

# Behaviorism

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# BEHAVIORISM

- ▶ One of the greatest developments in the history of mankind is the industrial revolution of the 18<sup>th</sup> century. It marked the advent of a completely new era of thinking and approach towards gaining knowledge. A rational approach was adopted and the ancient speculative methods given by the Greeks were rejected. The industrial revolution had a deep impact on the development of human thoughts; therefore the discipline of psychology was also bound to be impacted. The path of this influence on psychology is easily traceable. As industry developed and manual labor was shifted to machine labor, there were a number of changes in society and human behavior. New towns were established, close to the factories; housing shifted from huge farm houses to small houses; labor working hours and habits changed; dependence on

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- ▶ Therefore, new markets were sought and it became imperative to predict and control human behavior, in order to sell more. Another aspect of this development was that the attention of researchers now shifted towards these workers aiming at getting maximum productivity from the industrial labor. This productivity was based on human behavior and the result was that, the need to study human behavior arose. As mentioned earlier, man had become more rational in his approach and had disposed of speculation as a means of gaining knowledge. This made him focus on concrete facts and adopt scientific approach in his study. Psychologists started analyzing, predicting and controlling human behavior since it was visible while consciousness was not. It gave birth to the school of thought now called the Behaviorist School.

# Edward Lee Thorndike

- ▶ Edward Lee Thorndike was an American behaviorist philosopher/psychologist, who was born in 1874 and died in 1949. After completing his studies Thorndike moved to Harvard University, where William James had set up his psychological laboratory. Thorndike had read James and was impressed with his work on functions of consciousness. He set up his lab at Harvard, working with chicks but later transferred to James' house where he did his experiments on cats which are his most famous experiments. He devised the —puzzle box|| which he used for these experiments.

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- ▶ Based upon his experiments he formulated what he called —laws of learning, or how learning takes place. In other words, Thorndike made efforts to learn how the process of learning actually takes place. Before we look at those laws, first let us have a look at the concept of learning that Thorndike proposed. He said that learning takes place by stimulus-response connections rather than by association; according to him learning takes place by two ways which he called laws of learning. The laws are as follows:

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## ► Law of effect

The law of effect states that all responses that followed by satisfaction are stamped into an individual and he learns those responses. This means that any act that is performed by an individual, when it is reinforced by a reward that brings satisfaction to the performer, the act becomes learnt. For example, if an animal such as a cat is rewarded with food if it performs a certain act, the act shall be learnt by the cat. This is what Thorndike concluded through his experiments.

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## ► Law of exercise

The law of exercise states that responses that are repeated are also stamped in and become learnt. This law does not focus on the reinforcement through satisfaction but states that when the individual keeps on performing a certain act, the act is learnt. In other words, the exercise that is constantly performed by an individual is learnt by him or her.

**.The law of effect given by Thorndike is similar to Pavlov's law of conditioning by reinforcement and the second law, i.e. law of exercise is similar to James's theory of habit formation due to repetition.**

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- ▶ As mentioned earlier, Thorndike devised the puzzle box for his experiments. The puzzle box was a box with a door operated through a lever in it. A string with a ring was attached with the lever, which released the door of the box, when pulled. The box was big enough to accommodate a cat. Thorndike used cats for his experiments. As the cat was trapped in the box, it tried hard to escape. The only escape possible was through the door which opened by pulling the string attached to the lever. As the cat pulled the string with its paw, the door of the box opened and it escaped. When the cat was put into the box a number of times, it learnt to use the string to escape. Therefore, based on this observation, Thorndike came up with his laws of learning.



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- ▶ Thorndike performed further experiments to substantiate his laws of learning. This further experimentation and observation lead him to repeal the law of exercise, and modify the law of effect. He then proposed the —**law of belongingness** to explain animal learning.

