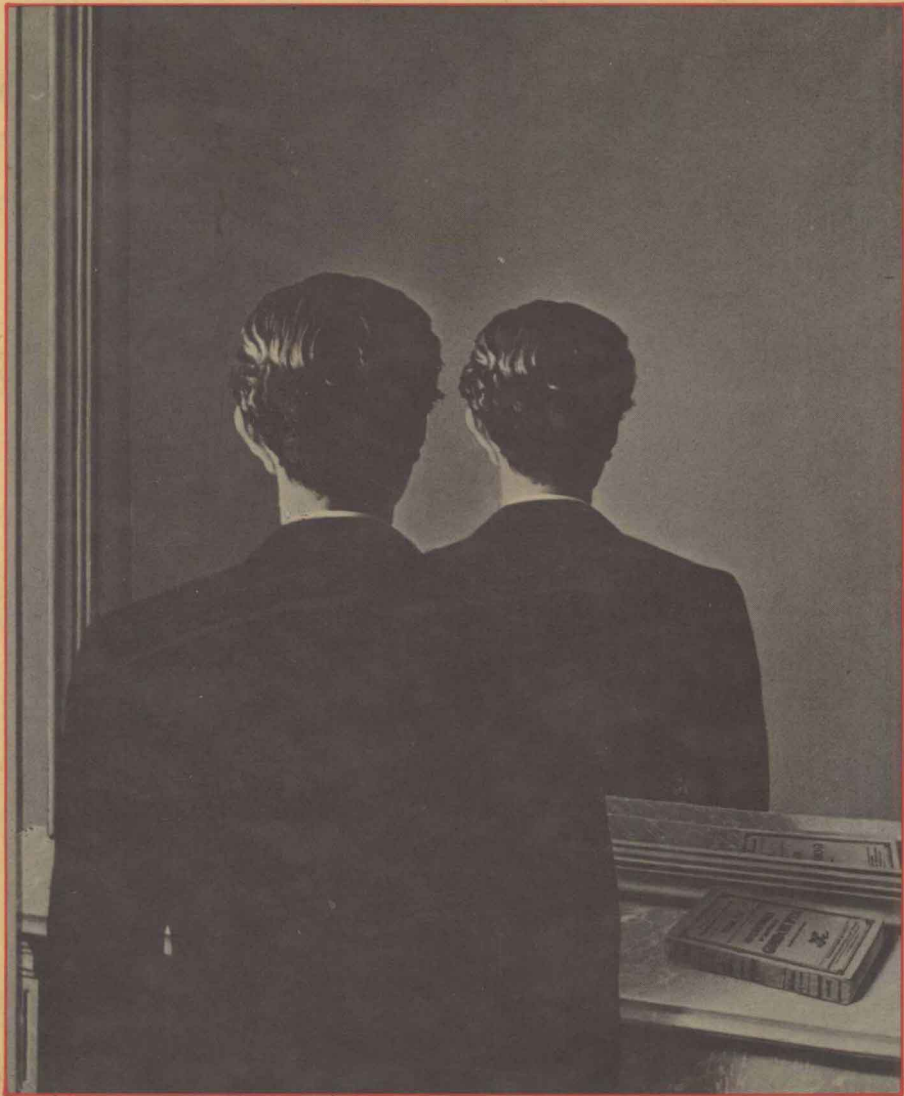

HUMAN EXPERIMENTAL PSYCHOLOGY



JOAN GAY SNODGRASS

GAIL LEVY-BERGER

MARTIN HAYDON

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Joan Gay Snodgrass
Gail Levy-Berger
Martin Haydon

New York Oxford
OXFORD UNIVERSITY PRESS
1985

Oxford University Press
Oxford New York Toronto
Delhi Bombay Calcutta Madras Karachi
Kuala Lumpur Singapore Hong Kong Tokyo
Nairobi Dar es Salaam Cape Town
Melbourne Auckland
and associated companies in
Beirut Berlin Ibadan Mexico City Nicosia

Copyright © 1985 by Oxford University Press, Inc.

Published by Oxford University Press, Inc.,
200 Madison Avenue, New York, New York 10016

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Library of Congress Cataloging in Publication Data

Snodgrass, Joan Gay.
Human experimental psychology.

Bibliography: p.
Includes index.

1. Psychology, Experimental. 2. Human experimentation
in psychology. I. Levy-Berger, Gail. II. Haydon, Martin.

III. Title. [DNLM: 1. Psychology, Experimental.

2. Research Design. BF 181 S673h]

BF181.S66 1985 150'.724 84-29463

ISBN 0-19-503574-7

ISBN 0-19-504942-X (pbk.)

