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NEAL E. MILLER (1909-2002) and JOHN DOLLARD (1900-1980): Learning Theory

Neal Miller (1909-2002) was born in **Milwaukee, Wisconsin, on August 3, 1909.** He received his **BS from the University of Washington**, where he studied with the famous learning theorist Edwin Guthrie. He received his **master's** degree from **Stanford University in 1932** and his **Ph.D.** from **Yale University in 1935**. He studied psychoanalysis in Vienna; returned to Yale in. 1946, and became a James Rowland Professor of Psychology in 1952. He transferred to Rockefeller University as professor of psychology and head of the Laboratory of Physiological Psychology in 1966. He was elected to the National Academy of Sciences and became president of the American Psychological Association. He received the Warren Medal from the Society of Experimental Psychologists and the President's Medal of Science.

Miller is ***known*** for his **theoretical works** on the nature of reinforcement, the acquisition of drives, and the study of conflicts. His latter works centered on behavioral medicine (1983) and neuroscience (1995)

John Dollard was born in **Menasha, Wisconsin, on August 29, 1900**. He received his **Bachelor of Arts degree from the University of Wisconsin in 1922**; his **master's** degree from the **University of Chicago in 1930;** and his **Ph.D. in sociology** from the **same university in 1931.**

Dollard became an **assistant professor of anthropology at Yale University in 1931.** Not long after, he joined the Institute of Human Relations at Yale as an assistant professor of sociology. He continued working in both institutions until his retirement in 1969. His contributions were recognized by the university, which granted him professor emeritus status in 1969.

Dollard was trained in psychoanalysis at the Berlin Psychoanalytic Institute. In Yale, he collaborated with Miller, and together, they authored several books, including: ***Frustration and Aggression, Social Learning and Imitation, Personality and Psychotherapy, and Thinking and Culture.***

John Dollard died in 1980 at the age of 80.

VIEW OF HUMAN NATURE

Dollard and Miller's **goal** was to **combine Freud's theory with equated reinforcement** with **drive reduction and defined a habit** as a learning theory, mainly that of Hull's. ***Hull's theory*** of learning is a strong association of a stimulus and a response.

Drive, cue, response, and reinforcement

Dollard and Miller's theory of personality **relied heavily on four concepts borrowed from Hull.**

- **Drive**

A drive is any strong stimulus that **impels an organism to action, and whose elimination or retention is reinforcing**. Drives may be **internal**, such as hunger and thirst, or **external**, such as a loud noise or intense heat or cold. A **drive may be primary**, directly related to survival, like hunger and thirst; or **secondary** or learned, such as fear, anxiety, or the need to be successful and/or attractive. **Primary drives** are considered the building blocks of personality, and all acquired drives ultimately depend upon them. **Secondary drives** are usually culturally determined, while primary drives are not. Drives are the energizers of personality.

- **Cue**

A cue is a stimulus that indicates the **appropriate direction an activity should take.** Drives energize behavior, while cues guide behavior. Cues **determine when, where, and how a person will respond**. An example is the traffic light that cues the driver on whether to step on the brake or the accelerator.

- **Response**

Responses are **elicited by the drives and cues** that are **present and aimed at reducing or eliminating the drive**. The hungry (drive) person, seeing a restaurant (cue), must go to the restaurant (response). A response can either be **overt**, directly instrumental in reducing a drive, or it can be **internal**, entailing the thinking, planning, and reasoning that will ultimately reduce a drive. Some responses are more effective than others in reducing a drive. New responses must be learned for new situations. ***Old responses*** must be discouraged if they are no longer effective. The re-arrangement of response probabilities as new conditions emerge or as old conditions change is called learning

- **Reinforcement**

Any stimulus that causes drive reduction is a reinforcer. A reinforcer can be primary or secondary. It is **primary** if it satisfies a need related to survival. A **secondary** reinforcer is a previously neutral stimulus that has been consistently paired with a primary reinforcer.

If a cue leads to a response and the response leads to reinforcement, the association between the cue and the response will be strengthened. If this process is repeated many times, the organism is said to have developed a strong habit.

Dollard and Miller **aimed to explain human personality in terms of the learning theory**. This involves the study of the circumstances under which a response and a cue stimulus become connected. After learning has been completed, the response and cue are bound together in such a way that the appearance of the cue evokes the response. Learning takes place according to definite psychological principles.