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## ► Law of belongingness

The law of belongingness states that only relevant responses that —belong to the learning situation are learnt. For example, the moving of paws by the cat in the puzzle box is learnt but not pricking of ears. Thorndike could be classified as a behaviorist because he explained learning as a psychological function in behavioristic, observational terms. He did try to look into consciousness but restricted his studies to the behavior of animals and used comparative psychology to explain human behavior and learning.

# Edwin Holt

- ▶ Edwin Holt was another early behaviorist who was born in 1873 and died in 1946. He was at two of the top universities in America; Harvard and at Princeton. He agreed with the contemporary point of view prevailing on the American continent that psychology should concern itself only with directly observable facts and data. The speculative methods of learning and exploring were rejected by him like all other behaviorists. Therefore, he also declared psychology be a scientific discipline which was based on rationality. Only the facts that could be substantiated should be considered in psychology.

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- ▶ Holt further proposed that psychology should concern itself with behavior, therefore he is also considered as a behaviorist. According to him, behavior is the result of two factors:

- ▶ **Learning**

Learning takes place when an organism is exposed to internal or external stimulation, e.g. internal stimulation may be hunger, thirst etc. while external stimulation may be heat, coldness etc. Organism behaves in response to these stimuli.

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## ► Canalization

Further, behavior is also the result of canalization which is what we learn in our childhood. Childhood experiences influence and produce behavior and in any study of psychology we must not ignore those childhood experiences.

# J. B. Watson

- ▶ J.B. Watson is regarded as the founder of the school of behaviorism. He was born in 1878 and died in 1958. He began as a student of philosophy at the University of Chicago, but later turned to psychology. He taught for a number of years at Johns Hopkins University at Baltimore USA, where he set up his animal laboratories. Later he shifted to the corporate world and offered advice to industry relating to advertising and marketing.

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- ▶ Watson taught that psychology should ignore consciousness and concentrate on concrete facts: psychology. This was one of the founding principles of the behaviorists' approach. He further said that psychologists must discard all reference to consciousness and must only look at behavior of animals and man. Because of his stress on behavior to the neglect of consciousness, he called himself a behaviorist. He was the first one to proclaim himself as a behaviorist. His methodology revolutionized the subject of psychology giving a new outlook to it. As consciousness was no more regarded as the concrete method of gaining knowledge, therefore, psychology focused merely on factual evidences and observable phenomena after the advent of this school. A measure of how seriously his appeal was taken by his professional colleagues is that he was elected as the President of American Psychological Association.

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- ▶ In one of his books, entitled —Behavior,|| he enumerated what behaviorism is all about in psychology. As the functionalists and the structuralists had defined psychology as the study of consciousness, Watson defined, as opposed to them, psychology as the science of behavior. Behavior of animals and humans was in his view what needed to be studied for an understanding of psychology. Furthermore, Watson asserted that psychologists should use only objective, experimental methods and should not use introspection as a method. He said that the aim of the study of psychology should be to provide prediction and control of behavior. This is the basic aim of behaviorism. Behaviorists tend to develop methods and techniques to control and predict human behavior in order to get the most out of them. Behaviorism emerged in times when the industrial revolution took place. At that moment in the history of mankind, the focus was on increasing the productivity of workforce.



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- ▶ According to Watsonian behaviorism, behavior can be studied in terms of stimulus-response patterns. This means, that a stimulus is received by organism and it responds. For example, when someone touches a hot object, he immediately withdraws his hand from the object. In other words, the hotness of the object serves as the stimulus while the withdrawing action of the individual is his or her response to the stimulus. Watson therefore stated that there is nothing mysterious in this action and reaction and all of it could be explained in simple physiological terms.

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- ▶ One of the important contributions of Watson is that in his opinion, thinking is nothing but **implicit behavior**. For example, when an individual manipulates images in his mind, thinking takes place. The individual relates these images together forming an explanation for the phenomenon that he is trying to study. Therefore thinking is also a kind of behavior. Watson agreed with the viewpoint of Ivan Pavlov about learning and said that we learn according to the laws of conditioning as given by Pavlov.

