

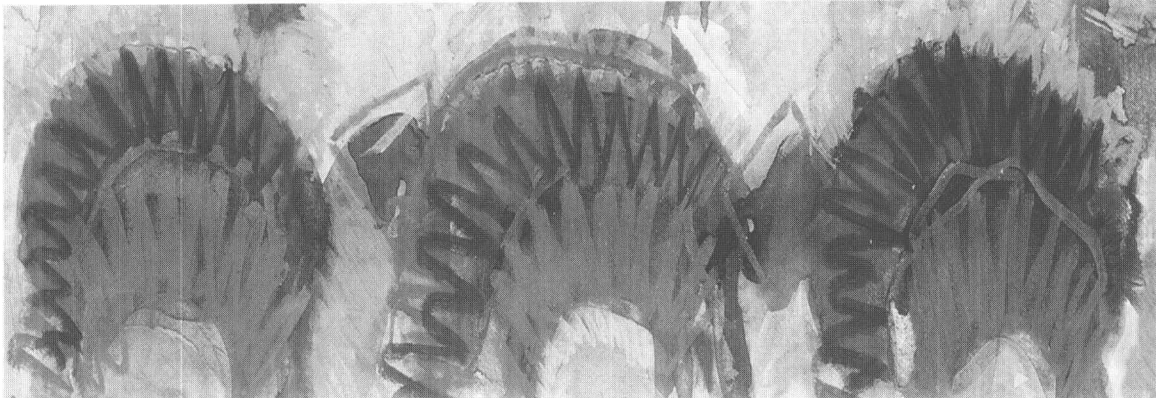
Fifth Edition

APPLIED
BEHAVIOR
ANALYSIS
FOR
TEACHERS

Paul A. Alberto

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Applied Behavior Analysis for Teachers

Fifth Edition

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Preface

We prepared the first edition of *Applied Behavior Analysis for Teachers* because we needed a technically sound, systematically organized, and readable text for our own students. We want students to understand concepts of applied behavior analysis and also to know how to apply those concepts in classrooms and other settings. Applied behavior analysis can make a difference; its principles can be used to teach academic skills, functional skills, and appropriate social behavior. Applied behavior analysis is an overall management system, not a collection of gimmicks for keeping students under control.

This is not a cookbook providing simple step-by-step directions for solving every possible problem an educator might encounter. That would be impossible in any event: What makes working with children and young adults so much fun is that every one is different and no one procedure will be effective for all of them. We want students to be able to use the principles to create their own recipes for success. Successful application of the principles requires the full and active participation of a creative educator. Because we believe so strongly that applied behavior analysis is the most powerful teaching tool available, we stress learning to use it appropriately and ethically.

Instructors will be interested in knowing that the text is as technically accurate and as well documented as we could make it. At the same time, we've tried to enliven it with examples students will enjoy reading. Our examples describe students from preschool through young adulthood functioning at various levels of ability. We describe poor teachers as well as excellent ones. Many of our examples describe the kind of teachers we think we are and hope your students will be—good teachers who learn from their inevitable mistakes.

In preparing this fifth edition, we took to heart suggestions from colleagues and thoughtful letters from students using the book. We did, however, consider the mousetrap example in Chapter 11 sufficiently illustrative to retain in spite of a letter from an irate animal rights activist. We have separated the long and technical chapter on collecting and graphing data into two, more readable chapters, expanded and reorganized the chapter on functional analysis, and deleted the chapter on teaching others to use the procedures.

Finally, the text remains organized to allow instructors to assign students a behavior-change project concurrently with lectures and readings. The text progresses from identifying a target behavior to collecting data, selecting an experimental design, arranging consequences, arranging antecedents, and generalizing behavior change. We've tried to provide students with the basics of a teaching technology that will serve as a solid foundation for other methods courses.

We welcome your continued personal response to our book. We hope you enjoy reading it as much as we enjoyed writing it.

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We would like to thank all the people who helped us in the process of producing the fifth edition of *Applied Behavior Analysis for Teachers*, including all the professionals at Prentice Hall with whom we worked. We would like to offer a special “Thank you” to Gianna Marsella, our development editor, who rates as the most pleasantly persistent (but persistently present) coach we’ve ever encountered. We appreciate the suggestions provided by those who reviewed the text, including: Roger F. Bass, Carthage College (WI); Paul Beare, Moorhead State University; E. Paula Crowley, Illinois State University; Dan Fennerty, Central Washington University; Gay Goodman, University of Houston; and Kathy L. Ruhl, Pennsylvania State University. We thank Nancy Wilder again for word processing, editing, verifying references, and prodding.

