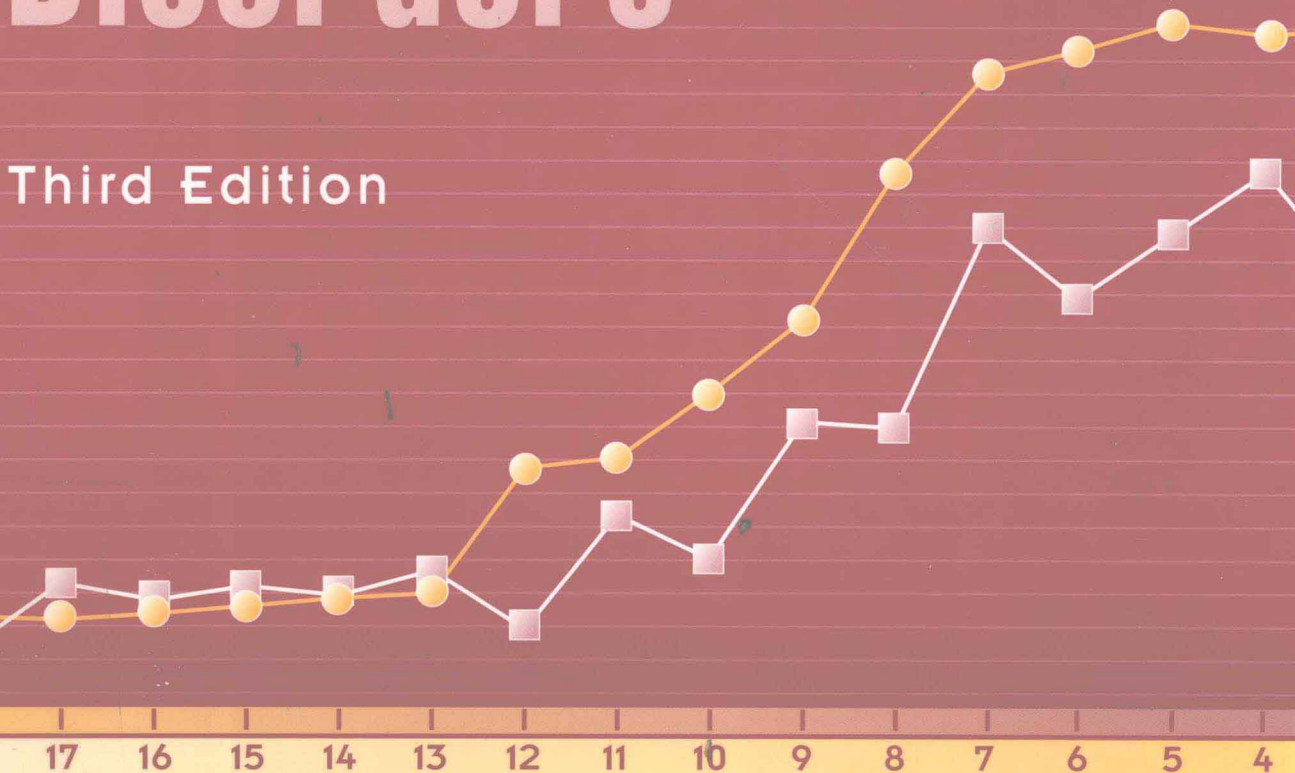


Nicholas Schiavetti
Dale Evan Metz

Evaluating Research in Communicative Disorders

Third Edition



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State University of New York at Geneseo

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Third Edition

Evaluating Research in Communicative Disorders

Dedicated to the Memory of

Ira M. Ventry
1932–1983

“Technical progress evolves through applied scientific research and propagation of the knowledge acquired. It is not enough to pursue the knowledge of wine in the laboratory alone, it must be spread through the wineries in order for this knowledge to become part of daily practice. Moreover, the faster scientific progress advances, the greater risk there is of widening the gap between what we know and what we do. It is necessary to narrow this gap and speed up evolution.”

—Emile Peynaud, *Knowing and Making Wine*,
New York: John Wiley & Sons, 1984, p. vii.

Preface

The third edition of this book remains faithful to the basic purpose of the first two editions, but many differences will be evident in reorganization, updating of material, changes in perspective, and addition of new content.

