# Contents

# Before You Start

If you are like most students, you start off assuming that just about everything you read in your textbooks and everything your professors tell you must be true. But what if it isn't? Suppose a group of impostors has replaced the faculty of your college. They pretend to know what they are talking about and they all vouch for one another's competence, but in fact they are all unqualified. They have managed to find textbooks that support their prejudices, but the information in the textbooks is all wrong, too. If that happened, how would you know?

As long as we are entertaining such skeptical thoughts, why limit ourselves to colleges? When you read advice columns in the newspaper, read books about how to invest money, or listen to political commentators, how do you know who has the right answers?

The answer is that no one has the right answers all of the time. Professors, textbook authors, advice columnists, politicians, and others have strong reasons for some beliefs and weak reasons for others, and sometimes, they *think* they have strong reasons but discover to their embarrassment that they were

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wrong. I don't mean to imply that you should disregard everything you read or hear. But you should expect people to tell you the reasons for their conclusions so that you can draw your own conclusions. At least if you make a mistake, it will be your own and not someone else's.

You have just encountered the theme of this book: Evaluate the evidence. You have heard and you will continue to hear all sorts of claims concerning psychology. Some are valid, others are wrong, many are valid under certain conditions, and some are too vague to be either right or wrong. When you finish this book, you will be in a better position to examine evidence and to judge for yourself which claims to take seriously.

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# Chapter 1: What is psychology?

- What philosophical questions motivate psychologists?
- What do various kinds of psychologists do?
- Should you consider majoring in psychology?

The term psychology derives from the Greek roots psyche, meaning "soul" or "mind," and logos, meaning "word." Psychology is literally the study of the mind or soul. In the late 1800s and early 1900s, psychology was defined as the scientific study of the mind. Around 1920, psychologists became disenchanted with the idea of studying the mind. First, science deals with what we can observe, and no one can observe a mind. Second, talking about "the mind" seemed to imply that mind is a thing with an independent existence. Most researchers consider mind a process, more like a fire than like the piece of wood that is undergoing the fire. At any rate, through the mid-1900s, psychologists defined their field simply as the study of behavior.

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However, people care about what they see, hear, and think, not just about what they do. When you look at this optical illusion (shown below) and say that the horizontal part of the top line looks longer than that of the bottom line (although really they are the same length), we want to know why it looks longer to you, not just why you said it looks longer. So for a compromise, let's define psychology as the systematic study of behavior and experience. The word experience lets us discuss your perceptions without implying that a mind exists independently of your body.

The kind of psychologists familiar to most people is clinical psychologists—those who try to help worried, depressed, or otherwise troubled people. That field is only part of psychology. Psychology also includes research on sensation and perception, learning and memory, hunger and thirst, sleep, attention, child development, and more. You might expect that a course in psychology will teach you to "analyze" people, to decipher hidden aspects of their personality, perhaps even to use psychology to control them. It will not. You will learn to understand certain aspects of behavior, but you will gain no dazzling powers. Ideally, you will become more skeptical of those who claim to analyze people's personality from small

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samples of their behavior.

## General Points About Psychology

Let's start with six general themes that arise repeatedly in psychology. They may not be the most important things you learn about psychology; depending on your own interests, something that strikes other people as a minor detail might be extremely important for you. However, the following points apply so widely that we shall encounter them frequently.

### "It Depends"

That is, few statements apply to all people's behavior at all times. For example, almost any statement depends on age. (Newborn infants differ drastically from older children, and children from adults.) Almost any behavior varies among individuals depending on their genetics, health, past experiences, and whether they are currently awake or asleep. Some aspects of behavior differ between males and females or between one culture and another. Some aspects depend on the time of day, the temperature of the room, or how recently someone ate. The way people answer a question depends on exactly how the question is worded, what other questions they have already answered, and who is asking the question.

