Chapter 9: Behaviorism: Antecedent Influences

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Toward a Science of Behavior

- **Background**
  - Functionalism was more evolutionary than revolutionary
  - Behaviorism revolutionary
    - John B. Watson
      - These ideas did not originate with Watson; they had been developing for some time in psychology and biology
    - Major forces that were brought together to form behaviorism included:
      - Philosophical tradition of objectivism and mechanism
      - Animal psychology
      - Functional psychology
    - Insistence on objectivity can be traced back to Descartes and, probably more importantly, Compte, who created positivism

The Influence of Animal Psychology on Behaviorism

- Most important antecedent to Behaviorism was animal psychology
  - Grew out of evolutionary theory and led to attempts to demonstrate:
    - Existence of a mind in lower organisms
    - The continuity between animal and human minds
  - Jacques Loeb (1859-1924)
    - Did animal research
    - Postulated that animal behavior was influenced by *tropism*
      - *Involuntary movement in response to a stimulus*
    - Did not totally reject animal consciousness, especially in humans and other animals at the top of the evolutionary scale
    - If the actions of lower organisms can be explained without reference to mental events, why cannot human behavior be explained in the same way
The Influence of Animal Psychology on Behaviorism Cont.

- Rats, Ants, and the Animal Mind
  - Willard Small
    - Introduced the rat maze in 1900 at Clark University
    - Studied behavior, but also interpreted the behavior in terms of consciousness, writing about the rats’ images and ideas

- The Influence of Animal Psychology on Behaviorism
  - Charles Henry Turner
    - Zoologist
    - Interested in and published articles on comparative and animal studies
    - “A Preliminary Note on Ant Behavior” (1906)
  - Margaret Floy Washburn
    - Taught animal psychology at Cornell
    - The Animal Mind (1908)
      - 1st comparative psychology textbook published in US
      - Last book to discuss animal consciousness and introspection by analogy

- Difficult to be an animal psychologist
  - Clever Hans the Clever Horse
    - Supposedly could add and subtract, use fractions and decimals, read, spell, tell time, distinguish among colors, identify objects, and perform phenomenal feats of memory

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The Influence of Animal Psychology on Behaviorism

- Edward Lee Thorndike (1874-1949)
  - Called his experimental approach to the study of associations connectionism
  - Approach to learning that is based on connections between situations and responses
  - Law of effect
    - If the response to a stimulus is followed by a reward, the connection is strengthened
      - “stamped in”
    - If the response is followed by a punishment, it is weakened
      - “stamped out”
  - Law of exercise
    - Any response to a situation, other things being equal, will be more strongly connected with the situation in proportion to the number of times it has been connected with the situation

- Developed these laws from using the Puzzle Box
  - Trial-and-error learning
    - Learning based on the repetition of response tendencies that lead to success
- Disagreed with behaviorism
  - He wanted to keep the mentalistic qualities in psychology
The Influence of Animal Psychology on Behaviorism Cont.

- Ivan Petrovitch Pavlov (1849-1936)
  - Shifted work on association from subjective ideas to objective and quantifiable physiological events
  - **Conditioned reflexes**
    - Psychic reflexes
      - Changed to **conditional reflexes**
        » were conditional upon the forming of an association or connection between the stimulus and the response

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Classical Conditioning Apparatus

- Ivan Pavlov
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- Higher mental processes in animals could be described in physiological terms without mention of consciousness
- Edwin B. Twitmyer—the lost one
  - Gave a talk in 1904 that described conditioned reflexes, but no one noticed
- Alois Kreidl’s goldfish
  - Fish anticipated feeding

The Influence of Animal Psychology on Behaviorism Cont.

- Vladimir M. Bekhterev (1857-1927)
  - Contemporary and rival of Pavlov
  - Founded Psychoneurological Institute
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The Influence of Animal Psychology on Behaviorism Cont.

– Helped lead the field away from subjective ideas and toward objectively observed overt behavior
– Associated reflexes
  • Reflexes that can be elicited not only by unconditional stimuli but also by stimuli that have become associated with the unconditioned stimuli
  • This is actually Pavlov’s conditioned response but with a motor learning bent
  • Bekhterev postulated that higher-level processes could be built using associated reflexes

The Influence of Functional Psychology and Behaviorism

• Functionalism was a direct antecedent of Behaviorism
  – It was more objective than other schools of psychology at the time
    • Functionalists were calling for a more objective psychology even as Watson created the first tenets of behaviorism
  – In 1911, Pillsbury defined psychology as the science of behavior
    • He argued that it was possible to treat human beings as objectively as other aspects of the physical universe
  – Others moved away from mentalistic ideas:
    • William Montague
    • J. R. Angell

Which Brings Us to:

• John Broadus Watson
References

