Q: How do you know learning has occurred?

A: INFERENCE from BEHAVIOR

Learning:

A change in the capacity for behavior

due to particular kinds of experience.

Learning-Performance Distinction

1. Learning without change in performance

Hence: "Change in CAPACITY for behavior"

2. Behavior change from experience but is NOT learning e.g., sensory adaptation

motor fatigue motivational changes, developmental changes, injury...

Hence: "due to PARTICULAR KINDS of experience."

Types of learning:

1. associative 1a. Pavlovian (Classical)

Stimulus-Stimulus

1b. Instrumental (Operant) Response-Outcome

2. non-associative (one event)

Habituation and Sensitization

Discuss amongst yourselves:

2

Why do you do the things you do?

Determinism: The belief that behavior is lawful; controlled by environment, genetics, physiology...

Free will: Individual responsibility for behavior. Actions despite external influences. Unpredictable. Assumptions underlying the study of learning:

Behavior is lawful If laws are known, then can control behavior Capacity to control behavior is desirable

Laws (e.g.) Reinforcement, Punishment, Stimulus control of behavior.

Is controlling behavior desirable? Ethical ? Maybe a pointless question since it is controlled.

History

Why study learning; Why study learning in animals; Evolution of the study of brain-behavior relationships.

Outline: People: (and their contributions) Schools of Thought, Emphasis: Structuralism Functionalism Behaviorism Methods for acquiring knowledge: Authority Introspection Experimental

History:

The role of the brain in behavior:

Q: When was this said?

"Some people say that the heart is the organ with which we think, and that it feels pain and anxiety. But it is not so. Men ought to know that from the brain and from the brain only arise our pleasures, joys, laughter and tears. Through it, in particular, we think, see, hear and distinguish the ugly from the beautiful, the bad from the good, the pleasant from the unpleasant...To consciousness the brain is messenger."

Hippocrates -5th century BCE

Ancient times: Behavior (to some extent) believed to be determined by gods

Means of acquiring knowledge: Authority (and some anatomy)

Hippocrates 460-377 The brain is key. Probably from brain damaged patients.

Plato 427-347 Brain is roughly spherical, so appropriate for seat of reason.

Aristotle 384-322 Brain's function was to cool off the heart; cardiocentric view.

Galen 129-199 Ventricles of the brain.









"The cavities of the brain are central reservoirs...animal spirits enter these cavities. They pass into the pores of its substance and from these pores into the nerves. The nerves may be compared to the tubes of a waterworks; breathing or other actions depend on the flow of animal spirits into the nerves. The rational coul (the pineal) takes annual spins mix our net reves. The tanonal sour (up pinka) rates of place of the engineer, living in that part of the reservoir that connects all of the various tubes. These spirits are like the wind. When they flow into a muscle they cause it to become stiff and harden, just as air in a balloon makes it hard." [Bergland, p61]





Thomas Hobbes Leviathan 1651

Paraphrase: What 'moves us' are appetites and aversions and the force behind these is self-preservation.

Voluntary behavior also governed by rules

Q: What controls voluntary behavior?

Hedonism: Pursuit of pleasure, avoidance of pain



Thomas Hobbes Leviathan 1651

Conclusion: Human, like animal, behavior is governed by principle of self-preservation.

Notes some differences between man and animal:

Notes some differences between man and animal: e.g., "Desire to know why, and how, curiosity; such as is in no living creature but main: so that man is distinguished, not only by his reason, but also by this singular passion from other animals; in whom the appetite of food, and other pleasures of sense, by predominance, take away the care of knowing causes; which is a lust of the mind, that by a perseverance of delight in the continual and indefatigable generation of knowledge, exceedeth the short vehemence of any carnal pleasure."