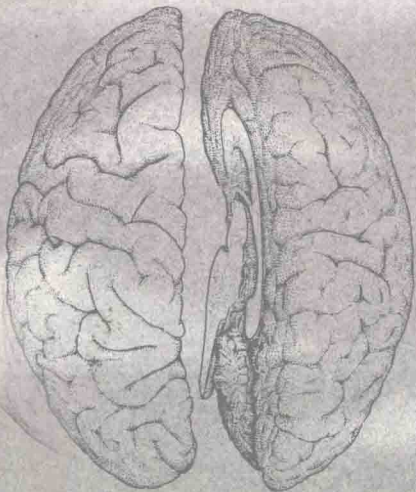


How to Think Straight About Psychology

Second Edition



Keith E. Stanovich

**How to
Think Straight
About Psychology**

Second Edition

Dedicated to my parents, Betty and Mike Stanovich.

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PREFACE

There exists a body of knowledge that is unknown to most people. This information concerns human behavior and consciousness in their various forms. It can be used to explain, predict, and control human actions. Those who have access to this knowledge use it to gain an understanding of other human beings. They have a more complete and accurate conception of what determines the behavior and thoughts of other individuals than do those who do not have this knowledge.

Surprisingly enough, this unknown body of knowledge is the discipline of psychology.

What can I possibly mean when I say that the discipline of psychology is unknown? Surely, you may be thinking, this statement was not meant to be taken literally. Bookstores contain large sections full of titles dealing with psychology. Television and radio talk shows regularly feature psychological topics. Newspapers and magazines run psychology columns. In spite of this, however, there is an important sense in which the field of psychology is unknown.

Despite much seeming media attention, the discipline of psychology remains for the most part veiled from the public. The transfer of “psychological” knowledge that is taking place via the media is largely an illusion. Few people are aware that the majority of the books they see in the “psychology” sections of many bookstores are written by individuals with absolutely no standing in the psychological community. Few are aware that many of the people to whom the media apply the label “psychologist” would not be considered so by the American Psychological Association. Few are aware that many of the most visible psychological “experts” have contributed no information to the fund of knowledge in the discipline of psychology.

The flurry of media attention paid to “psychological” topics has done more than simply present inaccurate information. It has also obscured the very real and growing knowledge base in the field of psychology. The general public is unsure about what is and is not psychology and is unable to evaluate independently claims about human behavior. Adding to the problem is the fact that many people have a vested interest in a public that is either without evaluative skills or that believes there is no way to evaluate psychological claims. The latter view, termed the “anything goes” outlook, is one of the fallacies discussed in this book, and it is particularly costly to the public. Many pseudosciences are multimillion-dollar industries that depend on the lack of public awareness that claims about human behavior can be tested. The general public is also unaware that many of the claims made by these pseudosciences (for example, astrology, psychic

surgery, speed reading, biorhythms, subliminal weight loss, talk-show psychics) have been tested and proven false. The existence of the pseudoscience industry, which is discussed in this book, increases the media's tendency toward sensationalistic reporting of science. This tendency is worse in psychology than in other sciences, and understanding the reasons for this is an important part of learning how to think straight about psychology. This book, then, is directed not at potential researchers in psychology, but at a much larger group: the consumers of psychological information. The target audience is the beginning psychology student and the general reader who have encountered information on psychological issues in the general media and have wondered how to go about evaluating its validity.

This book is not a standard introductory psychology text. It does not outline a list of facts that psychological research has uncovered. Indeed, telling everyone to take an introductory psychology course at a university probably is not the ultimate solution to the inaccurate portrayal of psychology in the media. There are many laypersons with a legitimate interest in psychology who do not have the time, money, or access to a university to pursue formal study. More importantly, as a teacher of university-level psychology courses, I am forced to admit that my colleagues and I often fail to give our beginning students a true understanding of the science of psychology. This is because lower-level courses often do not teach the critical analytical skills that this book *is* about. As instructors, we often become obsessed with “content”—with “covering material.” Every time we stray a little from the syllabus to discuss issues such as psychology in the media, we feel a little guilty and begin to worry that we may not “cover all the topics” before the end of the term.

