


**ENRICHMENT
ACTIVITY**
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Why Is Psychology Called a “Soft” Science?

Directions: After reading the material, answer the questions that follow on a separate sheet of paper.

The physical sciences—physics, chemistry, astronomy, and geology—seek to discover quantifiable laws and relationships governing how the universe works. Scientists in these areas develop “hard facts.” Consider the following examples:

- A theorem in mathematics is “true.” It is as true today as it will be 1 million years from now, and as true on Alpha Centauri (a nearby star) as it is in Monroe, Louisiana.
- Isaac Newton’s three laws of motion apply to all bodies in motion, whether that body is a microscopic particle or a planet.
- Frozen water, whether it has formed in the freezer or in an ice-skating rink, melts when heat causes the hydrogen bridges holding the oxygen atoms together to break down.
- For *every* action there is an equal and opposite reaction.

As a result of “hard” facts such as these, the physical sciences are sometimes referred to as “hard,” or “exact,” sciences.

In contrast, psychology, together with the other disciplines that concern themselves with human behavior and the relationship between human beings and the environment, are sometimes called “soft,” or “inexact,” sciences. Psychologists, however, like physicists, rely on the scientific method to reach their conclusions.

Why, then, is psychology called a “soft” or inexact science? Some scholars argue that concepts relating to people’s beliefs, attitudes, and feelings are not observable in the way that purely physical phenomena are observable and hence cannot be proved or disproved. They say that what goes on “inside” a person (mental activity) cannot be reduced to what happens or what can be measured on the “outside.” Thus, those branches of psychology that deal with such “inner” phenomena as emotions will never produce a formal, testable body of knowledge. Other scholars assert that psychology can never be a purely empirical science because there are no “laws” of human behavior to discover. Human behavior—unlike, say, the motion of atomic particles—is free, reflective, and the result of human choice.

Some scholars contend that psychology can be an exact science. They believe that faulty methodology is used in some psychological studies, resulting in conclusions that are not supported by the rigorous application of consistent statistical techniques. Others feel that the proliferation of some fields that consider themselves branches of psychology has resulted in fragmentation. How, they ask, can a “science” that includes such diverse subdisciplines as psychobiology, forensic psychology, and clinical psychology produce theories of any general predictive value? How can these different branches work together to carry out one of the most important tasks of the “exact” sciences—to resolve inconsistencies and arrive at new explanations of observed data that better explain the data than previous explanations?

Psychologists have responded to these criticisms in various ways, and three different positions stand out:

- Many psychologists emphatically state that they do *not* attempt to describe the inner mental life or any other unobservable phenomena. They assert that

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reputable psychological research is carried out using strictly empirical methods. The results of this empirical research are verifiable, and much of the body of knowledge contributed by psychologists is just as deserving to be called scientific knowledge as information contributed by physicists or microbiologists.

- Another large group agrees that psychologists should—and generally do—follow scientific principles. They, however, reject the notion that psychology should depend for legitimacy on the ability to meet the same criteria applied to mathematics or the physical sciences. They think that psychologists should freely acknowledge the important place *interpretation* has in their work and not lose sight of their roots in philosophy.
- A third group suggests that psychologists accept the fact that the results of some of their investigations are not verifiable in the same way the purely quantitative results are verifiable. Rather, psychologists' results are verifiable only on the basis of *experience* they themselves have had or could have.

Many scholars, psychologists included, believe that debating the status of psychology as a science is not particularly useful. In an increasingly complex world, however, it is clear that research that can shed light on the human condition is extraordinarily important. Whether the essential subject matter of psychology is the life of the mind, observable human behavior, or both, is not as significant as whether psychology is helpful in explaining how human beings orient themselves in the world and how they relate to their fellow human beings.

The fact that psychology can never be a "pure" science in the sense that physics is pure can be seen as a strength rather than a weakness. The different subfields of psychology offer practical insights that can be applied in different ways depending on actual circumstances. Psychologists interpret and apply what they have learned from studies of human and group behavior in a historical and social context—a uniquely *human* context.

Questions

Directions: Answer the following questions in the space provided or on a separate sheet of paper.

1. Complete the following chart to analyze psychologists' responses to criticisms that psychology is not a science.

Arguments Against Psychology as a Science	Psychologists' Responses
1.	
2.	
3.	

2. How would you categorize other areas of science—meteorology, sociology, anthropology, or graphology (the study of handwriting)? What conclusions can you draw about the definition of science?
3. Although there are no laws of human behavior, list at least 10 contributions psychologists have made to our understanding of human behavior.
4. Research one of the divisions of the APA that interests you. Write a report showing how researchers in that division use the scientific method to develop theories of behavior.