Misconception and Miseducation: Presentations of Radical Behaviorism in Psychology Textbooks

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Behavior analysts have recently expressed concern about what appear to be misrepresentations of behaviorism in psychology textbooks. This paper presents an analysis of currently used textbooks in the areas of introductory, social, cognitive, personality, and developmental psychology that contain this. Topics on which behavior analysis is most often misrepresented relate to the role of animal training research, environmentalism, the "empty organism," language, and the overall utility of the approach. Because textbooks are often a major medium of interaction between the public and behaviorism, behavior analysts must work to correct these errors and suppress possible negative consequences of widespread misunderstanding. Several potential solutions to these problems are presented that take into account current publishing practices and the monetary contingencies which support them.

Attacked from within (e.g., Bailey & Bailey, 1980; Herrnstein, 1977; Wasserman, 1981) and from without (Chomsky, 1959; Fodor, 1983), behavior analysts have made efforts to defend their position against misconceptions and unwarranted criticisms for a number of years (e.g., Bajus, 1979; MacCorquodale, 1970; Skinner, 1973, 1974). Recently, concern has arisen over the nature and extent of these misconceptions in educational materials for students. For instance, Holland (Note 1) has suggested that misconceptions about behaviorism may no longer be born of simple misreading or lack of information. They may now be directly taught to students through standard course materials. Similar concerns about inaccuracies found in psychology textbooks and about the implications of potential misrepresentation have also been raised in papers presented at recent meetings of the Association for Behavior Analysis and the American Psychological Association (Brownstein, 1981; Dellarena, Note 2; Knapp, Note 3; Lwasa, Note 4; Todd & Morris, Note 5).

This concern about inaccuracies in psychology textbooks may or may not be justified. On the one hand, the concern may stem from a few highly visible errors in a few popular textbooks. On the other hand, the concern may be based on a correct assessment that textbooks often do present a distorted picture of behavior analysis. This issue can be evaluated through a survey of psychology textbooks now being used. In this article, we summarize the results of a study on the accuracy of how behavior analysis is described in contemporary educational materials.

This paper is based on research done in partial fulfillment of the requirements for undergraduate honors in the Department of Human Development at the University of Kansas. Appreciation is extended to Donald M. Barr and students enrolled in the spring 1981 seminars in the systematic analysis of behavior (HDF 760/860) for their helpful comments during the development of this project. We would also like to thank those faculty and graduate students of the Department of Human Development and of Psychology for their aid in obtaining copies of textbooks for review. A more detailed report of the procedures and data described herein and herein may be obtained from the first author, Department of Human Development, Haskell Hall, University of Kansas, Lawrence, KS 66045.

TEXTBOOK SAMPLING AND DATA COLLECTION

Textbook Sampling

In order to obtain a representative sample of what psychology students are reading about behavior analysis, we evalu-
uated recently published textbooks in the areas of introductory, social, cognitive, personality, and developmental psychology. These five content areas are among those most frequently taught in psychology departments (Lux & Daniel, 1978) and hence comprise the core curriculum for most undergraduate psychology majors. Textbooks on self-help and adjustment, experimental and physiological psychology, and those for upper level undergraduate and graduate courses were not included. Courses on these topics are less frequently offered (Lux & Daniel, 1978) and often make no mention of behavior analysis.

For our sample, we selected textbooks that were published between 1978 and 1980 and that were reviewed in *Contemporary Psychology* (CP) during the same year. This selection procedure provided a representative sample of the important and textbooks in current use (Foss, 1981). We were able to obtain and evaluate 40 of the 59 texts reviewed in CP. That our sample might be biased in terms of texts critical of behavior analysis seems unlikely. The texts were obtained from the faculty, graduate students, and libraries associated with a university noted for the behavioral orientation of some of its faculty members.

