

CHAPTER 2 ***EXPLANATION IN SCIENTIFIC PSYCHOLOGY***

Synopsis

The purpose of this chapter is to provide an overview of the nature of science and scientific psychology. To illustrate many aspects of science, we start out with an analysis of the phenomenon of social loafing, and we repeatedly refer to this research problem as new concepts are considered. The logic of the chapter is straightforward: we examine the purposes of scientific psychology, consider the nature of scientific knowledge, describe the methods of science, outline the nature and development of theories, and then confront issues associated with interpreting the results of laboratory research.

Outline

MAKING SENSE OF THE WORLD

Social loafing

SOURCES OF UNDERSTANDING

Fixation of Belief

THE NATURE OF SCIENTIFIC EXPLANATION

Induction and Deduction

Application: *The Importance of Falsification*

Abduction: How Theories Are Born

FROM THEORY TO HYPOTHESIS

What Is a Theory?

Intervening Variables

Driver Workload

Evaluating a Theory

Comparing Theories

THE SCIENCE OF PSYCHOLOGY

Hard Science as a Model for Experimental Psychology

Psychology and the Real World

Are Experiments Too Far From Real Life?

SUMMARY

KEY CONCEPTS

EXERCISES

SUGGESTED RESOURCES

WEB RESOURCE

PSYCHOLOGY IN ACTION: *Intervening Variables and Testability*

New to This Edition

• Updated & Additional References:

Several references have been added. For example, Locke (2007) has been added to Application: *The Importance of Falsification* as a contrary argument to Popper and Platt's views that strong inference is the best procedure for advancing science. A whole paragraph has been added to give examples for this debate on the importance of falsification.

For the new section on abduction (see paragraph below), Capaldi and Proctor (2008) and Patokorpi (2009) have been added. Kantowitz and Nathan-Roberts (2009) and Capaldi and Proctor (2008) have been added to the new section on comparing theories.

A new section on abduction has been added to explain how new theories are created. This is followed by a table (Table 2-1) that compares deduction, induction, and abduction.

A section on Comparing Theories has been added, and it explains why it is preferable to compare theories simultaneously rather than alone. This section introduces and defined the term “satisfactory theory”.

The section Foxes and Hedgehogs Roaming Through Psychological Theory was deleted from this edition, as well as the accompanying figure (Figure 2-6 in the 8th Edition).

Definitions of Key Concepts

Applied research aims to solve a practical (i.e., *real world*) problem.

The **a priori method** is a method for fixing belief where an individual believes a proposition to be true because it seems reasonable (in the absence of prior experience).

Abduction is a form of reason that is creative, but not always correct.

Basic research lacks an immediate practical goal, and instead aims to answer general questions that may eventually lead to applications.

Data are empirical observations (usually expressed as collected measurements along a dependent variable).

Deduction is a form of reason that proceeds from general information, such as a theory, to particular information, such as data predictions.

Diffusion of responsibility represents a possible reason for social loafing, and refers to the notion that an individual's sense of responsibility in performing a task is reduced (i.e., shared with others) when working within a group.

Empirical refers to the reliance on experience as a source of knowledge, as occurs through careful observation in the scientific method.

Popper's (1961) **falsifiability view** is a philosophical position that holds that negative results are more informative than positive results because ideas can be proved to be false, but cannot be proved to be true.

A **generalization hypothesis** is a broad prediction that cannot be directly tested.

An **intervening variable** is an abstract concept that connects several independent and dependent variables.

Induction is a form of reason that proceeds from particular information, such as data, to more general information, such as the development of a theory.

The **method of authority**, or faith, is a method for fixing belief where a person accepts as true the assertions of an authority figure, such as an educator or religious figure.

The **method of tenacity** is a method for fixing belief where a person continues to hold onto a particular belief, even if there is sufficient evidence to prove that the belief is incorrect.

Organization is a primary function of theory where data can be described/summarized in an efficient manner.

Parsimony, or simplicity, is characteristic of good theories, where a few statements can predict many results.

Precision refers to the exactness of predictions in research, such as would be accomplished by stating predictions in computational/mathematical terms. Precision is characteristic of good theories.

A **prediction** is a statement of expected outcome on the basis of a particular theoretical view; theories predict what should occur in novel circumstances.

A **satisfactory theory** as defined by Kantowitz and Nathan-Roberts (2009) is a theory that is above threshold on all, or most, criteria such as parsimony, precision, and testability.

