

Lecture 12: The Rise and Fall of Behaviorism

I. INTRODUCTION

A. Introduction

- The Rise and Fall of Behaviorism
 - It started off slowly in 1910s
 - Watson's 1913 manifesto, *Psychology as the Behaviorist Views It*, claimed that introspective psychology was unscientific because it did not deal with objective states.
 - There is a complete rejection of mentalism by Watson in the 1910s and Skinner in the 1940s
 - By the 1940s and 1950s, behaviorism reigned supreme in American experimental psychology.
 - There was an emphasis on learning and experience over inheritance of traits in every sphere of applied and theoretical psychology.

I. INTRODUCTION

A. Introduction

- The Rise and Fall of Behaviorism
 - By 1965, the tide began to turn.
 - There was the "cognitive revolution" and "humanistic psychology" which embraced the very mentalism which Behaviorism sought to reject.
 - Why behaviorism declined is complicated.
 - Behaviorism was demonstrated to be overly simplistic and inadequate philosophically and empirically.
 - Behaviorism no longer theoretically dominant.
 - But Behavior Modification, Applied Behavior Analysis, and Cognitive Behavioral Therapy remain viable approaches in applied psychology.

I. INTRODUCTION

B. The Context of Behaviorism

- The zeitgeist of the time resulted in the developing of behaviorism.
 - Objective psychology was already established in Russia and several functionalists were discussing openly many ideas later emphasized by John Watson.
 - The success of animal research also contributed greatly to the development of behaviorism.
 - The strain resulting from proposals for a strict objective science of psychology but the continued use of introspection created the atmosphere that ultimately led to the "behaviorist revolution."

I. INTRODUCTION

B. The Context of Behaviorism

- Two sections to the presentation
- Origins of Behaviorism:
 - Russian Physiology of Reflexes
 - American Foundations: J.B. Watson
 - British Foundation: MacDougall
- NeoBehaviorism
 - Edward Chase Tolman
 - Clark Leonard Hull
 - Edwin R. Guthrie
 - B. F. Skinner

II. ORIGINS OF BEHAVIORISM

A. Russian Physiology of Reflexes

- Ivan Mikhailovich Sechenov (1829–1905)
 - Sechenov's major interest was neurophysiology
 - He showed that brain activity is linked to electric currents and was the first to introduce electrophysiology.
 - Focused on the nature and inhibition of spinal reflexes
 - Studying the physiology of reflexes was important part of the context of the founding of behaviorism



II. ORIGINS OF BEHAVIORISM

A. Russian Physiology of Reflexes

- Ivan Mikhailovich Sechenov
 - Sechenov's work laid the foundations for the study of reflexes, animal and human behavior, and neuroscience.
 - Thoughts do not cause behavior.
 - Both internal behavior (mental processes) and external behavior are reflexive in that they are triggered by external stimulation.
 - Principle of external stimulation also seen in Vyogtsky's work.



II. ORIGINS OF BEHAVIORISM

A. Russian Physiology of Reflexes

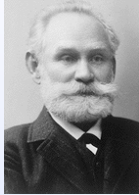
- Ivan Mikhailovich Sechenov
 - Proposed
 - Main purpose of the central nervous system was to inhibit reflexive behavior
 - Development establishes inhibitory control over reflexive behavior.
 - Rejected the idea of spontaneous or un-elicited behavior.
 - The only valid Psychological approach was the objective methods of physiology.



II. ORIGINS OF BEHAVIORISM

A. Russian Physiology of Reflexes

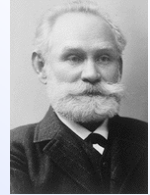
- Ivan Petrovitch Pavlov (1849–1936)
 - Won the Nobel Prize in 1904 for his work in physiology.
 - During work on the physiology of the digestive system, he discovered the conditioned reflex.
 - Noted that objects or events associated with presentation of food also produced gastric secretions.
 - Referred to secretions as “conditional” (mistranslated as conditioned) responses because they depended on something else



II. ORIGINS OF BEHAVIORISM

A. Russian Physiology of Reflexes

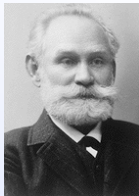
- Ivan Petrovitch Pavlov
 - For details of Classical Conditioning, see the textbook.
 - He applied objective physiological measures to study the association between stimulus and response
 - Explained how reflexes can be modified by environmental associations.
 - Even explained neurosis
 - Experimental neurosis occurs when excitatory and inhibitory conditioned tendencies are brought into conflict.