**Data Collection**

In evaluating these texts, we checked all references to radical behaviorism, behavior analysis, behaviorism, behavioral concepts and terminology, and related topics, and assessed the accuracy of the presentations. Definitions of basic terms and descriptions of basic behavioral concepts were checked against definitions and descriptions in the glossaries of Ferster and Skinner's *Schedules of Reinforcement* (1957) and Catania's *Contemporary Research in Operant Behavior* (1968). Descriptions of behavior analytic views on conceptual issues were checked against the primary sources cited in the textbooks. Finally, citations of articles and books to support discussions about behavior analysis were tabulated, and relevant statements about behavior analysis were transcribed.

**SURVEY RESULTS**

**General Summary**

Our results show that presentations of behavior analysis varied across textbooks and subject areas. Introductory and personality texts usually provided the most detailed presentations. Developmental psychology texts were less detailed, while social and cognitive psychology texts presented the least information, sometimes not covering behavior analysis at all.

Most textbooks did not discuss radical behaviorism as the philosophy of the science of behavior, which it is suited to be (Skinner, 1974, p. 1). Several personality and introductory textbooks, however, did discuss theoretical issues, but limited their presentations to topics such as mentalism and some of Skinner's metatheoretical views (e.g., determinism) (cf. Skinner, 1971). Any further discussions of the history and philosophy of behavior analysis were typically presented in relation to the research and views of Pavlov, Watson, and Skinner.

The primary focus in the presentations of behavior analysis was on basic behavioral principles, with occasional mention that these principles have been used in "behavior modification." Overall, the five most frequently cited behavioral books and articles were, in order, Skinner's (1953) *Science and Human Behavior* (50% of the texts reviewed), Skinner's (1938) *The Behavior of Organisms* (50%), Skinner's (1957) *Verbal Behavior* (48%), Skinner's (1951) *Beyond Freedom and Dignity* (45%), and Watson and Ray's (1952) "Conditioned Emotional Reactions" (42%). No other article or text was cited more than 25% of the time.

The most commonly cited basic research studies were Ferster and Skinner's (1957) *Schedules of Reinforcement* (20%) and Skinner's (1948) "Superstition" in the *Pigeon" (13%). In sections on applied behavior analysis, token economy research (e.g., Ayllon & Azrin, 1968) and work with autistic children (e.g., Lovaas, 1968) were described in about one of every five texts. Most texts also included a separate discussion of language that frequently cit-
ed Skinner's *Verbal Behavior* (1957) as representative of the behavioral view. In each of these areas—basic and applied research, and language—the references and coverage were dated, thereby failing to reflect advances made in the field over the past 15 years (see Journal of the Experimental Analysis of Behavior and Journal of Applied Behavior Analysis).

In most introductory texts, basic behavioral terms were defined accurately, and inductive behavioral processes were adequately described. Among the few errors which occurred were definitions of negative reinforcement as punishment, of standard interval schedules as response-independent time schedules, and of reinforcement without reference to response rate. Several texts contained distortions of basic principles that were quite detailed and accurate (e.g.,Hall & Linsey, 1978; Zimbardo, 1979).

**Misconceptions**

When presentations of behavior analysis went beyond descriptions of basic principles and concepts to more general issues, a number of misconceptions began to appear in a large proportion of the textbooks. Some texts did present a reasonably accurate picture of behavior analysis (e.g., Meyer, 1970; Ryckman, 1978); others, though, were straightforward and behavioral (e.g., Barlow, 1978). In general, the preponderance of the textbooks described behavior analysis through a mixture of both accurate and inaccurate statements and conclusions. The most common misconceptions of behavior analysis were (a) that it focuses primarily on the behavior of nonhuman animals, (b) that it is totally environmentalistic, (c) that it views organisms as "empty" or as "black boxes" (though with occasional reference to introspection), (d) that it espouses a simple and naive theory of language and language acquisition, and (e) that it is limited in usefulness. In describing these misconceptions below, we have not taken the space to provide substantive rebuttals to these misconceptions; however, we do provide occasional reference where informed views can be found. Our present audience needs little education in these matters.