Practice does not always make perfect. The connection between cue and response can be strengthened only under certain conditions. The learner must be driven to make the response and rewarded for having responded in the presence of the cue. This is the best summary of what learning theorists call the reinforcement theory: "To learn, one must want something, notice something, do something, and get something."

Stimulus Generalization

If there is an association between S and R, not only will S elicit R, but so will a variety of stimuli similar to S. **The greater the similarity of a stimulus to S, the greater will be its tendency to elicit R.** This is called stimulus generalization.

All learned responses generalize to other stimuli. If a child learns to fear snakes, he or she will probably also fear a rope. If an adolescent fears his or her father, s/he will tend to fear men who look like him.

However, most humans eventually learn to discriminate. **Discrimination is the opposite of generalization.** Thus, the child learns that snakes are to be feared, but that ropes are safe. The adolescent learns that his or her father may be feared under some circumstances, but that men of similar appearance pose no threat. Therefore, generalization causes the initial tendency for learned responses to be elicited by a wide range of stimuli, but further experience allows the person to discriminate and thus respond selectively to stimuli.

Dollard and Miller identified **two kinds of generalization**: primary and secondary.

1. **Primary generalization** is based on the **physical similarity** among stimuli. Two stimuli with similar physical attributes will probably elicit the same response. Primary generalization is **innate and governed by a person's sensory apparatus.**
2. **Secondary generalization** is based on **verbal labels**. Thus, one responds in a similar way to all individuals labeled "friendly" or those labeled "hostile."

Four kinds of conflict.

1. **Approach-approach conflict** is when the **organism is attracted to two things at the same time**. The conflict is **between two positive goals** that are equally attractive at the same time. For ***example***, a girl is asked by two equally attractive young men for a date on the same evening.

2. **Avoidance-avoidance conflict** is when the organism is **repelled by two things at the same time**. The choice is **between two negative goals**. Two idiomatic expressions capture this conflict: ***"Damned if you do and damned if you don't" and "Caught between the devil and the deep blue sea."***

Two kinds of behavior typically characterize an organism with an avoidance-avoidance conflict: **1) vacillation or indecision**, and **2) escapism.** Escape can be **either physically leaving the conflict situation or mentally escaping** by daydreaming or pre-occupation with other thoughts.

3. **Approach-avoidance conflict** is when the organism is **both attracted and repelled by the same object or goal**. A job may be attractive because of the salary, but unattractive because it is boring or because it keeps the person from doing more enjoyable things.

The significant features of the approach-avoidance conflict are:

A. The tendency to approach a goal is stronger when the subject is nearer to it.
B. The tendency to avoid a feared stimulus is stronger when the subject is nearer to it.
C. The strength of avoidance increases more rapidly with nearness.
D. The strength of the tendency to approach or avoid varies directly with the strength of the drive upon which it is based.
E. When two incompatible responses conflict, the stronger one will occur.

4. **Double approach-avoidance conflict** is when the organism is both **attracted and repelled by two objects at the same time**. The person has ambivalent feelings about two goal objects.

An ***example*** (Freudian) is a child attracted to her mother who satisfies her biological needs, but at the same time repelled by the mother who denied her a penis. She is attracted to her father because he possesses the valued organ, and yet is envious of him for having it. The child has ambivalent feelings about both parents.

Displacement

- One of the most important aspects of Freud's theory was his contention that frustrated drives do not simply go away but manifest themselves in other guises. In other words, if a need is not satisfied directly, it is displaced and satisfied indirectly.

Miller's conclusions on displacement are as follows:

1. When an organism can't respond to a desired stimulus, it will respond to another stimulus that is most similar to the desired stimulus. For example, if a woman is prevented from marrying the man she loves because he died, she will tend to marry a man similar to him.
2. If a response to a conflict, displacement will occur to an intermediate stimulus. For example, her next example, if a girl leaves her boyfriend, after a boyfriend will tend to be similar, but also different, in many ways, from her original boyfriend.
3. If there are strong avoidance tendencies to an original stimulus, displacement will tend to occur toward a very dissimilar stimulus. For example, if a girl's original romance was very negative, the choice of a next sweetheart will tend to be much different from the first.