Consider the average introductory psychology textbooks. Many now contain between 600 and 800 multi-columned pages and reference literally hundreds of papers in the published literature. Of course, there is nothing wrong with this. It simply reflects the increasing knowledge base in psychology. There are, however, some unfortunate side effects. Instructors are often so busy trying to cram their students full of the dozens of theories, facts, and experiments that they fail to deal with some of the fundamental questions and misconceptions that students bring with them to the study of psychology. The instructors (and the introductory textbook authors), rather than dealing directly with these misconceptions, often hope that if students are exposed to enough of the empirical *content* of psychology, they will simply *induce* the answers to their questions. The instructors hope that students will recognize the implicit answers to these questions in the discussions of empirical research in several content areas. All too often this hope is frustrated. In a final review session—or in office hours at the end of the term—the instructors are shocked and discouraged to hear questions that might have been expected on the first day of the course, but not after 14 weeks: “But psychology experiments aren't real life; what can they tell us? Psychology just can't be a *real* science like chemistry can it? But I heard a therapist on TV say the opposite of what our textbook said. I think this theory is stupid—my brother behaves just the

opposite of what it says. Psychology is nothing more than common sense. Everyone knows what anxiety is—why bother defining it? Psychology is just a matter of opinion, isn't it?" For many students, such questions are not implicitly answered by merely considering the content of psychology. In this book we will deal explicitly with the confusions that underlie questions such as these.

Unfortunately, research supports the idea that the average introductory psychology course does very little to correct the many misconceptions about the discipline that are held by entering students (Best, 1982; McKeachie, 1960; Vaughan, 1977). One researcher has stated, "I must conclude that the [introductory] course has little influence on their erroneous beliefs" (Vaughan, 1977, p. 140), and, further, drew the conclusion that "there is little evidence for a generally heightened skepticism, which might lead students to question statements about which they have received no additional information" (p. 140). Vaughan's latter conclusion touches on the basic purpose of this book. Psychology, probably more than any other science, requires critical thinking skills that enable students to separate the wheat from the chaff that accumulates around all sciences. These are the critical thinking skills that students will need to become independent evaluators of psychological information. Years after students have forgotten the *content* of an introductory psychology course, they will still use the fundamental principles covered in this book to evaluate psychological claims. Long after Erikson's stages of development have been forgotten, students will be using the "thinking tools" introduced in this text to evaluate new psychological information encountered in the media or in course work. Once acquired, these skills will help students at least partially evaluate knowledge claims. First, they provide the ability to conduct an initial gross assessment of plausibility. Second, these skills provide some criteria for assessing the reliability of "expert" opinion. Because the need to rely on expert opinion can never be eliminated in a complex society, evaluation of an expert's credibility becomes essential for knowledge acquisition. Although these critical thinking skills can be applied to any discipline or body of knowledge, they are particularly important in the area of psychology because the field is so often misrepresented by the general media.

Many psychologists are pessimistic about any effort to stem the tide of misinformation about their discipline. While, unfortunately, this pessimism is often justified, this "consumer's guide" to psychology was motivated by the idea that psychologists must not let this problem become a self-fulfilling prophecy.

While I welcomed the opportunity to prepare a second edition of *How To Think Straight About Psychology*, it is unfortunately true that the reasons for the book's existence are just as applicable today as they were when I wrote the first edition. Media presentations of psychology are just as misleading as they ever were, and students in introductory psychology courses enter with as many misconceptions as they ever did.

Thus, the goals of the second edition remain the same. They are shared by an increasing number of psychology instructors. Stanford University psychologist

Roger Shepard echoes all the concerns that motivated the writing of the first edition of this text:

Although most undergraduate psychology students may not go on to scientific careers, one hopes that they acquire some facility for the critical evaluation of the incomplete, naive, confused, or exaggerated reports of social science “findings” to which they will continue to be exposed by the popular media. . . . Widespread notions that human behavior and mental phenomena can be adequately understood through unaided common sense or, worse, by reference to nonempirical pseudosciences, such as astrology, present us with a continuing challenge. (1983, p. 855)

The first edition of *How to* was timely because of two recent trends in educational theory and practice. First, the mid-1980s saw an increased emphasis on the teaching of “critical thinking.” Indeed, some school districts and state university systems instituted curricular changes mandating an emphasis on critical thinking skills. At the same time, however, other educational scholars were arguing that critical thinking skills should not be isolated from specific factual content. *How to* provided many instructors with the opportunity to teach critical thinking within the rich content of modern psychology.