II. ORIGINS OF BEHAVIORISM

A. Russian Physiology of Reflexes

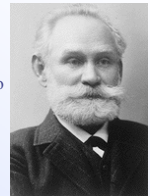
- Ivan Petrovitch Pavlov
 - Pavlov’s Signal Systems
 - First-signal system or “the first signals of reality.”
 - Stimuli (conditioned stimuli) that come to signal biologically significant events
 - Second-signal system or “signals of signals”
 - Humans learn to respond to symbols of physical events (use of language, words are symbols referring to events).
 - Low opinion of psychology.
 - But big influence on the discipline!



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II. ORIGINS OF BEHAVIORISM

A. Russian Physiology of Reflexes

- Vladimir Mikhailovich Bekhterev (1857–1927)
 - Neurophysiologist who noted the role of the hippocampus in memory around 1900.
 - He founded the field of psychoreflexology.
 - An objective study of relations between environmental influences and overt behavior. In humans
 - Critical of Pavlov's work
 - He transformed and applied it from dog secretions to human behavior.



II. ORIGINS OF BEHAVIORISM

B. American Behaviorism: Watson

- John Broadus Watson (1878–1958)
 - Founder and promoter of behaviorism
 - Objective methodology applicable to humans and animals
 - Physiological basis
 - Critical paper was *Psychology as the Behaviorist Views It* (1913)
 - Polemical tone
 - Emphasis on application



II. ORIGINS OF BEHAVIORISM

B. American Behaviorism: Watson

- John Broadus Watson
 - Start at Chicago with Dewey.
 - At Harvard he worked with James Angell and Jacques Loeb
 - Shows that the behavior of simple organisms could be explained as being automatically elicited by stimuli
 - Influenced by his early research with rats running in mazes
 - Early research running rats in mazes helped him formulate some of his later ideas regarding a purely objective science of psychology.



II. ORIGINS OF BEHAVIORISM

B. American Behaviorism: Watson

- John Broadus Watson
 - 1908 announces behaviorist views and 1913 publishes the so-called *Behaviorist Manifesto*
 - Psychology is a purely objective experimental branch of natural science.
 - Its theoretical goal is the prediction and control of behavior.
 - Introspection forms no essential part of its method.
 - The behaviorist, in his efforts to get a unitary scheme of animal response, recognizes no dividing line between man and brute



II. ORIGINS OF BEHAVIORISM

B. American Behaviorism: Watson

- John Broadus Watson
 - Four types of behavior
 - Explicit (overt) learned behavior
 - talking, writing, etc.
 - Implicit (covert) learned behavior
 - increased heart rate caused by a feared stimulus
 - Explicit unlearned behavior
 - grasping, blinking, sneezing, etc.
 - Implicit learned behavior
 - glandular secretions
 - All behavior, including thinking, falls into one of the categories.



II. ORIGINS OF BEHAVIORISM

B. American Behaviorism: Watson

- John Broadus Watson
 - Four methods of research
 - Observation, naturalistic or controlled
 - Conditioned-reflex method, proposed by Pavlov and Bechterev
 - Testing, meant taking samples of behavior and not measurement of "capacity" or "personality"
 - Verbal reports, which were treated as any other type of overt behavior.



II. ORIGINS OF BEHAVIORISM

B. American Behaviorism: Watson

- John Broadus Watson
 - Language & thinking as behavior.
 - Speech overt behavior, while thinking was sub-vocal speech.
 - There were a few simple reflexes
 - No complex innate behavior; only experience impacts behavior
 - Humans inherit basic reflexes and emotions of fear, rage, and love.
 - These Emotions elicited by stimuli and others are derived from the 3.
 - Little Albert and emotional conditioning



II. ORIGINS OF BEHAVIORISM

B. American Behaviorism: Watson

- John Broadus Watson
 - Proposed that children should be raised in an objective manner
 - Little displays of affection; treated as adults; receive sex education.
 - Contiguity and Frequency
 - Events associated in time, which produces conditioning of behavior.
 - Adopted physical monism.
 - Switched to a physical monism mind-body position, rejecting mental events (consciousness) altogether.



II. ORIGINS OF BEHAVIORISM

B. American Behaviorism: Watson

- John Broadus Watson
- Watson's Behaviorism had two long-lasting effects
 - Psychology's main goal changed from description and explanation of states of consciousness to the prediction and control of behavior.
 - Overt behavior was the almost-exclusive subject matter of psychology.