The **scientific method** is a method for fixing belief that, unlike other methods, is based upon experience *and* allows for data to be collected to evaluate whether or not a belief is appropriate (and, if it is not, to alter that belief toward the correct view).

A **self-correcting** process like the scientific method is one that can evaluate the relative validity of existing beliefs (by relying on empirical data) to discard incorrect beliefs and progressively approach the truth.

Social loafing is a phenomenon where people are less likely to work hard (e.g., help an individual in need) in groups than they do alone.

Strong inference refers to a procedure where two or more opposing views are evaluated in successive experiments in the hopes that one theoretical interpretation, or more, will be eliminated as invalid.

Testability is characteristic of good theories, and refers to the degree to which ideas can be empirically evaluated, and thus potentially disproved.

A **theory** is a set of related statements that explains a variety of occurrences (e.g., data from many experiments), allowing the scientist to organize existing data and generate predictions.

Workload refers to the amount of processing resources that are devoted to a task, and is an intervening variable that relates variables involved in sustained task performance.

Answers to Exercises

1. Student answers to this exercise will vary. Below are justifications for the controversial statement that was provided (i.e., *Men have lower IQs than women*), along with the corresponding method for the fixation of belief that is reflected in each justification.

Authority: *My learned instructor told me that this statement was true.*

Tenacity: *It's what I've always believed. Just look at how little men communicate.*

A priori: *This assertion seems reasonable given the cultural tendency to see men rather than women in highly physical occupations involving manual labor.*

Scientific Method: *A recent empirical study indicated that women scored higher than (an otherwise matched sample of) men on a standardized test of declarative knowledge.*

2. Inductive reasoning progresses from data to theory, that is, from more specific information to more general information. A problem with this type of reasoning is that it often leads to tentative notions that must be revised as more data is collected. Conversely, deductive reasoning progresses from theory to data, that is, from general information to more specific information. Initial theories that form the basis of deductive reasoning often contain many assumptions that may be invalid.

For example, in the artificial intelligence literature, initial approaches to the philosophical problem of mind as machine were deductive. Computing devices were constructed that included routines derived from general assumptions about processing. These assumptions generally lead to data that did not reflect the typical workings of the human brain (e.g., they tended to always lead to the correct answer). Later, as data from other disciplines in cognitive science became available, a more inductive approach to this problem was possible, where data about how the brain is organized could guide the development of a computing device that responds in a manner that would be more typical of a human being.

3. Platt's (1964) notion of strong inference refers to a procedure that attempts to support an interpretation of data while eliminating alternative interpretations by devising research where the different outcomes exclusively reflect different theoretical accounts. Early studies on social loafing measured how the same individuals would respond in group situations and in isolation. Latané and colleagues reasoned that failure to act in a group situation could reflect either diffusion of responsibility or a decision not to allocate effort that would be required when tested in isolation. They argued that the effort hypothesis does not apply if an individual is only tested in a single condition (either in a group or alone).

The fact that participants still failed to act under such conditions was consistent with diffusion of responsibility, not effort allocation.

4. It is neither necessary nor desirable for all experimental psychologists to consistently think of how their research immediately benefits society. While basic (laboratory) research often is argued to be too artificial to have application to the real world, basic research reveals the underlying processes of human behavior. Basic research findings thus later can guide the development of real-world applications, which may not be able to be determined for decades. Basic research often is more controlled than applied research. This greater control often leads to stronger effect sizes than are observed in applied work. Since effects in basic research are not as likely to be masked by other variables, findings can reveal the limits of human behavior. As a result, basic research studies often justify/eliminate critical theoretical positions that will guide future (basic and applied) research.

5. [Special Exercise]. The confounding variable here is that the older people are not only older, but also have lived through a particular time in history and have been exposed to particular events (the depression, the Korean War, and so forth) that the younger age groups have not experienced and will not experience even when they are 60 years old. Hence, it is impossible in this study to determine whether the differences in attitudes towards war resulted from age differences or from the participants' exposure to particular events. Another way of considering this is to note that strong inference is difficult to see in this project. That is, some confounding is built into the situation, and further research must be undertaken to disentangle what leads to what. (A lecture possibility--what can be done to eliminate certain plausible explanations of the differences in attitudes?) This study is an example of a cross-sectional approach. You may wish to contrast the cross-sectional approach to a longitudinal one in which the same group of participants is tested at several ages.