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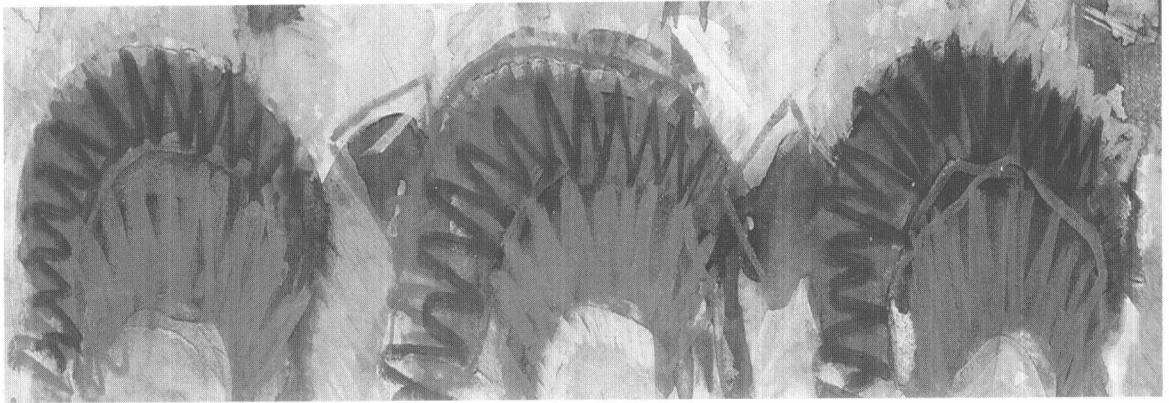
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CHAPTER 1

Roots of Applied Behavior Analysis

Did you know that . . .

- There may be some validity in your mother's claim that "You're just like your father"?
 - Chemicals in your brain may affect your behavior?
 - Apes can have insight?
 - Pretzels preceded M&Ms as rewards for good behavior?
 - Benjamin Franklin used applied behavior analysis?
-

Why do people behave as they do? Why do some people behave in socially approved ways and others in a manner condemned or despised by society? Is it possible to predict what people are likely to do? What can be done to change behavior that is harmful to an individual or destructive to society?

In an effort to answer questions like these, human beings have offered explanations ranging from possession by demons to abnormal quantities of chemicals in the brain. Suggested answers have been debated, written about, attacked, and defended for centuries and continue to be offered today. There are good reasons for continuing to investigate human behavior. Information about the development of certain behaviors in human beings may help parents and teachers find the best way of child-rearing or teaching. If we know how people are likely to behave under certain conditions, we can decide whether to provide or avoid such conditions. Those of us who are teachers are particularly concerned with changing behavior; that is, in fact, our job. We want to teach our students to do some things and to stop doing others.

To understand, predict, and change human behavior, we must first understand how human behavior works. In short, we must answer as completely as possible the “why” questions asked above. Therefore, Alexander Pope’s dictum that “the proper study of mankind is man” (perhaps rephrased to “the proper study of humanity is people”) needs no other revision; it is as true in the 20th century as it was in the 18th.

This chapter discusses the requirements for meaningful and useful explanations of human behavior. It then describes several interpretations of human behavior that have influenced large numbers of practitioners, including teachers. The discussion concludes by tracing the historical development of a way of understanding and predicting human behavior called *applied behavior analysis*.

THE USEFULNESS OF EXPLANATIONS

If a way of explaining behavior is to be useful for the practitioner, it must meet four requirements. First, it should be *inclusive*. It must account for a substantial quantity of behavior. An explanation has limited usefulness if it fails to account for the bulk of human behavior and thus makes prediction and systematic change of behavior impossible. Second, an explanation must be *verifiable*; that is, we should be able to test in some way that it does account for behavior. Third, the explanation should have *predictive utility*. It should provide reliable answers about what people are likely to do under certain circumstances, thereby giving the practitioner the opportunity to change behavior by changing conditions. Fourth, it should be *parsimonious*. A parsimonious explanation is the simplest one that will account for observed phenomena. Parsimony does not guarantee correctness (Mahoney, 1974) because the simplest explanation may not always be the correct one, but it prevents our being so imaginative as to lose touch with the reality of observed data. When the bathroom light fails to operate at 3:00 a.m., one should check the bulb before calling the electric company to report a black-

A useful theory has inclusiveness, verifiability, predictive utility, and parsimony.

out. There may be a blackout, but the parsimonious explanation is a burned-out bulb.

In examining some of the theories developed to explain human behavior, we shall evaluate each explanation for its inclusiveness, verifiability, predictive utility, and parsimony.