II. ORIGINS OF BEHAVIORISM

B. American Behaviorism: McDougall

- William McDougall (1871 – 1938)
 - He wrote a number of highly influential textbooks
 - He is particularly important in the development of the theory of instinct and of social psychology.
 - Critiqued Watson's behaviorism for its lack of instinct and purpose.
 - His work was very well known and respected among lay people.



II. ORIGINS OF BEHAVIORISM

B. American Behaviorism: McDougall

- William McDougall
 - Defined psychology as the science of behavior
 - Mental events valued and could be studied objectively by observing their influence on behavior.
 - Behavior is goal-directed and stimulated by instinctual motive
 - Minimized environmental events and emphasized purposive nature of behavior.



II. ORIGINS OF BEHAVIORISM

B. American Behaviorism: McDougall

- William McDougall
 - Believed that all behavior is stimulated by instinctual energy
 - Instincts provides motivation to act in certain ways.
 - Single event or thought tends to elicit several instinctual tendencies
 - Associating multiple instincts with a single object or thought creates a sentiment
 - Most human social behavior is governed by sentiments.



II. ORIGINS OF BEHAVIORISM

B. American Behaviorism: McDougall

- McDougall vs. Watson
 - On Instincts
 - Watson denied humans instincts whereas for McDougall they motivated of all behavior.
 - On Reinforcement
 - Watson rejected reinforcement in learning whereas for McDougall reinforcement was a process of need reduction central to learning
 - On Debates
 - McDougall is seen as the narrow victor over Watson in debates.



III. NEOBEHAVIORISM

A. Introduction

- Characteristics of Neobehaviorism
 - Were radical empiricist
 - All theoretical terms must be *operationally defined* as demanded by Logical Positivists of the Vienna Circle (philosophers committed to eliminating metaphysics)
 - Nonhuman animals should be used as research participants for two reasons:
 - Relevant variables are easier to control in animals than when using human subjects.
 - Perceptual and learning processes in animals differ only in degree from those processes in humans
 - Information gained from research with nonhuman animals can be generalized to humans.

III. NEOBEHAVIORISM

A. Introduction

- Characteristics of Neobehaviorism
 - Learning processes are of prime importance because learning is the primary mechanism by which organisms adjust to a changing environment.
 - Despite agreeing on a few important issues, there were major differences among the neo-behaviorists:
 - Tolman
 - Hull
 - Guthrie
 - Skinner

III. NEOBEHAVIORISM

B. E. C. Tolman

- Edward Chance Tolman (1886 - 1959)
 - American psychologist best known for his studies of learning in rats using mazes.
 - His major theoretical contributions came in his 1932 book, *Purposive Behavior in Animals and Men*
 - *Psychological Review* papers included
 - *The determinants of behavior at a choice point* (1938)
 - *Cognitive maps in rats and men* (1948)
 - *Principles of performance* (1955)



III. NEOBEHAVIORISM

B. E. C. Tolman

- Edward Chance Tolman
 - Purposive and molar behavior
 - Studied purposive (molar) behavior in contrast to the molecular behavior that he saw Watson studying.
 - Rats used to avoid introspection
 - Rats guarded against even indirect introspection that could occur if humans were experimental participants.
 - Cognitive intervening variables
 - To Tolman, cognitive processes (hypotheses, expectations, beliefs, and sometimes cognitive maps) intervene between stimuli and responses.



III. NEOBEHAVIORISM

B. E. C. Tolman

- Edward Chance Tolman
 - Learning can occur without reinforcement or motivation.
 - Distinguished learning & performance
 - Learning takes place constantly as the organism interacts with its environment.
 - Whether the organism uses what it has learned is determined by its motivational state.
 - Performance is translation of learning into behavior.
 - Latent Learning: Tolman & Honzik, (1930)
 - Latent Extinction: In extinction, an animal's expectation is modified by a lack of contingency.



III. NEOBEHAVIORISM

C. Clark L. Hull

- Clark Leonard Hull (1884 - 1952)
 - American who explained motivation and learning by scientific laws
 - His most significant works were the *Mathematico-Deductive Theory of Rote Learning* (1940), and *Principles of Behavior* (1943), established his formal analysis of learning and conditioning.
 - Model is couched in biological terms:
 - Organisms suffer deprivation. Deprivation creates needs. Needs activate drives. Drives activate behavior. Behavior is goal directed. Achieving goals have survival value.