Suggestions for Discussion

Induction, Deduction, and Strong Inference. An effective way to demonstrate to students that research often changes its emphasis on data and theory during different stages of investigation is to briefly present data from a line of ongoing research from within the instructor's laboratory. Students then can be required to determine that an initial method developed from existing theory represents a greater reliance on deduction, whereas subsequent revisions to theory and predictions based on acquired data represent a greater reliance on inductive reasoning.

There are numerous examples in the literature of using strong inference as a tool for eliminating alternative hypotheses, and instructors may have relatively straight forward examples from their own work. Another possible example that can be provided in either lecture or discussion courses comes from the literature on the Stroop effect illustrated in Chapter 1. Researchers generally believed that the effect originated from perceptual inhibition on the processing of color information until a discrimination task was devised that pitted this hypothesis against a hypothesis that interference occurred due to response competition; the latter hypothesis was confirmed--the former, eliminated (Egeth, Blecker, & Kamlet, 1969).

Application: The Importance of Falsification. A good way to drive home the point that people have a confirmation bias is to demonstrate it with the Wason selection task described in many cognitive psychology texts.

A good lecture can be comprised of first using the arcane version of the task with letters and numbers on cards. Then, either use the postage example described in Best (reference below), or use the scenario of people sitting at a restaurant table drinking either beer or soft drinks. Does the attendant "card" anyone drinking a soft drink?

In larger classes these demonstrations can be effectively run from overheads. A good discussion of the confirmation bias in reasoning is in: Best, J. B. (1999). *Cognitive psychology* (5th ed.) (pp.355-363). Belmont, CA: Wadsworth.

A less time-consuming alternative for larger class sizes that is equally effective for revealing the importance of falsification is to give a brief chronological review of the literature from a topic where research ceased due to an inability to effectively distinguish theoretical positions. One potential example is from the early literature on auditory attention, which sought to distinguish models positing early and late selection of information for further processing. Late selection models (e.g., Deutsch & Deutsch, 1969), which suggested a processing bottleneck in short-term memory, could not be falsified or distinguished from revisions of early selection models (e.g., Treisman, 1969), which suggested selection at numerous levels. Many researchers abandoned the area, and major advances in our understanding of attention came more than a decade later from research on vision.

Psychology in Action: Intervening Variables and Testability. One useful exercise in that can reveal the importance of intervening variables to the testability of theories is to have students generate a key concept at random from experimental or clinical psychology that can act as an intervening variable. The class can then produce a corresponding set of independent and dependent variables for the intervening variable, and even potential interpretations of results. For example, the cognitive concept of automatic processing (e.g., Shiffrin & Schneider, 1977) links independent variables like the degree of training/exposure to a task, task difficulty, and the type or category of processing with the dependent variables of reaction time and accuracy in speeded search. Then contrast the original example with another concept that does not as easily lend itself to a large set of independent and dependent variables. The corresponding section of the text presents Freud's notion of personality as an example. A debatable example from cognitive psychology could be the notion of *depth of processing* (e.g., see Craik & Tulving, 1975).

Experimental Dilemmas

A scientist theorizes that people who have blue eyes are more intelligent than people with brown eyes. In order to test the theory the scientist obtains a variety of intelligence measures for 30 blue- and 30 brown-eyed people. These measures include college grade point average, IQ scores, and SAT scores. A comparison of measures between groups shows that the blue-eyed people score higher on all tests than the brown-eyed ones. The scientist states that, "The data prove that people with blue eyes are more intelligent than those with brown eyes." Do you agree or disagree with this statement? Why?

Answer. Disagree. The statement is much too strong. This small sampling of data supports the notion that blue-eyed people are more intelligent, but theories may never be "proven."

A researcher seeking a grant from a federal funding agency proposes a series of experiments in which the effects of temperature stress on task performance will be studied. Specifically, the researcher plans to test people in an environmental chamber that either will be cold (40 degrees F), normal (72 degrees), or hot (95 degrees). Participants will monitor a TV screen filled with letters and will press a button whenever a particular predetermined target is displayed. Performance is expected to change depending upon the temperature of the chamber.

A reviewer at the funding agency recommends that funding for the grant be denied, because the letter detection task bears no outright similarity to any task performed in a real job situation.

Do you agree with the reviewer's judgment? Why or why not?

Answer. No. Although people may not actually perform a letter detection task in the real world, the mental processes involved in letter detection are similar to those used in applied settings. For example, the attentional demands of the letter detection task are similar to those in a job requiring an observer to monitor a panel for alarm signals. An important additional point is that the force of the outcome may be stronger in a protected setting with strong experimental control. The researcher can be confident that temperature effects are important *and* can be sure that it is temperature and not some other variable that is producing the effect.

