

The Scientific Attitude

OBJECTIVE 3 | Explain how the scientific attitude encourages critical thinking.

Underlying all science is, first, a hard-headed *curiosity*, a passion to explore and understand without misleading or being misled. Some questions (Is there life after death?) are beyond science. To answer them in any way requires a leap of faith. With many other ideas (Can some people demonstrate ESP?), the proof is in the pudding. No matter how sensible or crazy-sounding an idea, the hard-headed question is, Does it work? When put to the test, can its predictions be confirmed?

This scientific approach has a long history. As ancient a figure as Moses used such an approach. How do you evaluate a self-proclaimed prophet? His answer: Put the prophet to the test. If the predicted event “does not take place or prove true,” then so much the worse for the prophet (*Deuteronomy* 18:22). Magician James Randi uses Moses’ approach when testing those claiming to see auras around people’s bodies:

Randi: Do you see an aura around my head?
Aura-seer: Yes, indeed.
Randi: Can you still see the aura if I put this magazine in front of my face?
Aura-seer: Of course.
Randi: Then if I were to step behind a wall barely taller than I am, you could determine my location from the aura visible above my head, right?

Randi has told me that no aura-seer has agreed to take this simple test. When subjected to such scrutiny, crazy-sounding ideas sometimes find support. During the 1700s, scientists scoffed at the notion that meteorites had extraterrestrial origins. When two Yale scientists dared to deviate from the conventional opinion, Thomas Jefferson joked, “Gentlemen, I would rather believe that those two Yankee Professors would lie than to believe that stones fell from heaven.” Sometimes scientific inquiry refutes skeptics.

More often, science relegates crazy-sounding ideas to the mountain of forgotten claims of perpetual motion machines, miracle cancer cures, and out-of-body travels into centuries past. To sift reality from fantasy, sense from nonsense, therefore requires a scientific attitude: being skeptical but not cynical, open but not gullible.

As scientists, psychologists approach the world of behavior with a *curious skepticism*. They persistently ask two questions: What do you mean? How do you know? In business, the motto is “Show me the money.” In science, it is “Show me the evidence.”

Do parental behaviors determine their children’s sexual orientation? Can astrologers analyze your character and predict your future based on the position of the planets at your birth? As you will see in the chapters that follow, putting such claims to the test has led most psychologists to doubt them. In the arena of competing ideas, skeptical testing can reveal which ones best match the facts. “To believe with certainty,” says a Polish proverb, “we must begin by doubting.”

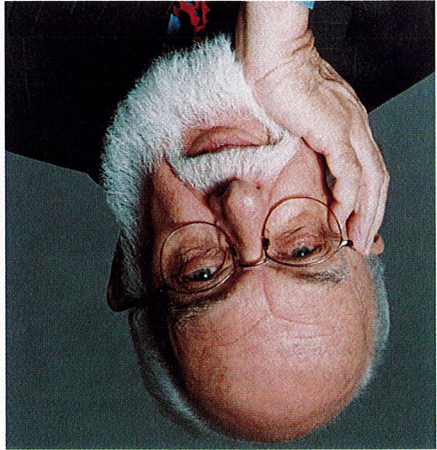
Putting a scientific attitude into practice requires not only skepticism but also *humility*, because we may have to reject our own ideas. In the last analysis, what matters is not my opinion or yours, but the truths nature reveals in response to our questioning. If people don’t behave as our ideas predict, then so much the worse for our ideas. This is the humble attitude expressed in one of psychology’s early mottoes: “The rat is always right.”

Historians of science tell us that these attitudes of curiosity, skepticism, and humility helped make modern science possible. Many of its founders, including Copernicus and Newton, were people whose religious convictions made them humble before nature and skeptical of mere human authority (Hooykaas, 1972; Merton, 1938). Today’s deeply religious people sometimes view science, especially psychological science, as a threat. Yet, notes sociologist Rodney Stark (2003a,b), the scientific revolution was led

Answers to Table 1.1: Odd-numbered statements are false; even-numbered are true.

“The scientist . . . must be free to ask any question, to doubt any assertion, to seek for any evidence, to correct any errors.”

Physicist J. Robert Oppenheimer, *Life*, October 10, 1949



Courtesy of the James Randi Education Foundation

The amazing Randi! The magician James Randi exemplifies skepticism. He has tested and debunked a variety of psychic phenomena.

“A skeptic is one who is willing to question any truth claim, asking for clarity in definition, consistency in logic, and adequacy of evidence.”

Philosopher Paul Kurtz, *The Skeptical Inquirer*, 1994

“My deeply held belief is that if a god anything like the traditional sort exists, our curiosity and intelligence are provided by such a god. We would be unappreciative of those gifts . . . if we suppressed our passion to explore the universe and ourselves.”

Carl Sagan, *Broca’s Brain*, 1979