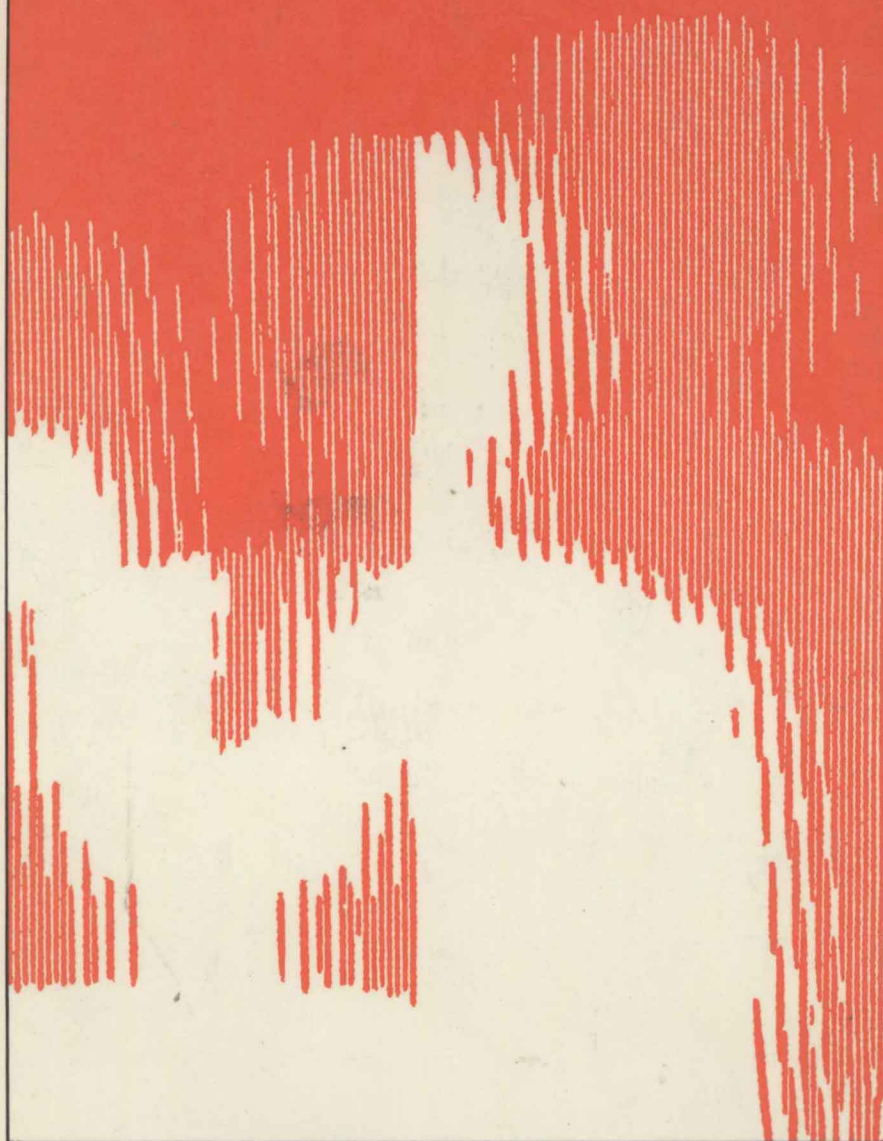


FUNDAMENTALS OF EDUCATIONAL RESEARCH

GARY ANDERSON



The Falmer Press

Falmer Press Teachers' Library Series: 1

Fundamentals of Educational Research

Gary Anderson



The Falmer Press

(A member of the Taylor & Francis Group)

London · New York · Philadelphia

UK

The Falmer Press, Rankine Road, Basingstoke, Hampshire, RG24 0PR

USA

The Falmer Press, Taylor & Francis Inc., 1900 Frost Road, Suite 101, Bristol, PA 19007

© 1990 G. Anderson

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without permission in writing from the Publisher.