Suggested Readings

Hedges, L. V. (1987). How hard is hard science, how soft is soft science? The empirical cumulativeness of research. *American Psychologist*, 42(5), 443-455.

The article compares the consistency of replicated outcomes from physics and psychology. The comparison is based on extensive reviews from each science, and is used to suggest that cumulative statistical criteria may not even be met by the "hard" physical sciences.

Hock, R. R. (2008). *Forty studies that changed psychology : Explorations into the history of psychological research* (6th ed.). Upper Saddle River, NJ: Prentice Hall.

As the title suggests, this book includes a report of some of the most influential studies in psychological research. Included for each report are a brief history, theoretical summary, description of research design, and an evaluation of the article's theoretical relevance. Students also should find this text useful with regard to recognizing the implementation of strong inference methods, as well as the formulation of parsimonious, precise, and testable theories.

Howard, G. S. (1993). When psychology looks like a "soft" science, it's for good reason. *Theoretical & Philosophical Psychology*, 13(1), 42-47.

The article presents an alternative criterion to be combined with Hedges (1987) *empirical cumulativeness* approach for distinguishing between hard and soft science. The alternative criterion is an evaluation of the *predictive accuracy* of research, which is discussed for some recent psychological theory.

Suggested Web Sites

<http://www.apa.org/careers/resources/profiles/index.aspx>

This link is for the APA Science Directorate web site on non-academic careers. Provided is information that half of all trained psychologists work outside of the academic setting.

Additionally, links are provided to information about careers in applied settings (with pointers to the *Interesting Careers* articles that appear in almost every issue of *Psychological Science Agenda*), as well as to listings of graduate programs in applied psychology.

http://www.wadsworth.com/psychology_d/templates/student_resources/workshops/resch_wrk.html

The *Wadsworth Research Methods Workshops* site has a link labeled *What is Science?* that includes relevant information pertaining to the scientific method. This workshop segment gives students a chance to compare their personal definition of science to a textbook definition. A contrast also is provided between the characteristics of science to other methods for fixing beliefs.

TESTBANK

MULTIPLE CHOICE

1. Social loafing refers to the observation that people:
 - a. become unsociable when tired
 - b. often work less when in a group
 - c. are apathetic when socializing in a group
 - d. lose interest in meeting people

ANS: B PTS: 1 REF: Making Sense of the World

2. NBC evening news reports that a Soviet diplomat is defecting to the U.S.. Your belief in this report is based on the:
 - a. scientific method
 - b. method of authority
 - c. a priori method
 - d. empirical method

ANS: B PTS: 1 REF: Sources of Understanding

3. Choosing to believe some material in this course because your instructor told you that it is correct information most likely represents which system for the fixation of beliefs?
 - a. tenacity
 - b. faith
 - c. a priori
 - d. scientific method

ANS: B PTS: 1 REF: Sources of Understanding

4. Some individuals continue to believe that all people's intentions are good despite contrary evidence, perhaps because it is less stressful than the alternative belief. This represents an example of which system for the fixation of beliefs?
 - a. faith
 - b. a priori
 - c. tenacity
 - d. scientific method

ANS: C PTS: 1 REF: Sources of Understanding

5. You believe that you may have trouble getting a phone call through to a distant city following a hurricane, because it seems likely that some lines may have been damaged by the storm. Your belief is based on the:
- scientific method
 - method of authority
 - a priori method
 - empirical method

ANS: C PTS: 1 REF: Sources of Understanding

6. The a priori method:
- includes an empirical basis for fixing belief
 - offers no way of determining the superiority of one belief over another
 - generates beliefs that do not seem intuitively plausible
 - is a belief system that is held even if there is contradictory evidence

ANS: B PTS: 1 REF: Sources of Understanding
MSC: WWW

7. The scientific method:
- relies on systematic observation
 - has no mechanism for discarding outdated theories
 - emphasizes the importance of theory over data
 - relies on reason in the absence of experience

ANS: A PTS: 1 REF: Sources of Understanding

8. Science needs and uses:
- empirical observations
 - a priori methods
 - tenacity
 - authority

ANS: A PTS: 1 REF: The Nature of Scientific Explanation

9. Data are:
- only useful to a deductive scientist
 - only useful to an inductive scientist
 - information resulting from systematic observation
 - interesting but must be interpreted in light of a theory