"It depends" does not suggest that psychology has no real

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answers. On the contrary, “it depends” is a serious point in psychology. The key is to know what it depends on. The further you pursue your studies of psychology, the more you will become attuned to the wealth of influences on our behavior, some of which are so subtle that we might easily overlook them. For one example, decades ago, two psychology laboratories in different parts of the United States were conducting similar studies on human learning but consistently reporting contradictory results. Both researchers were experienced and highly respected, they thought they were following the same procedures, and they did not understand why their results differed. Eventually, one of them traveled to the other’s university to watch the other in action. Almost immediately, he noticed a key difference in procedure: the chairs in which the participants sat! His colleague at the other university had obtained some chairs from a dentist who retired. So the research participants were sitting in these dentist’s chairs, which reminded them of visits to the dentist. They were sitting there in a state of heightened anxiety, which altered their behavior.

## Research Progress Depends on Good Measurement

Nobel Prize-winning biologist Sidney Brenner was quoted as saying, “Progress in science depends on new techniques, new discoveries, and new ideas, probably in that order”. For example, brain scans and other new techniques enable

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researchers to measure brain activity in more detail and with greater accuracy than in the past, resulting in rapid increases in our knowledge. Similarly, psychologists' understanding has advanced fastest on topics such as sensory processes, learning, and memory because researchers can measure these aspects of behavior fairly accurately. On topics such as emotion and personality, research progress has been slower because of the difficulty of measurement.

## Correlation Does Not Indicate Causation

Let's consider the idea briefly: A correlation indicates that two things tend to go together. For example, taller people tend to be heavier than shorter people, on the average. Better educated people tend to have better paying jobs than less educated people. And so forth. Sometimes, we are tempted to draw cause-and-effect conclusions after observing a correlation. For example, people with schizophrenia are more likely than other people to abuse alcohol, tobacco, and marijuana. Although we might be tempted to assume that these substances increase the risk of schizophrenia, we cannot draw that conclusion. It is equally plausible that having schizophrenia increases one's uses of alcohol, tobacco, and marijuana (Degenhardt, Hall, & Lynskey, 2003). That is, a correlation between two items does not tell us which one caused the other or, indeed, whether either of them caused the other.

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## Variations Among Individuals Reflect Both Heredity and Environment

Within any group people differ in their interests, preferences, abilities, and personalities. What accounts for these differences? Some relate to differences in experience. For example, suppose you enjoy using computers. You could not have nurtured that interest if you had lived in some part of the world without electricity. However, experiences and opportunities do not account for all of the differences among people. With regard to almost everything psychologists have measured, identical twins resemble each other more closely than fraternal twins do. The greater similarity between identical twins is taken as evidence of a genetic influence on behavior. Environment and heredity can also combine their influences in many ways (Moffitt, Caspi, & Rutter, 2006). For example, a gene that enhances fear produces a bigger effect after you have had frightening experiences.

## The Best Predictor of Future Behavior Is Past Behavior in Similar Situations

People are fairly consistent in how they act. If in the past you have usually started on every schoolwork task as soon as it was assigned, you will probably do the same this semester. If you have almost always procrastinated your assignments until the last possible minute, you will probably do the same this

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semester, despite your good intentions to the contrary.

Similarly, if you consider marrying someone and wonder how that person would treat you after marriage, ask how that person treats you now. If we want to predict how dangerous some prisoner will be after release, we should ask how dangerous this person has been in the past. If you wonder whether you can trust someone to fulfill a promise, ask how well that person has kept promises in the past.

## Some Statements in Psychology Reflect Stronger Evidence Than Others

Authors revise psychology textbooks because of new research, and psychologists conduct new research because of the many things we don't know. Unfortunately, people sometimes express strong opinions even when the evidence is weak. Admittedly, we sometimes have to form opinions without complete evidence. For example, parents have to decide how to rear children without waiting for conclusive research about what works best. Still, it is important to know what evidence supports an opinion. For example, solid evidence indicates that a woman who drinks much alcohol during pregnancy risks damage to her infant's brain. Therefore, we take whatever steps we can to discourage pregnant women from drinking. On the other hand, what are the consequences of letting children

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