Non-human animal behavior. Some textbooks suggested that behavior analysis work only with non-human animals and improperly generalize their findings to human behavior. For example, one developmental psychology textbook contained this claim: "Ironically, this theory is based on research in animal learning...and Skinner uses it to explain a uniquely human ability [language]" (Mussen, Conger, & Kagan, 1979, p. 212). To the same vein, another author made this misobservation: Skinner's "influential book, *Beyond Freedom and Dignity* deals directly with the societal applications of rat and pigeon research, in government, religion, and business" (Gowatz & Mowbray, 1979, p. 118).

The generalizability of behavioral principles for human behavior derived from research with non-human species is, of course, an empirical matter. To date, though, the basic processes that have been investigated do show trans-species generalization (cf. Journal of the Experimental Analysis of Behavior, 1978) and most human behavior can be "interpreted" (Skinner, 1957; cf. MacCorquodale, 1970) according to basic behavioral principles and concepts. New principles, of course, may yet be found (cf. Slater, 1938, pp. 441-444), but those will not disconfirm those that already show generality.

Environmentalism. Behavior analysis was often accused of being environmentalism in the sense that they ignore or deny phylogenetic contributions to behavior. John B. Watson is sometimes credited as the originator of environmentalism in America. Moreover, his famous baby statement—that he could create any sort of person from a normal healthy infant given the complete control of the child's environment (Watson, 1930, p. 104)—is often quoted out of context to support this argument. In one text, it was noted that Watson "believed that human beings were innately trainable" (Papalia & Olds, 1979, p. 9). Another author said that behavior analysis "excludes behavior attributable to
genetic or maturational factors” (Fein, 1978, p. 6). Although a few of the texts described behavior analysis without reference to innate factors, most of the textbooks did characterize behavior analysis as the most environmentalistic of the theoretical approaches they covered.

These views, however, are generally misformed. For instance, it is a mistake to say that Watson was a total environmentalist. Skinner (1969, p. 172) reminds us that Watson’s baby statement appears in a discussion about how organisms are equipped at birth. He also tells us that Watson has been credited as one of the early ethologists in the modern sense of the term (Skinner, 1969, p. 172). In addition, Skinner himself has consistently acknowledged the role of biological variables in the analysis of behavior (Skinner, 1953, 1966, 1977, 1981), and behavior analysts have spent considerable time and effort investigating the effects of drugs, toxins, and species differences on behavioral processes (see Schwartz, 1974; Thompson & Boren, 1977).

The empty organism. A number of textbooks claimed that behavior analysts ignore everything that goes on within the skin of the organism, usually by stating that behaviorists assume the organism to be empty or a “black box.” For instance, one text stated that “In a sense, Skinnerian psychology deals with an ‘empty organism’” (Liebert & Spiegler, 1978, p. 470). A particularly vivid example of this misconception was presented in one illustration. John B. Watson was shown with a line-drawing of a black box—labeled “Black-box”—inside his head. One arrow, labeled “stimuli,” entered the box through one side of Watson’s head; another arrow, labeled “responses,” left the box through his chin (Bourne & Erikson, 1979, p. 23).

Interestingly, despite this “black box” claim, many of the textbooks described behavioral principles as though they included a degree of intentionality or free will. For instance, one author stated that “the operant is a voluntary action” (Fein, 1978, p. 7), while another noted that “as children grow older they may choose to exhibit certain behaviors” (Leflon, 1979, p. 406). In one book, the comment was made that “operant conditioning involves actions which are under the organism’s control” (Papalia & Olds, 1979, p. 158). This point was mentioned by another author who stated that “the emphasis in this form of behavior is on intention and achievement” (Bourne & Erikson, 1979, p. 131). In addition, some textbooks did not separate mentalistic concepts from behavioral ones. For example, one author said that “a behaviorist would explain operant conditioning in terms of the behavior and the reward occurring in rapid enough succession so that the immediate memory of the behavior overlaps with the reinforcement” and “in non-cognitive terms, the association between the act and the result becomes more firmly established the more trials that are reinforced” (Freedman, 1978, p. 75).