First published 1990

British Library Cataloguing in Publication Data

Anderson, Gary

Fundamentals of educational research.

1. Education. Research

I. Title

370.78

ISBN 1-85000-788-8

**Library of Congress Cataloging in Publication Data
are available on request**

Jacket design by Caroline Archer

Typeset in 11/13 Garamond
by Graphicraft Typesetters Ltd.

Printed in Great Britain by Burgess Science Press, Basingstoke
on paper which has a specified pH value on final paper
manufacture of not less than 7.5 and is therefore 'acid free'.

Fundamentals of Educational Research

To: Herbert J. Walberg
 who taught me useful research techniques.
Archie Mackinnon
 who taught me some of the right questions.
Charles Lusthaus
 with whom I enjoy the pursuit of elusive answers.

Acknowledgments

Susan Galt and Mary-Lynne Keenan for tireless efforts at the keyboard.

Norman Henchey for his extensive comments on an earlier draft of the manuscript.

My McGill classes in research methodology of 1987, 1988 and 1989 which provided useful feedback.

Series Editor's Preface

Gary Anderson's book is the first in a broad range of works that will constitute a library for teachers wishing to study education and reflect upon their practice. The intention of this important new venture from Falmer Press is to produce a number of concise and accessible texts which bring the study of education closer to teachers' everyday world — thereby closing the gap between theory and practice. As Gary Anderson points out in his preface, most existing books in this genre are too long. He might also have added that they are normally far too jargon-ridden. The Falmer Press Teacher's Library aims to avoid both of these problems.

Fundamentals of Educational Research successfully brings together a whole range of crucial themes with regard to educational research, research processes and research methods. It is important as an initial statement of the series in that it covers many of the themes and issues which will be investigated in detail in subsequent volumes. In this sense, it provides a vivid and lively "shop window" of the intentions and aspirations of the Falmer Press Teacher's Library.

Ivor Goodson
Series Editor

Preface

Why another book on research methods? The short answer is that existing books do not fulfill the need. The longer answer requires a bit more history. I have been conducting research, and teaching research methodology in various forms for the past twenty years, but my work over the past ten, both in research and in teaching, have opened new perspectives for me which I would like to share.

On the research front, out of a background in mathematics and physics, I began as a quantitative methodologist adept at using multivariate statistics to explore various types of educational phenomena, but I soon recognized the limitations of such approaches. They did allow great insights into many of the complexities of education, but they were ill-suited to increasing my understanding of the limitations and challenges of educational innovation and reform as I came to experience them as an educational manager. In my role as a manager I became concerned with the development and implementation of new programs and curricula, of educational change and of many forms of education which went beyond formal learning as typically found in schools and universities. I became involved as well in regional and international development and in its forms of research related to planning, evaluation and institution-building. In the course of this work, I experimented with all types of methods: historical research, case studies, ethnography, evaluation and policy research as well as a myriad of special techniques from content analysis to tracer studies. Consequently, I came to appreciate the imperative of diverse approaches to facilitate understanding of highly complex educational phenomena. These approaches taught me a great deal and many of the principles, procedures, tools and techniques which I use routinely are not described adequately in a single source. The desire to share these lessons was one motivation for writing the book.

Preface

A stronger motivation was my teaching which focused on a one-semester graduate course, introduction to educational research. I never found a suitable text for the course, though there were many that had important content elements. In the first place, many such books were statistical or at least assumed a sound background in statistics. My teaching revealed that most students know little about statistics even when they have scored high grades in statistics courses. Their knowledge of statistics is analogous to knowledge of an unpracticed foreign language: totally useless in terms of the basic need of the traveller to find directions, food and lodging. I personally learned statistics while addressing real research problems and I suspect that most graduate students, like those I have supervised, also learn them in that way. Consequently, I teach my course with almost no mention of statistics, presuming that beginning researchers can learn such tools as they go along, providing they can be taught to design reasonable studies focused on critical questions.

