WRITING A PUBLISHABLE RESEARCH REPORT

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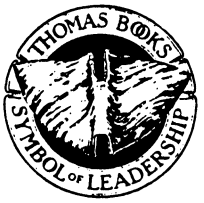
In Education, Psychology, and Related Disciplines

RONALD P. CARVER, Ph.D.

Professor, Division of Educational
Research and Psychology
School of Education
University of Missouri—Kansas City



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To Byrl B. Carver and Ramon E. Carver

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Chapter 1

INTRODUCTION

This book will help beginning researchers create a well-written research report. It contains guidelines for writing each section of the report. Many examples of correct approaches to writing are given; many examples of common errors are also given.

Manuscripts which are conceptually sound and based on carefully conceived designs are often denied publication because they are poorly written. They *seem* to have inherent defects in conceptualization and methodology. Practical assistance will be given to protect researchers from having their reports erroneously rejected.

My experience has been that even writers who are very proficient in expository or narrative composition find research writing to be a new and specialized kind of writing-thinking process. As a teacher of novice researchers and as a reviewer of journal articles, I have observed pervasive writing problems, such as omission of sections of a report, placing subject matter in the wrong sections, and awkward usage of the technical vocabulary. This book can be used to overcome these problems. If you follow this manual for writing, your report is likely to be given the best consideration when submitted for publication. To hope for publication, you must learn the technical language and you must learn to compose the text within prescribed conventions. Otherwise, your research will join the large majority of reports that are never published—about 75%.

Instructors may require this book as a text in research courses that involve data collection and report writing; it can serve as the model for students to follow as they prepare their reports. It also can be used as a checklist, against which students evaluate published and unpublished research articles by comparing them to the guidelines recommended herein. One chapter provides a description of an aspect of research results that has only recently gained acceptance in the research community, i.e. effect size. The final three chapters are examples of research reports that have used the recommended guidelines.

Whether this book is used as a textbook or a supplement, students are likely to find it much more helpful than the chapter devoted to report writing in most research texts. Beginning researchers should be able to write better reports faster and thus improve the efficiency of the entire writing and publication

system. Many of the suggestions given will also be helpful to the more experienced researchers, especially those in Chapters 5 and 6 dealing with effect size, reliability, and statistical significance.

An overview of the entire book will be given next by summarizing each of the chapters that follow this one.

Chapter 2 contains a short research report that has been created for instructional purposes. It provides the text of an abbreviated report, and guidelines for writing are presented at the end of each subsection. For example, right after the Abstract is presented, 12 guidelines for writing abstracts are then presented. An example guideline is as follows: Citations or references are ordinarily not given in an abstract. There are a total of 102 guidelines in Chapter 2; they are presented immediately following each of the 16 different sections and subsections—Subjects, Procedure, Results, Discussion, etc.

Chapter 3 contains suggestions for planning the organizing structure of the report. Specific recommendations are given for dividing the report into sections and subsections. The general organization for almost all research reports is presented—Introduction, Method, Results, Discussion, and Conclusions—and then guidelines are given for acceptable variations on this general outline. Model subsections are also presented. For example, a model set of subsections presented for the Method section is as follows: Subjects, Materials, Design, Procedures, and Data Analysis. Advice is given for deciding when to delete and when to include titled subsections, such as Limitations, Definitions, etc.

Chapter 4, on pitfalls, contains errors that commonly appear in research manuscripts; model corrections are also given for avoiding the pitfalls. The examples of pitfalls are not hypothetical but were extracted from actual reports submitted to me by doctoral students in my classes. Thus, the pitfalls are firmly grounded in reality. Such specific examples of correct and incorrect ways to write a research report is not common in textbooks that contain chapters on report writing. For each of 17 parts of a report, from Title to Conclusions, there are a total of 94 possible pitfalls presented. For example, one error that is common in the subsection called Subjects is as follows: Failing to report the number of subjects. Immediately after each pitfall is listed, an example is given, such as: The students were enrolled in a required freshman English class. Then, a model is presented for correcting the statement, such as: There were a *total of 228 students,* each of whom was enrolled in a required freshman English class. The part of the model that specifically avoids the pitfall is in italics to make the corrected pitfall more obvious. This particular chapter is the longest and perhaps one of the most helpful for beginning researchers.

In Chapter 5, effect size is recommended for inclusion when presenting the results of research investigations. Effect size is a general term that refers to the degree to which the research results deviate from zero or null. Effect size is recommended by those statisticians who recognize that a test of statistical significance does not provide information relevant to the importance of a result;

statistical significance is not relevant to whether the size of the result is trivial or large. This chapter also describes how to calculate, report, and interpret this relatively new measure of the size of research results. Those who are completely unfamiliar with this term should skim this chapter first. Researchers are encouraged to always report some measure of the size of effect, such as Cohen's *d*, eta^2, or the correlation coefficient. A few formulas are presented together with examples so that the novice can easily learn how to calculate some of the most useful effect size measures. Advice is also given for deciding which type of effect size measure is most appropriate for typical research situations. These concepts are presented in an easy-to-understand manner so that the reader does not get lost in computations. The reader has been given this detailed statistical help because it is not yet available in most textbooks in statistics or research design.

Chapter 6 contains special problems involved in writing reports of research investigations. These problems are somewhat more complex than the ones presented in Chapter 4. Many of these problems are illustrated with hypothetical examples and model solutions. The problems are organized into the following sections of the chapter: Research Hypothesis, Method, Results, Discussion, and Miscellaneous. For example, a special problem arises for statistical significance testing when the research hypothesis is itself a form of the null hypothesis. A concrete example of the problem is presented and the reader is told how to solve the problem.

Chapters 7, 8, and 9 complete the handbook by presenting complete texts in three major categories of research. These full-length articles supplement the preceding guidelines by providing examples.

Chapter 7 contains a model report for experimental research. The content area is psychological and the data are fictitious. However, these specific aspects of the report can be overlooked by the beginning researcher who can benefit from a full-scale model of how to report a traditional experimental study.

Chapter 8 contains a model research report for correlational research. Studies that involve correlations among variables are common in psychology, education, and related areas. Again, the resulting data in this report are fictitious and involve a survey of employed and unemployed nurses. Any researcher who collects correlational data should find this model helpful, especially when structuring the Method section and when learning the technical language appropriate for reporting simple correlations and multiple correlations.

Chapter 9, the last chapter, contains a model research report for applied research. There is a great deal of applied research conducted in education and psychology which strives to determine the best treatment, program, or technique. Such research is usually structured around research questions instead of research hypotheses; this requires a different approach to the background, rationale, discussion, and conclusions. This particular piece of