Frustration-aggression hypothesis

In their book *Frustration and Aggression*, Dollard and Miller analyzed the Freudian notion that frustration leads to aggression. Frustration was defined as "that condition which exists when a goal response suffers interference." Aggression is defined as "an act whose goal response is injury to an organism."

Dollard and Miller identified three main factors that determine how much aggression will result from frustration:

1. **The drive level is associated with the frustrated response.**

The more intensely the person wants to attain a goal, the more frustrated he or she will be when the goal-directed activity is blocked, and thus the more aggressive that person will become.

2. **The completeness of the frustration**

Goal responses that are only partially blocked will lead to less frustration and therefore less aggression, in contrast to goal responses that are completely blocked.

3. **The cumulative effect of minor frustrations**

Minor frustrations will eventually add up to considerable frustration and, therefore, considerable aggression. If, on the way to school, one suffers a flat tire and then goes through unusually heavy traffic, only to find the school gates closed because of a student demonstration, one is likely to become more frustrated than one who had gone to the school directly and found the gates closed. In other words, the strength of aggression is a function of the magnitude of frustration.

Miller concluded that aggression is only one result of frustration. Other possible reactions to frustration are withdrawal or apathy, regression, and fixation.

The importance of language

Language is very important to Dollard and Miller's theory. **Thinking** is **essentially talking to oneself**. Thinking **allows for cognitive trial and error to replace behavioral trial and error.**
Images, perceptions, and words are cue-producing responses because they determine what will be the next response in a series. Thinking consists of a series of cue-producing responses. ***Two important kinds of thinking are a) reasoning, which is directed at solving current problems; and b) planning, which is directed at solving future problems.***

The unconscious mind

Dollard and Miller considered unconscious processes extremely important in determining behavior. There are two major categories of unconscious material:

Experiences that were never verbalized. Learning that occurs before language is developed but is not labeled or recorded in a way that allows it to be recalled becomes part of the unconscious. According to Freud, at this stage, experiences that are most crucial to adult personality development are unlabeled and thus cannot be recalled. These have a profound effect on one's later conscious life, although they remain unconscious.

Experiences that have been repressed. Some thoughts are uncomfortable because they cause anxiety. Examples are memories of an automobile accident where a loved one was killed, or thinking about having an affair with your best friend's husband. Anxiety is a negative drive; therefore, anything that reduces anxiety will be reinforcing. Anything that terminates an anxiety-provoking thought will be learned as a habit.

If, during a conversation, you suddenly find yourself wanting your best friend's husband, you may find such a thought anxiety-provoking because of your early moral training. You may respond by consciously putting the thought out of your mind. This conscious and deliberate effort to stop an anxiety-provoking thought is called **suppression**. **Suppression is learned because it is followed by drive reduction; it gains in strength.**

Eventually, the suppression of anxiety-provoking thoughts becomes anticipatory, and thoughts are terminated automatically before they can cause anxiety. When a potentially painful thought is aborted before it enters consciousness, the process is called **repression**. **Repression is the learned response of not thinking of those that are unpleasant.**

In **repression**, early thoughts act as signals. For example, a line of thought that will result in the experience of anxiety is terminated before it can become painful. Because it prevents the experience of anxiety, repression is said to be both anticipatory and a conditioned response.

Repression may appear beneficial because it allows a person to avoid painful thoughts. But it also has a negative effect: a thought that is repressed cannot be treated rationally since it does not enter consciousness. If a category of experiences is repressed, it cannot be considered logical, and activities related to it will tend to be unreasonable. Furthermore, any attempt to bring repressed material into consciousness is typically met with great resistance.

Suppression allows escape from anxiety-provoking thoughts, whereas repression allows avoidance of them. Repression is triggered when unacceptable material starts to emerge from the unconscious. Suppression is triggered when such material is already conscious. Both processes are learned responses that are maintained by the elimination, reduction, or prevention of anxiety.

