# Science

## Science & Dog Training

## Definitions

## Scientific Perspectives

Science & Dog Training

## Science studies phenomena (events in the world) using specific & agreed upon methods. There are many branches.

## Biology & Psychology are the most relevant for an understanding of dog behavior & training.

## Note that I view dog training as an art rather than a science (and there are more artists training dogs than scientists.

## However, just as the artist must learn the mechanics of mixing paints, I believe that dog trainers would be wise to learn what science has to say about dog behavior.

Some Definitions

## Biology - study of life.

## Psychology - study of behavior & mental processes in humans & other animals.

## Learning - relatively permanent change in the potential to behave that results from experience. Refers to the influence that the organism’s environment has on its’ behavior.

## Heredity or Genetics - what the organism is born with.

Scientific Perspectives

# Biological Perspective

## Stresses the role of what is going on inside the body:

### Nervous System

### Hormonal System - These 2 are the control systems of the body.

### Genetics

### Heredity – passing of traits to offspring

### Evolution

## *Ethology* is a branch of zoology that studies animal behavior.

### Uses *naturalistic observation* as the main research method. This method has 3 distinguishing characteristics:

### Unobtrusive - unaware of observation.

### Natural - preferable done in the animals natural habitat.

### Systematic - numbers are recorded. Aspects of behavior typically recorded:

## Latency - How much time passes until the behavior occurs.

## Frequency - How many times does the behavior occur.

## Duration - How long does the behavior last.

## Time Sampling - involves recording what the organism(s) do at regular intervals of time.

### Emphasizes the role of instincts.

### Focuses on the *uniqueness* of behavior in a given species rather than *general principles* that apply to all species.

# Psychological Perspective

## Unlike the “hands off” approach of ethology, this view stresses control & manipulation.

## Emphasizes the role of the environment.

## Looks for general principles that apply to all species.

## Dominant research method used here is experimentation.

### Involves manipulating something we choose.

### As a result, it is the most powerful research method because it allows us to determine cause & effect.

### Purpose is to see if one variable causes changes in another.

### Variable - Characteristic of a person or thing that can occur in different amounts or kinds.

### Independent Variables (IVs) - We select and manipulate these.

### Dependent Variables (DVs) - We measure these.

### Extraneous Variables (EVs) - Variables other than the IV which can influence the DV. We worry about these.

### Some Exs. of IV’s - Use of food, special collars, training philosophy, diet, drugs.

## While we are discussing research methods, let us also mention surveys.

### Include:

### Questionnaires - without human contact.

### Interviews - voice or face-to-face contact.

### Important issues:

### Question Structure - Should not be leading.

### Who is Surveyed? - Should use a *random sample* (each member of the *population* has an equal chance of being in the sample).

# Behavioral Perspective

## In its extreme, this view believes the environment to be the sole determinant of behavior. Refers to the newborn as a *tabula rasa* (or blank slate).

## Stresses the observation & measurement of behavior.

## Is interested in *general laws* of learning.

## This view probably has the most “*bang for its buck*” in terms of its relevance to dog training.

## Is sometimes called the “*Stimulus-Response (S-R) view*” or “*black box view*”.

### Stimulus - an event in the environment. Can be simple or complex. Give Ex.

### Response - behavior.

# Cognitive Perspective

## Views animal as a processor of information. Folks interested in this view use terms like *thinking*, *prediction*, *control*, *expectancy*, & *insight*.

## Thus, unlike strict behaviorism, this view considers what is going on inside the black box to be what is most important.

## This view also blends nicely with the behavioral view & the combination (called the *cognitive-behavior view*) has become quite popular in psychology.

## I should note that my personal emphasis on the application of the cognitive-behavioral view to dog training is unique among dog trainers.

# Social Perspective

## Concerned with the behavior of more than one organism at a time.

## Several relevant issues here include:

### Social Organization

### Dominance hierarchy can be linear or more complex.

### Social Facilitation

### Unique Relationship of Dog & Human

### Nonverbal communication

### Concerned with body language or being able to “*read the dog*”.

### It is important to be aware that dogs also read our emotional state & intentions.

### Thus, the handler’s postures, expressions, & movements are important to be aware of & control.

### Pfungst’s (1911) study of Wilhelm von Osten & his Russian trotting horse, *clever Hans*.