Printing (last digit): 9 8 7 6 5 4 3 2

Printed in the United States of America

To today's students who will become
tomorrow's experimental psychologists

Preface

This textbook is designed to be used in an undergraduate or graduate laboratory course in human experimental psychology, in which students obtain hands-on experience in designing experiments, setting up apparatus, running subjects, analyzing and interpreting data, and writing up the results as a research report. This text can also be adapted for use in a one-semester survey course in either research methods or content.

Orientation. This textbook effectively integrates the content of experimental psychology with its methods. This not only allows the student to understand what psychologists have learned about mental processes, but also to appreciate how they have made their discoveries. It is the nature of experimentation that “facts” will constantly be revised. Therefore, it is important to know how facts are gathered and how they are interpreted. For this reason, we have incorporated experimental methods into the content chapters. For the course that requires more detailed coverage of methods or procedures, special chapters have been provided. In particular, Part III, procedural methodology, is a reference to be used as experiments are designed, run, and analyzed. For a one-semester course covering research methods or content, Part III can be eliminated and appropriate chapters from Parts I and II selected accordingly. One of the many strengths of this book is that each chapter is self-contained and one or more chapters may be deleted without loss of continuity.

Organization. The book is organized into three sections. Part I, design methodology, describes what experiments are (Chapter 1), how to design them (Chapter 2), and how to avoid pitfalls in carrying them out (Chapter 3). The next two chapters in Part I describe general types of procedures, including psychophysical methods (Chapter 4) and the use of reaction time in mental chronometry (Chapter 5).

Part II of the book describes content areas in experimental psychology. The five chapters in this section cover the major areas of research in experimental psychology by specifically concentrating on particular problems in each area and describing ways in which experimental methods have been used to investigate these problems. The areas covered are perception and attention (Chapter 6); conditioning, learning, and motivation (Chapter 7); episodic memory (Chapter 8); semantic memory (Chapter 9); and thinking and problem solving (Chapter 10). The section ends with a chapter describing how experimental methodology has been used in other areas of psychology (Chapter 11).

Part III of the book covers procedural methodology—the nuts and bolts of experimentation. It describes, chapter by chapter, the ingredients that make up the Methods section of a research report. Part III covers subjects (Chapter 12); apparatus (Chapter 13); materials (Chapter 14); descriptive statistics (Chapter 15); and inferential statistics (Chapter 16). Although students are expected to have some background in statistics, Chapters 15 and 16 provide a brief review of statistical concepts along with complete recipes for computing descriptive and inferential statistics. An appendix containing statistical tables complements

Chapter 16. Chapter 17 describes both the form and style of the research report, based on the American Psychological Association's 1983 Publication Manual. Examples from our files of student research reports are used to illustrate what not to do, and their corrections are shown to illustrate what to do.

Designing good experiments to discover principles of human functioning is exciting and challenging. We hope we have succeeded in capturing some of the excitement and intellectual challenge in this book.

Acknowledgments

I wish to offer thanks to my parents, for providing the necessary conditions for this book to be written; to my significant other, Timothy, for his encouragement and devotion; and to an all-but-forgotten colleague for challenging me to go out and get a Ph.D. if I thought I knew more than my bosses. Without his challenge, I never would have entered the field of experimental psychology. Without the help and guidance of my mentors at University of Pennsylvania—most importantly Frank Irwin and Duncan Luce—I would never have fulfilled the challenge. And without the support and encouragement of the Department of Psychology at New York University, this book would never have emerged from a dark corner in our common file cabinets.

J.G.S.

I wish to thank those whose support and encouragement made this task seem manageable and possible during those times that I perceived it as unmanageable and impossible. Principal among my support group is my husband, Israel Berger, my parents, Dr. Bernice Levy and Stanley Levy, my sister, Karen Lane, and my brother, Paul Levy. In addition, I am grateful to my children, Jonathan and Judith, for the joy they have brought me that often provided the essential emotional counterpoint to the task of writing this book

G.L.B.

When I consider what it took to get me to the point where I could contribute to such a work, I recognize my immense debt to a company of dedicated teachers at New York University who showed me how to look at old learning in new ways, to think critically about emerging knowledge, and above all, to find what is concealed behind the obvious. They know who they are, so I will acknowledge them all by naming those with whom I was most involved: Murray Glanzer, Stanley Lehmann, Gay Snodgrass, Doris Aaronson, Martin Braine, George Sperling, and of course, *et al.* I think that helping to produce this text for teaching is an appropriate way to express my thanks.

M.H.

Finally, we acknowledge one another's indispensable contribution to this work. Without our collective cooperation, energy, good will and sense of humor, we would never have brought this book to publication.

New York
June 1985

J.G.S.
G.L.B.
M.H.

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