Neurosis and symptom formation

Dollard and Miller agreed with Freud in viewing conflict as the heart of neurotic behavior. This conflict is unconscious and usually learned in childhood. **Neurotics** are **miserable, stupid about certain aspects of their existence, and often develop physical symptoms that are actually manifestations of the repressed conflict.**

If children are **severely punished for sexual activities**, they will learn to repress sexual activities and thoughts as adults. They will live with a sex drive that impels them to engage in sexual activities, but with a strong fear of punishment if they do so. Under these circumstances, thoughts of sexual activity will remain unconscious so that language cannot be used to describe and analyze them. Without language and adequate labeling, the higher mental processes cannot function. When these processes are knocked down by repression, the person cannot guide him/herself by mental means to resolve this conflict.

Neurotics often develop symptoms such as phobias, inhibitions, avoidances, compulsions, and physical disorders such as paralysis or nervous tics. These symptoms are manifestations of a repressed conflict and are learned because they reduce fear or anxiety. The symptoms do not solve the basic problem, but they make life temporarily bearable. For example, a combat pilot who underwent a harrowing disaster may walk away from the sight of any airplane. If he walks toward the plane, his anxiety goes up; if he walks away, it goes down. Walking away is thus reinforced.

Psychotherapy

According to Dollard and Miller, neurosis is learned. If it is learned, then it can be unlearned. **Psychotherapy provides a situation where neurosis can be unlearned**. For a learned response to be extinguished, experiences that cause the neurosis must not be followed by events that produced the original fear.

In psychotherapy, the **patient is encouraged to express painful, repressed thoughts**. The ***therapist*** is then **encouraging and positive and not punitive**. The therapist helps the patient understand these prohibited thoughts and how they developed. **Psychotherapy encourages patients to label their conflicts verbally and to confront them gradually.** The **therapist** should be non-threatening so that if and when repressed material emerges, it can be extinguished.

Therapy usually starts by discussing objects, people, or events that are only indirectly related to those causing strong anxiety. As distant but related events are discussed, a certain amount of anxiety is extinguished. The person gradually talks directly about anxiety-provoking events. Psychotherapy resolves conflict, repression, generalization, displacement, and extinction.

Development of Personality

Like Freud, Dollard and Miller believe that most neuroses have their origin in early childhood. This is a vulnerable time because children have no verbal labels for their feelings and experiences, and are not aware of time. Their lives vacillate between extreme discomfort and bliss. Also, because of their helplessness, infants are completely at the mercy of their parents for the satisfaction of their needs. How parents go about satisfying their infant's needs will make the difference between a healthy and a neurotic adult.

Dollard and Miller listed four critical training situations that have a profound influence on adult personality:

1. **The feeding situation**. The conditions under which the hunger drive is satisfied will be learned and generalized into personality attributes. For example, if children are fed while quiet and inactive, they may become passive or apathetic. If the mother is harsh and punitive during the feeding situation, the child may grow up disliking other people and avoiding them at all costs. However, if the mother is kind, warm, and positive during the feeding situation, the child may grow up with a positive attitude toward other people and seek them out as friends.
2. **Cleanliness training**. The events surrounding toilet training are extremely important to personality development. Although it is necessary to toilet train a child, how it is done influences the child's emerging personality.
3. **Early sex training**. In our culture, the first sex training a child normally receives is related to their early efforts to masturbate. This behavior usually elicits physical punishment and/or such terms as "nasty" and "dirty." The same is true with most sexually-oriented activities the child engages in. The sex drive is innate, but fear of sexual thoughts and activities is learned in childhood.
4. **Anger-anxiety conflicts**. Frustration is inevitable in childhood (and indeed at any other age). The most common reaction to frustration is aggression. In our culture, however, aggressive behavior by children is usually met with parental disapproval and/or punishment. Children are likely to be placed in an approach-avoidance conflict: they want to be aggressive but inhibit this impulse for fear of punishment.

ALBERT BANDURA (1925-)
Social Learning Theory

Albert Bandura was born in the small town of **Mundare, Alberta, Canada, on December 4, 1925**. After high school, he became an ordinary laborer of Alaska Highway in the Yukon.

He studied at **Columbia University** and received his **bachelor's degree** in **psychology in 1949**. In **1952**, he got his **Ph.D. at the University of Lowa** where he came under the influence of the behaviorist tradition and learning theory. It was also there that he met Virginia Varns, a nursing school instructor who became his wife; they raised two daughters. He took a postdoctoral position at the Wichita Guidance Center in Wichita, Kansas.