The focus of the 10 chapters of the book remains the same, but the content of each has been “fine-tuned” and improved in various small ways. Sections of each chapter have been slightly rewritten based on feedback received from instructors and students who have used the first edition. Examples that did not “work” as well as I thought have been removed and in many cases replaced by better ones. Additional examples of certain concepts that I became aware of subsequent to the first edition have been inserted. Small parts of discussions have been changed to achieve better clarity. Sixty-nine new citations appear in the text and have been added to the reference list for an up-to-date sampling of readings on all of the key concepts discussed.

Acknowledgments

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Stop 100 people on the street and ask them to name a psychologist, either living or dead. Record the responses. Of course, Joyce Brothers and other “media psychologists” would certainly be named. If we leave out the media and pop psychologists, however, and consider only those who have made a recognized contribution to psychological knowledge, there would be no question about the outcome of this informal survey. Sigmund Freud would be the winner hands down. B. F. Skinner would finish second. No other psychologist would get enough recognition to even bother about. Thus, Skinner and Freud, along with the pop psychology presented in the media, collectively define *psychology* in the public mind.

Many psychologists have complained that the ideas of both Freud and Skinner are only vaguely understood and are often greatly distorted. Skinner’s name is associated with rats in boxes and the use of rewards and punishments to control people. This misconception remains despite the fact that for decades he has consistently campaigned against the use of punishment as a controlling agent. Skinner is mistakenly said to deny that people think or that they are conscious. Freud’s ideas are even less clearly understood.

In this chapter, we will consider how the notoriety of Skinner and Freud has affected the general public’s conceptions about the field of psychology and contributed to many misunderstandings. One major misconception concerns whether Skinner and Freud in some sense define *psychology*. Specifically, are their ideas the extent of what psychology has to offer? Do they largely define what modern psychology is about? That the answer to these questions is a most definite and resounding “No” is a surprise to most people. For example, many introductory psychology students are surprised to learn that, if all the members of the American Psychological Association who are Skinnerian behaviorists were added to all the members who are orthodox Freudians, the combined group might not even comprise 10 percent of the membership. In short, modern psychology is not dominated by the theories of Skinner and Freud, even taken together. Their work is merely part of a much more varied set of theories and experimental data. This larger body of research and theory encompasses the work of four recent Nobel Prize winners (David Hubel, Torsten Wiesel, Herbert Simon, and Roger Sperry) and a former director of the National Science Foundation (Richard Atkinson), all of whom are virtually unknown to the public.

THE WAY TO EXPLAIN BEHAVIOR

Actually, the positions of Skinner and Freud represent only two of a larger set of positions on the way best to conceptualize and study human behavior. Again, Skinner and Freud present obstacles to a general understanding of the discipline of

psychology because they represent extreme positions that are not typical of how most psychologists view their discipline.

Skinner and Freud occupy opposite ends of the full spectrum of positions that psychologists take regarding the nature of their inquiry, and neither is representative of the way most psychologists conduct their research. Skinner's end of the spectrum, sometimes referred to as a radical behaviorism, asserts that the subject matter of psychology consists only of behavior-environment relationships. The radical behaviorist believes that behavior is determined by reinforcement contingencies (relations between behavior and rewards) in the environment and that the main task of psychology is to uncover these systematic contingencies. Radical behaviorists see no need to posit hypothetical operations taking place in what the lay public calls "the mind" in order to arrive at explanations of behavior. This is not to say that behaviorists like Skinner deny that people are conscious or that they think. Their point is that you do not need to use such concepts to explain and predict human behavior. Indeed, many radical behaviorists go even further and deny that hypothetical constructs of any kind are needed to explain human behavior. That is, they reject theory altogether. In fact, Skinner once wrote a famous article entitled "Are Theories of Learning Necessary?" In the article he answered the question by saying, essentially, "No."