BIOPHYSICAL EXPLANATIONS

Some theorists contend that human behavior is controlled by physical influences.

Since physicians of ancient Greece first proposed that human behavior was the result of interactions among four bodily fluids or “humors”—blood, phlegm, yellow bile (choler), and black bile (melancholy)—theorists have searched for explanations for human behavior within the physical structure of the body. Such theories have included those based on genetic or hereditary factors, those that emphasize biochemical influences, and those that suggest aberrant behavior is caused by some damage to the brain. The following anecdote offers an explanation for behavior that indicates a belief in hereditary influences on behavior.

Professor Grundy Traces the Cause

Having observed an undergraduate student’s behavior for some time, Professor Grundy noticed that the student was consistently late for class (when he came at all), invariably unprepared, and frequently inattentive. Since Grundy was certain his dynamic, meaningful lectures were not related to this behavior, he decided to investigate the matter. He paid a visit to the high school attended by the student and located his 10th-grade English teacher, Ms. Marner. “Yes, DeWayne was just like that in high school,” said Ms. Marner. “He just didn’t get a good background in junior high.”

Professor Grundy then went to visit the junior high school. “You know,” said the guidance counselor, “a lot of our kids are like that. They just don’t get the foundation in elementary school.” At the elementary school, Professor Grundy talked to the principal. “DeWayne was like that from day one. His home situation was far from ideal. If we don’t have support from the home, it’s hard to make much progress.”

Professor Grundy, sure that he would at last find the answer, went to talk to DeWayne’s mother. “I’ll tell you,” said his mother, “he takes after his father’s side of the family. They’re all *just like that*.”

Genetic and Hereditary Effects

DeWayne’s mother explained his inappropriate behavior by referring to hereditary influences. Could she have been right? The effects of heredity on human behavior, both normal and atypical, have been investigated extensively. There is little question that mental retardation, which results in significant deficits in a wide range of behaviors, is sometimes associated with chromosomal abnormalities or with the inheritance of recessive genes (Patton, Payne, & Beirne-Smith, 1990). Some evidence indicates that other

Researchers studying heredity often compare the characteristics of sets of twins.

behavioral characteristics have some hereditary basis as well. Although few can be as explicitly identified as the syndromes resulting in some mental retardation, we can learn about hereditary influences through other types of investigation.

Most studies investigating the hereditary components of behavior have been carried out by comparing identical twins with fraternal twins. Identical twins have exactly the same genetic inheritance; fraternal twins are no more alike genetically than any other siblings. Thus, if behavioral characteristics occur more consistently in both of a number of pairs of identical twins than in pairs of fraternal twins, we can assume that the behavioral characteristics result from some inherited factor. Serious behavior disorders, such as that labeled *schizophrenia*, occur more frequently in both members of a pair of identical twins than in both members of a pair of fraternal twins (Prior & Werry, 1986). Some less dramatic behavioral characteristics, such as those labeled *depression* (Klein & Last, 1989), *reading disabilities* (Olson, Wise, Conners, Rack, & Fulker, 1989) and *aggression* (Thomas & Birch, 1984) apparently also have some hereditary component.

In addition, inheritance appears to affect some behavioral characteristics that are not necessarily labeled *deviant* or *atypical*. Thomas and Birch (1977) conducted a study of 136 children whose development has been closely monitored for a number of years. Each child was observed shortly after birth and then frequently throughout childhood. Interviews were held with parents and teachers. The authors identified nine categories of behavior that they labeled *temperament*. Each characteristic could be reliably observed and was consistent throughout childhood. The categories of temperament included activity level, rhythmicity (regularity), approach or withdrawal, adaptability, intensity of reaction, threshold of responsiveness (sensitivity to stimuli), quality of mood (disposition), distractibility, and attention span and persistence.

Since several sets of twins were included in the sample, it was possible to determine by the method described earlier that the first seven characteristics appear to be more similar in identical than in fraternal twins. Not enough data were available to make it possible to draw similar conclusions about the last two characteristics. However, only activity level and approach or withdrawal remained more similar for identical twins than for fraternal twins after the first year (Rutter, Korn, & Birch, 1963). The fact that all the characteristics listed show such consistency over time indicates that they have some constitutional, if not genetic, basis. There is evidence that some clusters of temperamental characteristics may predispose children to be "difficult" (Thomas & Chess, 1984) but that environmental factors such as child-rearing practices have an equal or greater influence on development.

When DeWayne's mother explained her son's behavior to Professor Grundy, her claim that DeWayne takes after his father's family may have involved a degree of truth. It is possible that certain genetic characteristics may increase the probability of certain behavioral characteristics.