Bandura transferred to Stanford University, where he collaborated with his graduate student, Richard Walters, and produced his **first book, Adolescent Aggression**, in 1959. Unfortunately, their cooperation did not last long, for Walters died in a motorcycle accident.

In **1973**, Bandura became **president of the American Psychological Association** and **received many awards**, including the **Award for Distinguished Scientific Contribution (1980)** and **the Grawemeyer Award in Psychology (2008).** He has authored several books on social cognitive theories, self-organization and regulation, and self-efficacy. He has been listed as one of the most influential figures in modern psychology and is often described as the "greatest living psychologist."

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Self-regulation and Goal-setting. Goal-setting is a powerful source of self-motivation. For goals to be effective motivators, they must be specific and set at an appropriate level. When goals are long-term, as they often are, then sub-goals must be set. Proximal sub-goals provide immediate incentives and guides for performance, whereas distal goals are too remote to effectively mobilize effort or to direct what one does here and now

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Self-efficiency. Bandura argued that fear is largely a product of perceived inefficiency. We are afraid of situations we feel incapable of handling. As efficiency increases, fear diminishes.

Personality Development

Observational learning is the process by which a person's behavior changes as a result of observing another person's behavior, the model. Specific components of a model's behavior are called modeling cues. Such cues are present almost continually in real life. These can be live or symbolic.

Live modeling refers to observing models "in the flesh," i.e., models that are physically present.

Symbolic modeling involves being exposed to models indirectly, e.g., through movies, books, or oral descriptions of a person's behavior.

Three stages of observational learning:

1. **Exposure -** observation of action
2. **Acquisition** - learning an activity
3. **Acceptance** - whether or not the observer uses the modeling cues as a guide for his or her behavior

Direct reinforcement of the performance

Bandura believes that children develop social behavior patterns by observing successful models. A child who has difficulty in social and personality development was likely exposed to inconsistent reinforcement from models.

Three effects of observation and imitation:

1. **Modeling effect** - An observer attends to and imitates a new model, but the behavior must be one that they are capable of doing.

2. **Disinhibitory effect** - Modeling can release a whole class of behavior that is usually inhibited.
3. **Eliciting effect** - The observer can match the model's behavior with responses already in their repertoire or learned earlier.

Observation of models can lead to the acquisition of new responses and change the frequency of behavior already learned. This is illustrated in aggression, moral adjustments, and delay of gratification.

A. **Aggression**. Children exposed to aggressive models tend to respond to frustration with considerable aggression, while equally frustrated children who have observed models display inhibited behavior are relatively less aggressive and tend to match the behavior of this model. Direct training through reward, aversive stimulation, and other disciplinary procedures plays a vital role in shaping and maintaining patterns of social behavior.
B. **Moral judgment**. Reinforcement patterns play a vital role in the development of self-control. Positive reinforcement increases the frequency of aggressive responses.
C. **Delay of gratification**. The ability to delay gratification is determined by the expected outcome, as seen in direct personal experiences of models such as parents, peers, and self-reactions

IVAN PAVLOV – CLASSICAL CONDITIONING

- **Born:** September 14, 1849
- **Died:** on February 27th, 1936
- Received a medical degree at age 33
- **The father** of Classical conditioning, also known as Pavlovian conditioning
- His studies on the digestive system won him the Nobel Prize in 1904
- Pavlov's work set the foundation for John B. Watson and his idea of behaviorism
- Used theories of associative learning and behaviorism to create his own theory of classical conditioning

What is Classical Conditioning?

Pavlov had identified a fundamental associative learning process called classical conditioning. Classical conditioning refers to learning that occurs when a neutral stimulus (e.g., a tone) becomes associated with a stimulus (e.g., food) that naturally produces a behaviour.

Terms to know

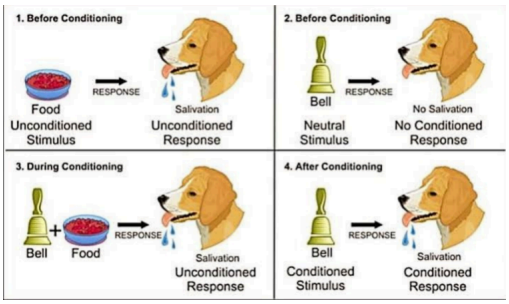
- **STIMULUS** - Anything that is presented and can cause a response.
- **RESPONSE** - How a person or animal reacts to a stimulus.