The main audience for the first edition of this book proved to be master's degree students preparing for a clinical career in communicative disorders. The original intent was to help such students prepare for a clinical career that would be guided by a reasonable assessment of developments in the field as reported in the research literature published in the professional journals. We also hoped to introduce those master's degree students who planned to pursue doctoral study to some of the basic concepts and terminology that they would encounter in the more rigorous research training that doctoral programs provide for potential producers of research.

The vast majority of professionals in communicative disorders are not *producers* of research but most of them are *consumers* of research in their professional activities. Therefore, this is *not* a book that describes *how to do* research. It *is* a book about how to *read, understand, and evaluate* research that someone else has done. It should be apparent, however, that the ability to read, understand, and evaluate the research done by others is a basic prerequisite to doing good research. It is sometimes difficult to write about research for the consumer without discussing some of the considerations that face the producer of research, and we tried to limit our treatment of these considerations.

Many revisions have been incorporated into the third edition in accordance with our experiences in teaching and conducting research over the past decade. The text has also been revised in places where reviewers, colleagues, and students have suggested improvements. Several of these changes are evident in the reorganization of Part I of the book. The material on research strategies and design has been expanded, while the material on internal and external validity has been refocused on treatment efficacy research. The small section on measurement in previous editions has been expanded into a chapter: Unfortunately, measurement needs at least a full book to do complete justice to the topic, but we lack space. We hope that these changes will be as well received as were those incorporated into

the second edition. Many of the examples have been changed, particularly excerpts in Part II and articles in Part III of the book. Some examples were replaced by newer examples that illustrate points more clearly, and some new examples were added to illustrate points that were not made in the first two editions. A new example is not necessarily better than an old one, however, so many of the examples are old friends that have returned to illustrate points that have remained important over the years.

The third edition, like Gaul and the first two editions, is divided into three parts. Part I includes basic information on research strategies and design in communicative disorders, measurement issues, evaluation criteria, treatment efficacy research, and organization and analysis of data. Part II reflects the four typical parts of a research article: introduction, method, results, and conclusions. The excerpted examples in Part II are intended to illustrate the points made in Part I. Part III contains three complete research articles reprinted with evaluation checklists to guide students in evaluating the important features of research discussed in Parts I and II.

We gratefully acknowledge permission granted by the American Speech-Language-Hearing Association and by the many authors and coauthors to reprint selections from the journal articles. We are especially indebted to Pamela Souza, Christopher Turner, Vicki Hammen, Kathryn Yorkston, Fred Minifie, Janna Oetting, and Mabel Rice for allowing us to reprint their articles *in toto*.

The senior author of the first edition of this book was Ira Ventry who died in 1983. Although there have been many revisions made in the second and third editions, his influence remains obvious to those who knew him or his work. We thank Nona Ventry for graciously affording us access to Ira's notes and files, which were helpful in preparing the revisions for the second and third editions.

We wish to thank the many colleagues and students who have offered suggestions for the three editions of this book. In addition, we extend our appreciation to the following reviewers: Raymond Daniloff, University of North Texas; E. Charles Healey, University of Nebraska; Virginia Walker, Florida State University; and Charles Woodford, West Virginia University.

Six people deserve special thanks. Our department chair, Linda House, has provided a working environment that fosters creativity, independence, and accomplishment: We couldn't ask for a better boss. Kris Farnsworth and Steve Dragin have proven to be conscientious, patient, and understanding editors: We couldn't ask anyone to take better care of our work. Ray O'Connell has been the guardian angel of this book for the better part of two decades: No one understands better than he does why it is still being read. Finally, we thank our wives, Carolyn Schiavetti and Wendy Metz, for the love, encouragement, forbearance, and support that we needed to complete this task in time for the favorite holiday.

Nicholas Schiavetti
Dale Evan Metz
Geneseo, New York

Third Edition

Evaluating Research in Communicative Disorders

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Basic Considerations in Evaluating Research

Overview

The six chapters of Part I introduce basic principles for evaluating communicative disorders research. Part I lays the foundation for evaluation of the excerpts from research articles that are presented in Part II and the complete articles found in Part III.

Chapter 1 discusses the relationship between clinical and research enterprises and presents a rationale for the improvement of clinical practice through the application of research findings in applied settings. As Kent (1983, p. 76) has said:

A profession that provides its own research base is much more in charge of its own destiny than a profession that doesn't. . . . As clinical practice changes, it will change in large part in response to new knowledge gained through research.