These views about the empty organism stem from a misunderstanding of the behaviorist’s view of the role of physiology in a science of behavior (Skinner, 1969, 1974) and from a misunderstanding of Skinner’s operational account of subjective terms (Skinner, 1945; cf. Moore, 1975, 1981) which does not exclude private events from the realm of science (cf. Moore, 1980). The descriptions of operant behavior as “intentional” and as a form of 19th century associationism stem from misinformed views of non-reflex behavior as “voluntary” (Skinner, 1971) and from a failure to distinguish radical behaviorism from the mentalism inherent in early associationism and empiricism (see Day, 1976, 1980).

Language. In discussions of behavior analytic views on language, several misconceptions appeared consistently across textbooks in each of the five subject areas. Interestingly, most of these presentations varied little in style, length, and content, and were often formulated in terms of the supposed points of contention between Skinner (1957) and Chomsky (1959). The textbooks’ presentation of the behaviorist approach to language acquisition is that it is a simplistic, explicit imitation-reinforcement process, and that
language is uninfluenced by genetic factors. For example, in one text, the author described the behavioral concept of language development as follows: "[Children] imitate the linguistic behavior of the adults around them and, if they do so correctly, the adults will reinforce them positively by praising them and telling them that what they have said is 'right'" (Zimbardo, 1979, p. 112). This view is often contrasted with Chomsky’s position, presented as a nativist view of language acquisition, thereby placing Skinner and Chomsky in a nature-nurture debate over language acquisition in which Chomsky’s views are generally held to be more accurate.

In contrast to these misconceptions, however, informed reading of Verbal Behavior does not lead to the conclusion that behavior analysis is simplistic in these matters (cf. Segal, 1975, 1977). Furthermore, most of Chomsky’s review is not relevant to Skinner’s analysis of verbal behavior (cf. MacCorquodale, 1970; Richelle, 1975).

Usefulness: Finally, texts that contained reasonably detailed presentations of behavior analysis sometimes gave the impression that the approach is limited in generality and usefulness. One introductory text concluded that “actually little complex behavior can be controlled by conditioning methods” (London, 1978, p. 158). A personality text summed up the status of behaviorism by asking “Where does all this leave the empirical status of Skinner’s theory? As we have seen, the original theory is for the most part so encumbered with logical problems as to preclude meaningful empirical testing” (Bavelas, 1978, p. 195).


IMPLICATIONS AND SOLUTIONS

This small but representative sample of statements shows that many clearly erroneous statements are made about behavior analysis in current psychology textbooks. This being the case, behavior analysts are in a precarious position over current misconceptions. Such concern suggests several implications in regard to miseducation that require corrective action.

Implications

The implications of erroneous text- book presentations are important on several levels. First, students are buying and being taught from materials that are of questionable accuracy. In addition to the present survey, a number of other studies have shown that Watson and Rayner’s “Conditioned Emotional Reactions” (1920) is frequently misrepresented in psychology textbooks (Cornewell & Hobbs, 1976; Harris, 1979; Pytula, Os- ter, & Davis, 1977). Errors in presenta- tions of this study, ranging from the mis- spelling of Rosalie Rayner’s name (usually as “Raynor”) to combining Watson and Rayner’s study with a later one by Mary Cover Jones, “A Laboratory Study of Fear: The Case of Peter” (1924), thereby creating one study in which a child’s fear is both conditioned and extinguished, with no citation of the Jones study. Psychology textbooks have also been accused of providing inaccurate coverage on topics other than behaviorism. For instance, psychology texts often contain outdated and inaccurate information about Down’s syndrome (Abrons & Bennett, 1980), “Jensensism” (Miller, 1980), and Freudian psychology (Rays, 1976). This evidence of errors in the presentations of a wide variety of topics, as well as in pres- entations of behavior analysis, indicates that students and instructors may be wasting valuable time and money on in- accurate educational materials.