III. NEOBEHAVIORISM

C. Clark L. Hull

- Clark Leonard Hull (1884 - 1952)
 - Hull's hypothetico-deductive theory of learning
 - Used intervening variables as Tolman, but used them more extensively.
 - From summarizing the research on learning, he formed postulates from which he inferred theorems that yielded testable propositions.
 - Hull's intervening variables were primarily physiological, in contrast to the cognitive variables of Tolman.
 - His final theory had 17 postulates and 133 theorems.



III. NEOBEHAVIORISM

C. Clark L. Hull

- Clark Leonard Hull (1884 - 1952)
- Reinforcement: Drive-reduction theory of reinforcement.
 - A biological need creates a drive and the decrease of drive constitutes reinforcement
- Habit strength: An increase in habit strength constitutes learning.
 - The number of reinforced pairings between an environmental situation and a response.
- Reaction potential: Probability a learned response will occur.
 - Function of amount of drive and habit strength and other intervening variables.



III. NEOBEHAVIORISM

C. Clark L. Hull

- Clark Leonard Hull (1884 - 1952)
- Hall's legacy
- No trace of Hull's theory in textbooks, yet there is of Tolman
 - The clarity of its predictions generated lots of research on Hull's theory
 - Researchers devised projects to test the theory's predictions and validity.
 - Hard to call this a failure.
- Today its legacy is mathematical psychology.



III. NEOBEHAVIORISM

D. Edwin R. Guthrie

- Edwin R. Guthrie (1874 - 1952)
- American who played an important role in the development of the contiguity theory of learning.
 - Contiguity (how close in time two events must be for a bond to be created)
 - Reinforcement (any means of increasing the likelihood that an event will be repeated) are central to explaining the learning process.
- He developed a one-trial, contiguity, non-reinforcement theory of learning



III. NEOBEHAVIORISM

D. Edwin R. Guthrie

- Edwin R. Guthrie
- Details of contiguity learning in textbook but some general issues:
 - Stimuli which accompany a movement will on its recurrence, tend to be followed by that movement.
 - Rejected the law of frequency and postulated one-trial learning.
 - Distinguished movements and acts.
 - Movement: A specific response to a stimuli configuration in which an association is learned at full strength after one exposure.
 - Act: Made up of movements and a skill is made up of acts



III. NEOBEHAVIORISM

E. B. F. Skinner

- Burrhus Frederic Skinner (1904 – 1990)
 - American who discovered the operant conditioning which was the basis of:
 - An approach to psychology *The Experimental Analysis of Behavior* and a philosophy of psychology *Radical Behaviorism*
 - Skinner was listed as the most influential psychologist of the 20th C.
 - He published 21 books and 180 articles.



III. NEOBEHAVIORISM

E. B. F. Skinner

- Burrhus Frederic Skinner
 - Radical Behaviorism
 - Scientists were to collect empirical facts and then infer knowledge from the facts
 - Science is to be descriptive and inductive rather than theoretical and deductive.
 - Functional analysis of behavior
 - An analysis of the relations between environmental and behavioral events.
 - Internal events have no place in such an analysis because they are events also and thus need to be explained also.
 - Internal events cannot serve as explanations or causes of behavior.



III. NEOBEHAVIORISM

E. B. F. Skinner

- Burrhus Frederic Skinner
 - Operant behavior
 - Two types of behavior
 - Respondent behavior is reflexive behavior in which Watson and Pavlov were interested
 - Operant behavior is influenced by its consequences. (Gets around calling it volitional)
 - Operant conditioning occurs as behavior affected by its consequences.
 - Reinforcement is when a consequence increases the rate/probability of behavior
 - The reinforcer can be anything as long as its effect is an increase in behavior probability.



III. NEOBEHAVIORISM

E. B. F. Skinner

- Burrhus Frederic Skinner
 - Operant conditioning
 - Punishment is when a consequence decreases the rate/probability of behavior
 - Reinforcement exerts better control over behavior than punishment.
 - Selection of behavior by consequence is a Darwinian idea.
 - The organism produces a variety of behaviors
 - Some will result in consequences that will increase the behavior (reinforcing).
 - These behaviors will be selected as part of the organism's repertoire while others will not



III. NEOBEHAVIORISM

E. B. F. Skinner

- Burrhus Frederic Skinner
 - Behavior Analysis
 - Skinner and other behavior analysts have always sought to apply operant principles to solve practical problems.
 - Applied behavior analysis has provided a behavior technology to change behavior in multitudes of settings.
 - Prominent area is application of to help people in educational settings
 - Problems ranging from psychosis, drug addiction, mental retardation/ learning disabilities, speech disorders, shyness, phobias, and juvenile delinquency.