A second deficiency of existing books and motivation for writing this one is that books on research tend to be far too long. Students in a half course cannot assimilate 800 pages of fine print full of qualifications and caveats all of which serve to mask the basic concepts which generally stay well concealed on the pages of the book. The need was for a short and simple book with clear steps for designing and executing a research study.

Finally, I don't like textbooks in general as I find that they represent a school-based model of learning. I prefer books which talk to people of all types, whether students in a course or professionals trying to do a better job; books which are used in and outside of school to help people of all walks of life understand what a subject is all about. That is the type of book I have tried to write. There are no exercises or drills as the book is intended to help people deal with their research concerns, not mine. Thus, the book is designed to be used by people as they work through their own educational problems and agendas.

I teach my course by having each participant define a suitable problem and then spend the rest of the semester developing a full proposal for conducting the study. However, one of the major problems of teaching research methodology as I do, is that to begin, the beginner must define a problem, but the problem can't be designed without a thorough grounding in how it is to be addressed. Thus, the conundrum is that you must finish my course before you can hope to begin it! This book is seen as a way of re-dressing that dilemma as it permits people to move ahead at their own pace according to their own individual needs. Thus, people can get the big

picture before they commit themselves to something which might dictate a type of methodological approach which is of no particular interest.

The final reason for writing the book was because it is fun to write books. They are demanding and challenging as they unfold and are gratifying once they are finished. Research projects are much the same and I hope you enjoy your research endeavors as much as I have enjoyed telling you about some of mine.

Gary Anderson
McGill University

Contents

<i>Acknowledgments</i>	vii
<i>Series Editor's Preface</i>	viii
<i>Preface</i>	ix
Part – Introduction to Educational Research	
<i>Chapter 1</i> The Nature of Educational Research	3
<i>Chapter 2</i> Research Ethics	17
<i>Chapter 3</i> Defining a Research Problem	28
<i>Chapter 4</i> Sources of Research Literature	45
Part II – Research Processes	
<i>Chapter 5</i> Research Frameworks	61
<i>Chapter 6</i> Planning a Research Study	76
<i>Chapter 7</i> Scholarly Communication	84
<i>Chapter 8</i> Reviewing the Literature	97
Part III – Research Methods	
<i>Chapter 9</i> Introduction to Research Methods	107
<i>Chapter 10</i> Historical Research	113
<i>Chapter 11</i> Descriptive Methods	120
<i>Chapter 12</i> Experimental and Quasi-Experimental Methods	127
<i>Chapter 13</i> Correlational Research	138
<i>Chapter 14</i> Ethnographic Research	147
<i>Chapter 15</i> Case Study	157
<i>Chapter 16</i> Program Evaluation	165
<i>Chapter 17</i> Policy Research	186

Contents

Part IV — Research Tools and Techniques

<i>Chapter 18</i>	Survey Research	195
<i>Chapter 19</i>	Questionnaire Construction	207
<i>Chapter 20</i>	Using Interviews for Successful Data Collection	222
<i>Chapter 21</i>	Developing Effective Interview Protocols	233
<i>Chapter 22</i>	Focus Groups	241
 <i>Appendices</i>		249
<i>Index</i>		266

Part I

Introduction to Educational Research

The Nature of Educational Research

The human species differs from other forms of animal life in that humans are able to learn from the experience of others. Information is collected, analyzed and communicated and over time the body of accumulated knowledge increases, providing the basis for societal progress. There are five main ways in which the human race approaches knowledge. The first is the method of tenacity. In this method people hold to the truth merely because they believe it to be true. They have always known it to be true and so even contrary evidence is dismissed out of hand. This method is nothing more than blind stubbornness, but it is responsible for many prevalent beliefs, some true, others erroneous. It is not an approach to knowledge which need concern us as researchers.

Another of the fundamental ways of knowing is authority based. People rely on experts to gain understanding and guide their behavior. In any family or work setting the views of those endorsed as knowledgeable have credibility and are believed. On the broader scene, certain acknowledged experts are also believed. Thus, if Linus Pauling believes in vitamin C, that is good enough evidence for me. If the Bible says it is true; it must be so. The only utility of this approach to the researcher is that it sometimes poses questions which bear researching: Does vitamin C really cure colds?

