

The Oxford Handbook of QUANTITATIVE METHODS VOLUME 2 STATISTICAL ANALYSIS

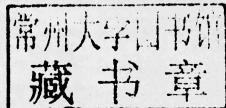
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The Oxford Handbook of Quantitative Methods

Edited by

Todd D. Little

VOLUME 2: STATISTICAL ANALYSIS



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The Oxford Library of Psychology, a landmark series of handbooks, is published by Oxford University Press, one of the world's oldest and most highly respected publishers, with a tradition of publishing significant books in psychology. The ambitious goal of the Oxford Library of Psychology is nothing less than to span a vibrant, wide-ranging field and, in so doing, to fill a clear market need.

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An undertaking of this scope calls for handbook editors and chapter authors who are established scholars in the areas about which they write. Many of the

nation's and world's most productive and best-respected psychologists have agreed to edit *Library* handbooks or write authoritative chapters in their areas of expertise.

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In summary, the Oxford Library of Psychology will grow organically to provide a thoroughly informed perspective on the field of psychology—one that reflects both psychology's dynamism and its increasing interdisciplinarity. Once published electronically, the Library is also destined to become a uniquely valuable interactive tool, with extended search and browsing capabilities. As you begin to consult this handbook, we sincerely hope you will share our enthusiasm for the more than 500-year tradition of Oxford University Press for excellence, innovation, and quality, as exemplified by the Oxford Library of Psychology.

Peter E. Nathan Editor-in-Chief Oxford Library of Psychology

ABOUT THE EDITOR

Todd D. Little

Todd D. Little, Ph.D., is a Professor of Psychology, Director of the Quantitative training program, Director of the undergraduate Social and Behavioral Sciences Methodology minor, and a member of the Developmental training program. Since 2010, Todd has been Director of the Center for Research Methods and Data Analysis (CRMDA) at Kansas University. Little is internationally recognized for his quantitative work on various aspects of applied SEM (e.g., indicator selection, parceling, modeling developmental processes) as well as his substantive developmental research (e.g., action-control processes and motivation, coping, and self-regulation). In 2001, Little was elected to membership in the Society for Multivariate Experimental Psychology. In 2009, he was elected President of APA's Division 5 (Evaluation, Measurement, and Statistics) and in 2010 was elected Fellow of the division. In 2012, he was elected Fellow in the Association for Psychological Science. He founded, organizes, and teaches in the internationally renowned KU "Stats Camps" each June (see crmda.KU.edu for details of the summer training programs). Little has edited five books related to methodology including The Oxford Handbook of Quantitative Methods and the Guilford Handbook of Developmental Research Methods (with Brett Laursen and Noel Card). Little has been principal investigator or co-principal investigator on more than 15 grants and contracts, statistical consultant on more than 60 grants and he has guided the development of more than 10 different measurement tools

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CHAPTER

Introduction

Todd D. Little

Abstract

In this introductory chapter to *The Oxford Handbook of Quantitative Methods*, I provide an overview of the two volumes. More specifically, I describe the rationale and motivation for the selected topics that are presented in the volumes. I also list out my instructions to the chapter authors and then describe how the chapters fit together into thematic groupings. I also extend my sincerest gratitude to the persons who assisted me along the way, as no work this comprehensive can be done without the considerable help and assistance of many persons. I conclude with how pleased I am with the quality and comprehensiveness of the chapters that are included.

Key Words: Overview; Quantitative Methods; Methodology; Statistics

Oxford Introduction

Handbooks provide a crucial venue to communicate the current state of the field. They also provide a one-stop source for learning and reviewing current best practices in a field. The Oxford Handbook of Quantitative Methods serves both of these functions. The field of quantitative methods is quite broad, as you can probably imagine. I have tried to be thorough in my selection of topics to be covered. As with any handbook of this magnitude, some topics were all set to have a contribution submitted, only to have some unforeseen hindrance preclude its inclusion at the last minute (e.g., graphical representations of data, ecological inference, history of quantitative methods). Some topics overlap with others and may not have found their way to become a separate chapter, but their fundamental elements are found in parts of other chapters.

This handbook is one of many that Oxford University Press (OUP) is assembling but will be the capstone methodology handbook. As many of you know, OUP is building a comprehensive and synthetic Library of Handbooks covering the field of psychology (the Editor-in-Chief of the library is Peter Nathan, University of Iowa Foundation Distinguished Professor of Psychology and Public Health). The library comprises handbooks in the truest sense of the word: books that summarize and synthesize a topic, define the current scholarship, and set the agenda for future research. Each handbook is published as a bound book, and it will also be developed for electronic delivery. In this format, the content will be integrated across topics and available as a fully integrated electronic library. I think the idea of a comprehensive electronic library is very forward-thinking. This format is a very attractive opportunity to have a fully comprehensive and upto-date handbook of methods in our field. Hence, I agreed to take on the role of editor of The Oxford Handbook of Quantitative Methods.

I am very pleased with the quality of the work that each author provided. As per my request to the contributing authors, each chapter is meant to be both accessible and comprehensive; nearly all the