

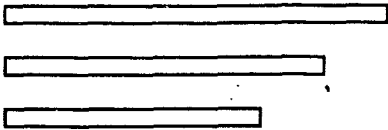
WRITING UP RESEARCH

***Experimental Research Report Writing
for Students of English***

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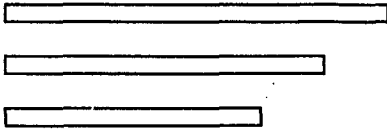
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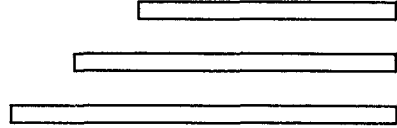
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PREFACE



Writing Up Research is designed for high-intermediate and advanced ESL/EFL university students at the upper division or graduate level who are preparing to engage in scientific research in a variety of academic disciplines. For these students, the ability to write up the results of their own research in the form of technical reports, theses, dissertations, and even journal articles for publication is a key to their success as university students and as professionals in their own disciplines. Based on almost two decades of research in written English for science and technology, this book provides instruction and practice in this special area of academic writing.

The English of an experimental research report is highly conventionalized, a fact that represents a great advantage for non-native speakers as well as for their language instructors. If one can master the conventions, one can replicate the genre in an acceptable form. Moreover, the conventions are fairly consistent across a wide variety of scientific disciplines. They involve (1) structuring arguments and (2) matching linguistic forms to rhetorical purposes. This involves the writer's having to make a series of language choices. This text helps students to see what those choices are and to select the most appropriate—that is, the most conventional—option.

Although this book deals with technical English, the instructional language is not technical. It is accessible to high-level students regardless of their fields of study. The book does, however, contain many authentic examples of technical English taken from published experimental research reports in various fields. These show students how researchers actually use the conventions presented here in reporting on their work.

The best way for students to develop skills in writing the English of experimental research reports is to acquire them in a natural setting. This involves familiarizing themselves with published literature in their fields, conducting research projects with co-workers, and finally writing up their results. A textbook

alone cannot substitute for this immersion environment; however, it can serve as a friendly and useful guide for students who are or will soon be involved in writing up their research.

ACKNOWLEDGMENTS

We wish to express our gratitude to the many workers in the field of English for science and technology whose research has provided the basis for this text. Principal among them are Louis Trimble, Mary Todd-Trimble, John Lackstrom, Robert Vly-Broman, and Larry Selinker, whose publications beginning in the 1970s first provided us with a rational approach to teaching the experimental research report. Of specific help in analyzing particular features of the report has been the work of John Swales on article introductions, Gregory West and Betty Lou Dubois on the discussion section, and Edward Cremmins on abstracts. Of course, we assume full responsibility for all rhetorical and grammatical analyses that appear here. We are especially grateful to Louisa Hellegers, our production editor at Prentice Hall, for her patience and careful attention to detail during the preparation of the book.

TO THE TEACHER

Writing Up Research may be used in academic English classes with students who are already enrolled in a university program or who are preparing for university entrance. The text can be used as part of a larger course in academic writing or it can be used throughout an entire semester. The language and content of the book are aimed at students with a TOEFL score of approximately 475 or higher. The material is appropriate for students planning to conduct research projects in the social sciences (including education), the natural and physical sciences, and engineering.

It is not the intention of this book to teach the research process itself. We assume that students will take courses in research methods and statistical analysis as part of their advanced studies or that they may already have this background. Our purpose is to show students how to translate their research activities into written reports that conform to the expectations of the English-speaking scientific/academic community.

Because most of the text models and many of the exercises used throughout *Writing Up Research* are based on excerpts from published experimental research reports, some of the terminology encountered will be new for students unfamiliar with particular fields of study. However, we have chosen these models on the basis of general interest level and accessibility to all research-oriented students. Additionally, we have attempted to represent as many

different fields of study as possible in the excerpts. Students should be advised that they need not be familiar with every word in every model or exercise in order to recognize the conventions being studied or to understand the instructional point being presented.

An Instructor's Guide is available. It includes lesson suggestions for each chapter as well as answer keys to the exercises. It also includes notes on variations found across disciplines for some of the conventions covered in the text.

Finally, we hope that this book adequately fills an important need for you and your students: a straightforward and readable guide to the conventions English-speaking researchers follow when they write up their work.

TO THE STUDENT

This book is designed to help you learn to use the most important features of technical and scientific English in writing about research in your field. The principal type of writing treated here is the *experimental research report*, but the information in this book is also relevant to writing research proposals, literature reviews, summaries, abstracts, and especially theses and dissertations.

Many of the expressions and grammatical structures presented in these chapters may not be new to you. What will be new are the specific uses of these items in technical writing. These uses are called "conventions" because they are commonly followed by authors in most fields of research. Technical writing in English is very conventional. That is, when you have learned the conventions presented in this book, you will be able to write an acceptable report about almost any research project that you may carry out.

Examples from published research articles in various fields are included in each chapter. These show you how scientists use the language forms you are studying when they write up their research. Sometimes these examples will include technical vocabulary that is new to you. Try not to be distracted by these terms; they should not interfere with your ability to understand the examples or to appreciate the way these writers use the language conventions you are studying. We hope, in fact, that you will find these excerpts to be interesting examples of research in many different fields.

In working through this book, you will be asked to find examples of published research in your area of interest. This is done because we believe that the more you read, the better you will write. You will also be asked to carry out an original research project to put into practice the conventions you are studying. Through these activities of reading, writing, and research practice, you will soon master the language of the experimental research report.

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