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- ▶ Watson suggested that memory and images are nothing but sensory activities in the brain. This again refers to the study of behaviorism as a physiological phenomenon rather than a mysterious one. He said that the sensory activities of the brain can be classified as **molecular behavior**.

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- ▶ Watson further proclaimed that by controlling the environment of an organism we could control and predict its behavior. This is known as **environmentalism**, that organism is affected by its environment. It is similar to the idea of Tabula Rasa given by John Locke. According to Locke, the mind of a new born baby is like a clean slate which is written upon by the surrounding environment. Watson's contribution to psychology was one of the major developments in the study of psychology.

# NEO-BEHAVIOURISTS

- ▶ **Neo-Behaviourists** are psychologists who adopted the line of thinking and methodology of Watson, but were born or worked after Watson. Watsonian behaviorism gave a new direction to the science of psychology. The old method of introspection for psychology was rejected and a more scientific outlook was adopted. Only concrete facts were considered which were observable. Therefore behaviourism became very much as the heart of psychological thought.

## Edward Tolman

Edward Tolman was another American, who was born in 1886 and died in 1961. He studied at Harvard and was impressed by William James and Watson. Tolman believed that psychology is a science of behaviour and psychologists should concentrate on the study of behaviour only and in addition to it he said that behaviour has a purpose. That is why he is also called a **purposive behaviourist**.

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- ▶ He defined behaviour in a precise equation that is:

$$\mathbf{B = f (S, A)}$$

Where:

- ▶ B is behaviour
- ▶ f is the function of
- ▶ S is situation variables
- ▶ A is antecedent variables
- ▶ **This means that behaviour is a function of situational variables and antecedent variables.**

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- ▶ A **situational variable** is any variable that is a part of the situation/environment that affects a subject's behaviour in a way, for example the hot or cold weather.
- ▶ An **antecedent variable** is a variable that is a part of the subject such as age, gender etc. and it impacts its behaviour.



# B.F. Skinner

- ▶ One of the most prominent psychologists, who was impressed by Watsonian behaviourism on the one hand and Pavlovian conditioning on the other was another American B.F. Skinner, born in the year 1904 and died in 1990. He worked at Harvard University and carried on his experiments on animals, writing many books and articles. His main research work is now known by the title of Instrumental or Operant Conditioning.

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- ▶ Working on white rats and pigeons, in specially devised cages, known as Skinner boxes he observed how animals learn. He therefore adopted an experimental method of learning. He also purported the idea of learning by conditioning but his conditioning was different from that of Pavlov. Later Pavlov's conditioning came to be known as classical conditioning while Skinner's conditioning was called instrumental or operant conditioning.

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- ▶ One of the contributions of B.F. Skinner is that he distinguished between positive reinforcement and negative reinforcement, where **positive reinforcement** is when a response is positively rewarded and negative reinforcement is when a response is negatively rewarded or punished. In other words, if a subject, who is hungry, is rewarded on its act with food, the reinforcement is positive. On the other hand, if a subject is punished on his or her act but being beaten up or being subjected to some kind of torture, or even a less severe punishment such as denial of food, the reinforcement given to him according to Skinner is **negative reinforcement**.

# Donald Hebb

- ▶ Donald Hebb was a Canadian psychologist, who showed that, when a part of the human brain was removed accidentally, it did not affect a person's IQ. which stated that if one part of the cortex is removed, the brain continues to function as with the full cortex.

# Harvey Harlow

- ▶ Another psychologist Harvey Harlow, of University of Wisconsin showed that curiosity, exploration and manipulation effect animal learning. This meant that if a subject is curious about certain phenomenon, it would have a different learning pattern as compared to other subjects. Further, exploration and manipulation also affect learning.

# Hobart Mowrer

- ▶ Hobart Mowrer at the University of Illinois showed that factors such as hope and disappointment influence learning. Behaviourism slowly had introduced such mentalistic concepts as curiosity, hope, disappointment, etc. So behaviourism slowly moved away from dealing with purely observational data and started looking into psychological factors.