ANS: C PTS: 1 REF: The Nature of Scientific Explanation

10. An approach to science whereby observations are gathered in the hopes of testing theoretical explanations is called:

- a. precise
- b. inductive
- c. deductive
- d. data oriented

ANS: C
MSC: WWW

PTS: 1

REF: The Nature of Scientific Explanation

11. Complete the following analogy: induction : specific information :: deduction : ____.

- a. theory
- b. probability
- c. interpretation
- d. precision
- e. data

ANS: A

PTS: 1

REF: The Nature of Scientific Explanation

12. The inductive scientist:

- a. believes that patterns of explanation will become obvious once enough data are collected
- b. is a strong proponent of using theories
- c. is never concerned with testing between conflicting predictions made by different theories
- d. begins with a theory and then collects supporting data

ANS: A

PTS: 1

REF: The Nature of Scientific Explanation

13. The deductive scientist:

- a. is most interested in gathering data on a phenomenon for which no theoretical explanation has been offered
- b. emphasizes the empirical rather than the theoretical approach
- c. gathers data only within a guiding theoretical framework
- d. would rather collect data than generate theories

ANS: C

PTS: 1

REF: The Nature of Scientific Explanation

14. The inductive scientist emphasizes ____ whereas the deductive scientist emphasizes ____.

- a. data; theory
- b. data; observations
- c. theory; analyses
- d. theory; data

ANS: A

PTS: 1

REF: The Nature of Scientific Explanation

15. Which of the following is false concerning inductive and deductive scientists?
- Inductive scientists provide basic data upon which to build theories.
 - Deductive scientists try to bring order out of the mass of data collected by the empiricists.
 - Most psychologists take both an inductive and deductive approach.
 - Theories arrived at by induction tend to contain assumptions that are invalid.

ANS: D

PTS: 1

REF: The Nature of Scientific Explanation

16. According to the falsifiability view, ____.
- if a prediction is supported by the data, the theory is true
 - theoretical predictions are always false
 - positive support for theories is more important than negative support
 - good theories must be falsifiable

ANS: D

PTS: 1

REF: The Nature of Scientific Explanation

17. Which of the following describes the possible effect of data on theories?
- Data that are completely consistent with a theory can cause the theory to be modified.
 - Data that are inconsistent with a theory can lead to a rejection of that theory.
 - Data that are consistent with a theory can prove the theory
 - The best theories are never altered by data.

ANS: B

PTS: 1

REF: The Nature of Scientific Explanation

18. The two major functions of a theory are:
- organization and testability
 - organization and prediction
 - prediction and precision
 - induction and organization

ANS: B

PTS: 1

REF: From Theory to Hypothesis

MSC: WWW

19. Which of the following represents an intervening variable?
- social loafing
 - reaction time
 - violence
 - the relationship between color names and color ink in the Stroop phenomenon

ANS: A

PTS: 1

REF: From Theory to Hypothesis

20. A theory that explains a wide variety of occurrences with very few explanatory constructs is said to:
- be correct
 - be heuristic
 - be parsimonious
 - lack precision

ANS: C

PTS: 1

REF: From Theory to Hypothesis

21. A theory whose predictions are misinterpreted by different researchers is said to:
- be testable
 - be parsimonious
 - lack precision
 - be provable

ANS: C PTS: 1 REF: From Theory to Hypothesis

22. Good theories:
- explain a wide variety of occurrences with only a few statements
 - bear little relation to observed patterns of data
 - have high explanatory power but little predictive power
 - are easy to prove

ANS: A PTS: 1 REF: From Theory to Hypothesis

23. Of the following, which is the least important characteristic of a useful theory?
- It is simple.
 - It is precise (for example, a mathematical model).
 - It is testable.
 - It is later demonstrated to be correct.

