

Functional Relations, An Objective of Science

Science has not been satisfied with merely describing an event or observing an event. Finding scientific laws is the long-range goal of science. Once an individual can control an event, the other commonly stated goals of science are also accomplished; that is, he/she can also predict, describe, and explain an event.

Let us take an example from physics to illustrate the lawfulness of science referred to above. Ohms Law describes the relationship of various events in electricity. Voltage = Current x Resistance, or $E = I R$ i.e., $500 = (10) (50)$

If a simple value in this formula is changed, the end product changes also; for example, if resistance changes to 60, the outcome of $E = I R$ becomes $600 = (10) (60)$

The term used to describe a value that fluctuates or varies is "variable." A general formula in describing this type of variable relationship in psychology could be expressed as: $B = F(x)$

17-1 This is read Behavior (B) is a function (F) of a variable (x). If the behavior of adding rapidly is a function of noise, the letter "B" stands for:

- A. noise
- B. reading
- C. adding speed (C)

17-2 $B = F(x)$ is a formula which states that:

- A. behavior has no pattern
- B. behavior cannot be predicted
- C. behavior can always occur
- D. a behavior (B) is a function (F) of a variable (x) (D)

17-3 A scientific understanding of behavior implies that:

- A. the physiological processes underlying it are known
- B. the principle will always be used for good
- C. the relevant variables have been identified
- D. we have the philosophical explanations (C)

Such lawful relationships are called functional relationships. They establish cause-and-effect, that is, some change in one event will bring about a corresponding change in a second event.

17-4 A cause-and-effect relationship is technically called a _____ relationship. (functional)

S.B. 17-1

17-5 A functional relationship would be shown if we found that, after a drug was administered (event # 1) the person could remember a list of words

better (event #2). A change in event #1 resulted in a change in event #2. In order to have a functional relationship, how many events are necessary? (2)

If one has found a lawful relationship, one can predict, provided that a certain event happens. If he/she can control the variables s/he can control the outcome.

17-6 Assume that a lawful relationship between event A and event B has been established. When you manipulate event A, you can _____ event B.
A. control
B. forget
C. predict
D. A and C

(D)

17-7 Science is a mere description of events as they occur.
A. True
B. False

(B)

17-8 "When other variables are controlled, and one manipulates the X by increasing it 5 points, and variable B decreases 5 points. If there is a 3 point increase in X, a 3 point decrease in variable B occurs." This statement implies a possible functional relationship.
A. True
B. False

(A)

17-9 Science is an expressed set of behaviors searching for order in terms of functional relationships.
A. True
B. False

(A)

17-10 A scientific understanding of behavior implies that:
A. the psysiological processes underlying it are conscious
B. the events related to it are known
C. the relevant variables have been introspectively defined
D. we have the philosophical explanations

(B)

As we are using the following terms in this way, all the terms refer to:

ONE: Independent-Dependent variables
TWO: S-R Law
THREE: Functional Relationship
FOUR: Cause-effect Relationship
FIVE: Lawful Relationship
SIX: $B = f(x)$
SEVEN: If-Then Relationship
EIGHT: Deterministic Paradigm

S.B. 17-2

17-11 Which does not belong with the others?
A. functional relationship
B. correlation's
C. independent-dependent variable

- D. if A, then B
- E. $B = f(x)$

(B)

17-12 Which of the following is/are equivalent to $B = f(x)$, in the language of science?

- A. cause-effect relationship
- B. independent-dependent variable relationship
- C. functional relationship
- D. stimulus-response law
- E. All of the above

(E)

17-13 Which does not belong with the others?

- A. "if-then" relationship
- B. $B = f(x)$
- C. correlation
- D. Lawful relationship
- E. functional relationship

(C)

$B = f(x)$, means that under certain conditions, given one variable, you can determine or predict the other. A study of functional relations cannot tell you how Beethoven came to react the way he did since we can not go back in time, but with control of the variables, one can make a person react that way. A scientific law is a description of a relationship of events, it does not say why; i.e., the Law of Gravity does predict that an object will fall when released, the law of gravity does not say "why" the object falls.