The rationalist approach to knowledge adds thinking and deduction which in some instances can lead to useful generalizations or predictions. It is based on the notion of logic which links truths and enables prediction to a situation which may not have been directly observed. If A causes B and B causes C, then A probably also causes C. This is an under-utilized approach in the literature of educational research, but it is a vital one. It helps extend theory and sets up questions which the researcher can then address. It is the fundamental

approach of philosophers of education and is also used in evaluation studies and contract research.

A related method might be termed insightful observation. Insightful observation is used by intelligent people who are capable of gathering information from their experience and of drawing useful generalizations and conclusions from it. Unlike the former method, this incorporates some observational basis, albeit unsystematic. This approach is used by some researchers to formulate logical questions and suppositions for more systematic research and analysis. As a way of developing questions, it, too, can be useful to science as demonstrated by the recent research on folk remedies and natural medicines.

Finally, the scientific method incorporates observations and data which are systematically collected and analyzed in order to obtain understanding of phenomena based on controlled observation and analysis. It is this final form which represents research and the research method in its most widely understood meaning. Unlike the other methods, the scientific method builds in self-correction. New evidence is constantly brought to bear and existing generalizations are constantly modified and corrected to accommodate this additional evidence. However, it is also fair to say that most research and especially contract research and evaluation also incorporates some of the useful features of insightful observation and the rationalist approach. Philosophical inquiry does not typically involve systematic observation and relies entirely on a rationalistic approach. For this reason, some people would question whether philosophical inquiry should be called research.

This chapter explores the nature of educational research, the four levels of research and introduces terms which refer to common methodological approaches. It then defines some basic concepts useful for further study of educational research.

The Nature of Educational Research

Research in education is a disciplined attempt to address questions or solve problems through the collection and analysis of primary data for the purpose of description, explanation, generalization and prediction.

Research is fundamentally a problem-solving activity which addresses a problem or tests an hypothesis. I prefer the problem-solving formu-

lation which relies on a series of specific questions addressed by data collected for the purpose. In the traditional research approach, the researcher derives hypotheses which are tested under various conditions and then accepted or rejected, generally in accordance with pre-established conventions. This approach is best suited for certain problems and methods rooted in experimental studies, but is of limited use for the more general problem-solving addressed here. The formulation of research problems and questions is a more general and generalizable approach to research and is the one followed in this text. Succeeding chapters are devoted to the task of formulating researchable problems, suitable research questions and deriving methodologies with which to explore them.

There is another domain of investigation which some scholars consider research. It includes philosophical analysis, especially conceptual analysis, the situation of educational issues within a philosophical tradition, the examination of epistemological and axiological assumptions, criticism and so forth. I view such activities as scholarship, but not as research in the sense in which it is used in this text. The principal difference is the lack of primary data in those approaches which rely entirely on critical thinking and analysis of existing literature and theory.

Figure 1.1 lists ten characteristics of educational research which extend the definition noted above. Unlike other forms of knowing, research relies on systematic and objective observation, recording and analysis. It seeks to answer the questions and address the problems posed by inquiring minds and strives to find general principles and theories which can lead to the prediction of behaviours and events in the future. The goals of research have to do with understanding, prediction and ultimately control (Best, 1977). These notions rely on controlled and accurate observation and the recording of information. Only in this way can prediction be accurately measured and assessed. It is important to understand that the researcher should be unbiased and not have too strong a vested interest in the outcome. It is natural for people to do research in areas towards which they feel a certain value commitment, but it must not interfere with one's ability to preserve objectivity. People with a mission should engage in volunteer work or religion; they should not pursue research to justify their causes.

Research is a scientific process which assumes that events in the world are lawful and orderly and, furthermore, that the lawfulness is discoverable. This is the meaning of determinism and the researcher