ANS: D PTS: 1 REF: From Theory to Hypothesis
MSC: WWW

24. If a theory can be potentially disproved, ____.
- it is useless to scientists
 - it is said to be testable
 - it is said to lack precision
 - evaluation is postponed until testing is feasible

ANS: D PTS: 1 REF: From Theory to Hypothesis

25. Research in the hard sciences (e.g., physics and chemistry):
- relies on more rigorous methods than the soft sciences (e.g., psychology)
 - leads to conclusions that are stated as probabilities
 - is more ecologically valid than research in the soft sciences (e.g., psychology)
 - reflects none of the above tendencies

ANS: D PTS: 1 REF: The Science of Psychology

26. When experimental psychologists do basic research in laboratory settings they:
- build a reservoir of data from which to build theories
 - are generally interested in addressing applied problems
 - cannot make predictions about what should happen in the real world
 - generally obtain evidence of strong effects because of additional control

ANS: A

PTS: 1

REF: The Science of Psychology

27. Basic research:
- is entirely different from applied research
 - is less important than applied research
 - has no elements in common with the real world
 - can lead to improvements outside the laboratory

ANS: D

PTS: 1

REF: The Science of Psychology

MSC: WWW

28. One possible example of a basic (rather than an applied) research project is to:
- design a better remote control
 - improve the effectiveness of art therapy treatment in a local mental health facility
 - evaluate the depth of existing teaching methods in research methods courses
 - evaluate the accuracy of computer programs in automatically recognizing human speech
 - determine whether or not an automatic process can interfere with a more resource-demanding, controlled process

ANS: E

PTS: 1

REF: The Science of Psychology

29. Which statement is true regarding basic research?
- Its utility is significantly reduced because it takes place in an artificial setting.
 - It is constructed to directly address an existing problem in the world.
 - It may be decades before it produces a useful application.
 - It is not as effective as applied research in revealing limits of human behavior.

ANS: C

PTS: 1

REF: The Science of Psychology

30. In order for an experimental result to reflect a particular process that occurs in the real world, the experiment must be:
- conducted in the laboratory
 - conducted in the field
 - conducted in natural surroundings
 - carefully controlled to eliminate other potential contributing factors

ANS: D

PTS: 1

REF: The Science of Psychology

TRUE/FALSE

1. Social loafing research has not been demonstrated outside of the laboratory.

ANS: F PTS: 1 REF: Making Sense of the World

2. Measuring individual effort of group members tends to reduce diffusion of responsibility.

ANS: T PTS: 1 REF: Making Sense of the World

3. According to Peirce, a racial bigot is likely to use the method of tenacity to develop understanding.

ANS: T PTS: 1 REF: Making Sense of the World

4. One difficulty with a purely inductive approach is that observations are tied to the circumstances under which they are made.

ANS: T PTS: 1 REF: The Nature of Scientific Explanation

5. Theories are rarely revised when contradictory evidence arises.

ANS: F PTS: 1 REF: The Nature of Scientific Explanation

6. Induction and deduction work together to produce scientific understanding.

ANS: T PTS: 1 REF: The Nature of Scientific Explanation

7. The process of strong inference refers to the elimination of competing explanations through falsification.

ANS: T PTS: 1 REF: The Nature of Scientific Explanation

8. Explanation and description are better ways to refer to the function of theories than are prediction and organization.

ANS: F PTS: 1 REF: From Theory to Hypothesis

9. Intervening variables connect theoretical concepts to independent and dependent variables.

ANS: T PTS: 1 REF: From Theory to Hypothesis

10. One disadvantage of intervening variables is that they are always less efficient than direct connections between variables.

ANS: F PTS: 1 REF: From Theory to Hypothesis

11. Many aspects of Freud's theory of personality cannot be disproved; therefore, it is a good theory.

ANS: F PTS: 1 REF: From Theory to Hypothesis

12. Good theories are frequently determined to be false.

ANS: T PTS: 1 REF: From Theory to Hypothesis

13. A satisfactory theory is any theory that has empirical confirmation.

ANS: F PTS: 1 REF: From Theory to Hypothesis

14. There often is a long time lag between obtaining basic research findings and the development of real-world applications from those findings.

ANS: T PTS: 1 REF: The Science of Psychology

15. Just because the laboratory setting may be far from real life, it does not mean that experiments cannot study psychological processes.

ANS: T PTS: 1 REF: The Science of Psychology

SHORT ANSWER

1. Why should the scientific method be preferred as a system for the fixation of belief for psychological researchers relative to alternative sources of understanding?

ANS:

Answer not provided.

PTS: 1

2. Show how induction and deduction work together to produce scientific understanding.

ANS:

Answer not provided.

PTS: 1

3. Discuss why simply confirming a theory may not be very informative.

ANS:

Answer not provided.

PTS: 1

4. Is psychology generally considered a hard science or a soft science? In what ways is psychology similar to, and different from, the physical sciences (e.g., physics and chemistry)?

ANS:

Answer not provided.

PTS: 1

5. Should research always have an applied focus? Explain your answer.

ANS:

Answer not provided.

PTS: 1