewed or if you are interested in reviewing a book, please contact the Associate Editor.

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THOMAS A. KING, *The Numerate Leader: How to Pull Game-Changing Insights from Statistical Data* (Hoboken, NJ: John Wiley & Sons, Inc., 2022).

In *The Numerate Leader*, Case Western Reserve University Professor Thomas King takes as his summary idea that "[n]umeracy is the craft of statistical reasoning" (King 2022, 2), where numeracy is the ability to both identify meaningful information that can be extracted from data and communicate clearly the importance of that information. He addresses the importance of a basic facility with an understanding of statistical concepts for leaders in organizations. He begins from the idea that the ability to use the statistical concepts presented in the book will allow generalists within an organization to use data to generate information that will support decision-making within their organizations. The book is written for business professionals who are looking to differentiate themselves in their careers, whose responsibilities are for various aspects of any organization, who are "too busy…to learn exotic math" (King 2022, ix), and who have had some basic exposure to statistics at some point in their education.

The book's design is well suited for use by business professionals. The author's tone is inviting, and the writing style is conversational rather than academic. The contents of the book are ordered in a way that moves smoothly and logically through the mathematical and statistical concepts that are fundamental to data analysis, presenting the material in a natural progression of topics. This ordering allows the reader to develop an understanding of these concepts and to build an understanding of statistical reasoning. The book concludes with a chapter of questions to consider in the process of data analysis and interpretation and includes both a glossary and an appendix of relevant "math facts." In short, the book is well designed for its target audience.

The structure of the book, overall and within each chapter, is devised for the business professional who may not have time for extensive study. Each chapter focuses on a single concept and its use in statistical reasoning and is short enough to be easily read in a single sitting, typically between 10 and 15 pages. Most of the chapters are built around a single statistic, represented by a letter or a brief formula (such as n, x, z, or r^2). The broader characteristics and relevant vocabulary related to the concept or statistic are presented clearly and simply, and the concepts are illustrated with tables and figures when appropriate. Interspersed with the explanations are examples applying the chapter material, often in the form of storytelling drawn from situations a working professional may have experienced and sometimes

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events from the author's life. Finally, each chapter ends with a "Recap," a set of three to six bullet points summarizing the important ideas presented in that chapter.

The first two chapters provide motivation and context for the rest of the book. In the first chapter, King defines numeracy as "the ability to turn raw data into information" (King 2022, 7) and motivates its importance as a means for explanations and predictions. In the second chapter, "Zero," he discusses the concept of zero first as a placeholder, next as an indicator of precision, and finally as a baseline for ratios. Paired with the discussions of precision and ratios, he provides definitions for types of numerical variables (dichotomous, discrete, and continuous) and types of data (nominal, ordinal, interval, and ratio), with Table 2.2 (King 2022, 19) providing examples of combinations of the variables and types of data. This chapter provides a useful context for applying the mathematical and statistical concepts that follow.

Chapters 3 to 9 consider descriptive statistics and demonstrate the author's care in developing the order of topics. Those chapters discuss sample size (n), sample mean (x), sample standard deviation (s), the normal distribution [$N(x,s)$], z-score (z), correlation coefficient (r), and the coefficient of determination (r^2), in that order. The first three of these are the elements of the remaining statistics in that list. Each of these chapters goes beyond the single statistic, discussing issues related to the statistic. For example, chapter 3, "Sample Size," explains the way that samples are used to draw inferences about populations and points out the problems with inferences in the presence of sample bias, interdependence of observations, or heterogeneity within the sample. Similarly, chapter 4 discusses multiple measures of central tendency rather than only the sample mean its title indicates, and chapter 5 presents not only the calculation and use of the standard deviation but also the coefficient of variation and its use as a way to evaluate the predictive or comparative ability of a measure of central tendency. More broadly, practical uses of these statistics as ways to summarize and interpret data are provided in all chapters.

Chapters 10 to 15 focus on the use of inferential statistics, covering the topics of population mean, the Central Limit Theorem, standard error, null hypothesis, p-value, and slope. In these chapters, the author continues to expand the named topic of the chapter with discussion of relevant elements in calculating and interpreting each of these statistics. For example, the discussion of population mean in chapter 10 also includes confidence level and margin of error as well as an entertaining application of the inverse relation between the two in the context of a missing mobile phone (King 2022, 128–130). Similarly, chapter 15 is much more than an explanation of the slope of line; it is a discussion of regression analysis and its potential predictive and explanatory ability.

The final three chapters, chapters 16 to 18, go beyond the use of statistics to provide further material for use with data analysis. Chapter 16 considers the topic of causation, along with the issue of competing explanations. Chapter 17, titled "Science," discusses deductive and inductive reasoning as well as the use of abduction as an iterative process combining deductive and inductive reasoning. Finally, chapter 18 provides 12 questions for the professional to ask when presented with a data analysis project.

King's conversational tone makes the book particularly approachable and readable for the nonmathematician. While this is a strength of the book, it becomes a weakness when taken too far. At times, the tone borders on flippant, which may be distracting to some readers, or carries overstatement as a form of humor a little too far. Further, throughout the book, mathematicians, statisticians, and computer scientists are described in ways that perpetuate stereotypes that are neither appropriate nor valid. Particularly, the repeated use throughout the book of "propeller heads" to identify "experts, armed with advanced degrees in mathematics or computer science" (King 2022, 10) is problematic. While King initially is very careful to point out that the business generalists for whom this book is intended and these experts are not rivals, the use of this jargon and the tone that accompanies its use reinforces a negative perception about those who are bright and extraordinarily talented in mathematics and computer science. At the same time, this writing style and tone likely will appeal to the intended primary audience for this book.

In many ways, *The Numerate Leader* is a strong resource for a business professional seeking to better understand data analysis and to strengthen statistical reasoning. The content of the book is informative, the structure is well designed, and the approachable and conversational writing makes the statistical concepts accessible. Overall, the book is to be recommended for those seeking professional development in data analysis.

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REFERENCE

King, T. A. 2022. *The Numerate Leader: How to Pull Game-Changing Insights from Statistical Data*. Hoboken, NJ: John Wiley & Sons, Inc.