Feedback Loops/Control Systems

Psychology 372

Physiological Psychology

Steven E. Meier, Ph.D.

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Overview

- Is often associated with the concept of motivation
- Are designed to keep the body at balance.
- Are involved in many systems
  - Hunger
  - Thirst
  - Endocrine
  - Kinesthetic (Movement)
  - Temperature
  - Others

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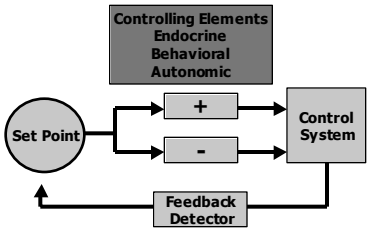
Example of a Control System



3

Set Points

- Are desired values within a system
  - Are designed to keep you at some level.
  - Examples
    - Temperature
    - Body Weight
    - Water balance

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Error Detector

- Generates a signal that the value of a controlled variable does not match the Set Point.
- Then drives the systems (controlling elements) that adjust to some desired direction.
- Is controlled by both internal and external stimuli

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Controlling Elements

- Are systems that make changes after being cued by the error detector.
- Systems can be
  - Endocrine
  - Behavioral
  - Autonomic

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Controlled System

- Is the system that makes the changes

Feedback Detectors

- Identify the changes that have occurred.
- Indicates changes have occurred
  - If at set point, homeostatic balance has reoccurred.
  - If not, need to do something more.

Motor Control System

- Similar to other systems
- Have motor systems that send information to muscles.
  - Stimulatory (contract)
  - Inhibitory (relax)

Muscles have Sensory Receptors

- Sends information back to spinal cord
  - Internuncial neurons send information to opposing neurons in the final common pathway
- Sends information to the brain
  - Goes to sensory areas, cerebellar areas, other areas
  - Allows for fine motor control

Conclusion

- Many types of feedback loops
- Are specific to each system
- Are extremely important for control and homeostasis.