Common ground in clinical and research activities and in basic and applied research is considered in Chapter 1 and emphasis is placed on the critical evaluation of research as an important activity for all professionals in the field: clinicians and researchers, consumers and producers of research. As Kent (1983, p. 76) further stated:

It is tempting to cast a discussion of research into a simple framework in which master's graduates are viewed as users of research and Ph.D. graduates are seen as the producers of research. However, this simplistic framework has important exceptions, and failure to recognize these exceptions may lead us into a faulty first step.

The tension between basic research and practical application is not unique to our field. Gershenfeld (1995, p. 50) clearly expressed it in his essay "Why I Am/Am Not a Physicist":

There is a vigorous battle being fought between the defenders of curiosity-driven basic research and the proponents of applied development to solve practical

problems. I would like to suggest that this polarization risks satisfying neither camp, because it misses the deeper and much more interesting interrelationship between research and application. Neither curiosity nor practice arises in a vacuum [emphasis ours].

Chapter 1 outlines some important principles of scientific method, empirical and rational knowledge, and theory construction in behavioral science. Finally, the editorial process that determines whether or not an article sees the light of day is considered.

The primary focus of Chapter 2 is research strategies in communicative disorders. Commonalities and differences among various experimental and descriptive research strategies are discussed and examples are presented of various approaches. Relationships among independent and dependent variables are discussed and different strategies for examining different kinds of variables are explored. Chapter 3 discusses research design in communicative disorders and examines some basic principles of many group and single-subject designs commonly encountered in the research literature. Measurement issues in communicative disorders are the topic of Chapter 4. Measurement is defined, different levels of measurement are specified, and some general and specific factors that affect the quality of measurements, especially reliability and validity, are discussed.

Chapter 5 considers the important topic of evaluating treatment efficacy research, which, perhaps more than any other area, exemplifies the linkage of research and clinical enterprise. Using the framework of Campbell and Stanley (1966) for the evaluation of research designs in educational psychology, this chapter discusses the important criteria of internal and external validity and factors that may jeopardize them. Some specific treatment efficacy research designs are reviewed relative to these factors and some matters concerning meta-analysis and research ethics are also considered.

Chapter 6 concludes Part I with an overview of important principles in the organization and analysis of data for consumers of research. The purpose of this chapter is to familiarize readers with some terminology, concepts, and statistical methods, without a lengthy discussion of calculation procedures. The material in this chapter, along with the examples in Part II, is intended to assist students in the reading of the results section of a research article. It is beyond the scope of this book to teach statistics *per se* and it is assumed that graduate students in communicative disorders will have at least a one-semester introductory course in statistics. Chapters 6 and 9 review the major terms and concepts of a semester's survey of statistics and provide relevant examples from the communicative disorders literature.

Part II will follow with excerpts from the communicative disorders research literature that provide specific examples of the concepts discussed in Part I.

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- Kent, R. D. (1983). How can we improve the role of research and educate speech-language pathologists and audiologists to be competent users of research? In N. S. Rees & T. L. Snopce (Eds.), *Proceedings of the 1983 National Conference on Undergraduate, Graduate, and Continuing Education* (pp. 76–86). St. Paul, MN: American Speech-Language-Hearing Association.

Chapter 1

Introduction: The Consumer of Research in Communicative Disorders

*Beliefs are tentative, not dogmatic;
they are based on evidence, not on authority.*

—BERTRAND RUSSELL (1945)
HISTORY OF WESTERN PHILOSOPHY

The purpose of this book is to help practitioners and students in communicative disorders become critical readers of the research literature in the field. Here and throughout, the word *critical* is used to mean “involving skillful judgment as to truth, merit, etc. . . . as in critical analysis” (*American College Dictionary*, 1965). Our intended meaning of the word *critical* is consistent with Minifie, Hixon, and Williams (1973, p. 9) who stated that “simply understanding journal reports of research is not sufficient, we must be able to evaluate them critically.” The book, then, facilitates the practitioner’s use of the research literature to improve, modify, and update clinical practice through reasoned assessment and evaluation of the literature relevant to clinical practice. Our goal stems from the basic premise that sound clinical practice should be based, in large part, on the relevant basic and applied research rather than on pronouncements by authorities, intuition, or dogma. As Siegel (1993, p. 36) states:

Clinicians need to have enough familiarity with research to judge whether the claims are reasonable and to determine just how closely the proposed clinical procedures adhere to the research methods and the underlying theory. Informed clinicians need not be sophisticated researchers, but they should have had first-hand experience with research during their graduate education to help them