The position that theory and theoretical terms have no part in psychology makes Skinner's view seem extreme to most psychologists. No other science has ever successfully taken this position. Indeed, some of the oldest and most advanced of the sciences (for example, physics and chemistry) make ample use of unobservable theoretical concepts. Thus, not only is the radical behaviorist position atypical of psychology as a whole, it is an anomaly in the entire family of sciences. R. L. Gregory (1981) summarizes the opinion of most psychologists by stating that Skinner's position is

intellectually therapeutic, in disposing of flabby mentalistic speculation; but it might be too extreme, for it does not allow explanation as explanation is accepted in other sciences. It is as though Galileo did not infer from his observations of the moons of Jupiter that they are bodies, rotating round the parent planet. He could have merely described the changing patterns as seen through his telescope; but from these observations he gave us a new conceptual insight, which finally displaced the earth from the centre of the Universe. Behaviorism has been described, in so many words, as a science of pointer readings. . . . though it misses the point by refusing to use its measurements and observations to suggest and test hypotheses of why phenomena occur (p. 281).

In most sciences, theoretical concepts have possible meanings that extend beyond the restricted set of observations by which they are defined. This enables productive scientific theories to predict events and extend into areas that go beyond current knowledge. For example, Albert Einstein's gravitational theories led to the idea of black holes in space (aggregations of matter so massive that not even light can escape from them), a prediction that astronomers are trying to confirm. Most researchers in psychology also use theoretical concepts to guide their research. For

example, Leon Festinger's cognitive dissonance theory predicted that individuals who received a small payment to write an essay contrary to their real opinion on an issue would change their opinion in the direction of the essay they wrote more than individuals who received a large payment. This prediction has been confirmed.

Why were Skinner and other behaviorists reluctant to try to explain behavior by positing hypothetical concepts and constructing theories? Presumably the contingencies in an organism's environment cause changes in the organism's brain processes and these brain processes then cause behavior to occur. Why not hypothesize about these brain processes and develop theories about them? These questions, which we can ask with the benefit of historical hindsight, make radical behaviorism seem to be a somewhat silly position. Actually, there were valid reasons why the early radical behaviorists took this position.

John B. Watson, the founder of radical behaviorism, wrote most of his famous works just after the turn of this century. Prior to this time, there had been little progress in psychology, partly because early psychologists thought that the discipline could be based on people's conscious introspections about their mental states. Watson correctly argued that this would inevitably lead to disagreement and confusion. His lasting contribution to the discipline was to point out that its foundational data base must be behavior.

Radical behaviorists also had another well-founded worry. This was the fear that admitting unobservable theoretical concepts into psychology would result in dualistic interpretations. Dualism is an old philosophical view that the concept *mind* refers to a nonphysical "thing" that is totally different from the brain, but nevertheless affects the brain. One of the central assumptions of this view, sometimes called substance dualism or Cartesian dualism (after the philosopher Descartes), is that the thing called *mind* cannot be explained entirely by brain processes. Although many laypeople hold dualistic views without even realizing it (referring to "the" mind as if it were a separate thing from the brain or speaking as if a "mind" made decisions and then told the brain what to do), virtually all contemporary neuroscientists, psychologists, and philosophers have rejected dualism as an unworkable position (P. M. Churchland, 1984; Crick, 1979; Damasio, 1986; Dennett, 1978, 1987; Lyons, 1986; Rorty, 1979). Most scientists and philosophers assume that the terms used to refer to mental events (*mind*, *the will*, *consciousness*, *belief*, *perception*, and the like) are just shorthand terms for complicated things that our brains are doing; in short, they assume that what we call "mind" simply *is* the brain and its processes (P. S. Churchland, 1986). This view is called *materialism* or sometimes *monism* to indicate that there is only one thing to be explained (mind *is* brain) rather than two as in dualism (mind *and* brain).

Watson correctly concluded that dualism was a dead end for psychology. If psychology took as its object of study something called "the mind" that was by definition (according to dualists) not explainable by anything in the natural world, then an empirical science of psychology was clearly impossible. Watson, and subsequently Skinner, believed that, if unobservable concepts were used in