A more important implication of the errors and misconceptions in psychology textbooks involves the relationship between behavior analysis and policy-and decision-making in government, indus-
try, and social action groups. To the extent that public policy is shaped by individuals whose exposure to behaviorism is through textbooks such as those reviewed in this study, and through educators who assign those textbooks, then these policies and decisions are not likely to reflect the important conceptual and applied contributions that a natural science of behavior can offer. Let us provide an illustration of problems that can arise with respect to such issues. In a recent article published in *Psychology Today*, Hogan and Schroeder (1981) assessed the accuracy of the Reagan administration’s view of the social sciences. They said that the administration sees psychology as “left-wing political rhetoric with no legitimate claim on the public pocketbook” (p. 8). On the assumption that “introductory textbooks provide a good barometer of the state of the art in psychology” (p. 8), Hogan and Schroeder (1981) reviewed six texts from which they concluded that psychology is indeed pervaded by “deep-seated” liberal, behaviorist, situationist attitudes, and that the administration is essentially correct in its views about psychology. Our present study, however, along with others, has shown that the assumption that psychology textbooks are a “good barometer” of the field is misleading. Their article, however, published in the leading popular psychology magazine, supports the erroneous view that an accurate assessment of psychology can be made from an examination of psychology texts, and that responsible public policy can be made from a view of psychology derived therefrom.

**Solutions**

If the public and government regard the contents of psychology textbooks as a suitable and accurate basis for making policy and funding decisions about psychology in general, and behavior analysis in particular, then behavior analysts ought to take action to improve the presentations of their position. Without corrective action, current publishing practices, in conjunction with textbook buying habits, will continue to insulate the perpetuation of existing errors and will fail to prevent the occurrence of additional errors in the future.

Currently, psychology instructors probably deal with errors in textbooks by rejecting texts that contain errors in favor of texts that contain accurate presentations (Brownstein, 1981). This academic version of natural selection is unlikely, however, to result in the evolution of more accurate textbooks. Many textbook publishers produce several different texts in a number of different subject areas, and not uncommonly several texts in the same area. The result is that such a wide array of textbooks is available that any instructor can find a text that is reasonably accurate in his or her area of interest. Thus, despite differential selection by instructors, enough academic niches exist to support texts containing misconceptions about behavior analysis and other topics.

A more effective approach to the problem of errors in textbooks probably is to write to the authors of textbooks (Brownstein, 1981) and to their publishers, explaining why certain passages are in error and offering suggestions for improvement. This approach may be especially effective in cases where an author’s misunderstanding of basic behavioral assumptions results in numerous errors throughout a presentation. Such a tactic may also be effective if a textbook’s author has been a victim of inaccurate secondary sources about behaviorism. This approach will be less effective, however, if authors or publishers are unresponsive or unconcerned about behaviorism. Also, if the text is a managed text—that is, written in whole or in part by a publishers’ professional writers—then changes may be more difficult to achieve because the individuals involved are many in number and somewhat anonymous. None-theless, instructors whose actions may result in a sales loss of hundreds or thousands of textbooks will speak with a loud voice. They, especially, should be encouraged to take action. Lastly, of course, behavior analysts can write to authors and publishers who do provide fair
PRESENTATIONS OF RADICAL BEHAVIORISM

and accurate coverage of behaviorism, applauding its perspicacity and providing them with additional material and insights.

While efforts to alter textbook presentations of behavior analysis may not lead to widespread changes, it is important to attempt to make some improvements. Errors about behaviorism must be corrected to avoid the waste of valuable time and money spent by students and universities to prevent the possibility of irresponsible legislation and public policy decisions based on misunderstandings.

REFERENCE NOTES

1. Holland, J. P. Personal communication about his audience comments made after a paper presented by Knapp (Note 6).


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