To understand Pavlov's Theory you need to know:

1. The Unconditioned Stimulus (US)
2. The Unconditioned Response (UR
3. The Neutral Stimulus (NS)
4. The Conditioned Stimulus (CS)
5. The Conditioned Responses (CR)

How Classical Conditioning Works

Classical conditioning involves forming an association between two stimuli, resulting in a learned response. There are three basic phases of this process.



Phase 1: Before Conditioning

- The initial phase of classical conditioning revolves around naturally occurring reflexes: an unconditioned stimulus (UCS), like the smell of food, automatically triggers an unconditioned response (UCR), such as feeling hungry, while a neutral stimulus initially elicits no response. This pre-conditioning stage sets the foundation for learning by establishing the baseline of natural stimulus-response pairs.

Phase 2: During Conditioning

- The second phase of classical conditioning involves the crucial pairing of a previously neutral stimulus with the unconditioned stimulus. Through repeated pairings, an association is formed, transforming the neutral stimulus into a conditioned stimulus. This conditioned stimulus, which was initially meaningless, now elicits a learned response, demonstrating the process of association-based learning.

Phase 3: After Conditioning

- After an association forms between an unconditioned stimulus and a conditioned stimulus, the conditioned stimulus alone will evoke a learned response, known as the conditioned response.

Key Principles of Classical Conditioning in Psychology

- Behaviorists have described a number of different phenomena associated with classical conditioning. Some of these elements involve the initial establishment of the response, while others describe the disappearance of a response.

Acquisition

- In classical conditioning, acquisition is the stage where a neutral stimulus becomes a conditioned stimulus by being paired with an unconditioned stimulus, resulting in a learned response that strengthens over time.

Extinction

- Extinction is the weakening and eventual disappearance of a learned response (conditioned response) when the conditioned stimulus is repeatedly presented without the unconditioned stimulus.

Spontaneous Recovery

- Spontaneous recovery is the unexpected return of a learned response after it has been extinguished, though it will fade quickly if the original association isn't reinforced.

Generalization

- Stimulus generalization means that a learned response to one stimulus also occurs with similar stimuli.

Discrimination

- Discrimination is the ability to tell the difference between similar stimuli, responding only to the specific conditioned stimulus.

What Are Examples of Classical Conditioning?

Fear Response: The Little Albert experiment showed that fear can be learned through classical conditioning by pairing a neutral stimulus with a fear-inducing stimulus.

Taste Aversions: Conditioned taste aversion is a learned aversion to a taste, developed after a single pairing of that taste with illness or nausea.

Organizational Behavior: Classical conditioning can be used in marketing to build positive associations with products, influencing consumer behavior.

BURRHUS FREDERIC SKINNER (1904-1990): Operant Reinforcement Learning Paradigm

Burrhus F. Skinner was **born on March 20, 1904, in Susquehanna, Pennsylvania, USA.** His **father** was an attorney who believed his son would also become a lawyer and named **his law firm Wm. A. Skinner & Son**. However, his father's encouragement was futile; Burrhus never joined the legal profession.

As a boy, **Skinner was very creative**. He fabricated model airplanes, merry-go-rounds, roller-skate scooters, blowguns, kites, and sleds. This interest in mechanical objects was evident in his invention and use of various devices in his experimental work in psychology. He **created the Skinner box**, an apparatus designed to **help investigators study the effects of different reinforcement schedules on animal behavior**; the cumulative recorder, a device to assess the rate of responding organisms; and the teaching machine, an instrument designed to facilitate learning in students.

Skinner initially planned to be a professional writer and enrolled at Hamilton College, majoring in English. This ambition was strengthened when a teacher introduced him to the poet Robert Frost, who encouraged him to continue writing. He devoted two years to writing before realizing he had produced nothing, and the dream of becoming a great novelist was remote. He wrote, "I was to remain interested in human behavior, but the literary method had failed me. I would turn to science. The relevant science appeared to be psychology, though I had only the vaguest idea of what that meant."

His commitment to **behavioral science began in 1928 when he enrolled at Harvard University, where E. Boring**, **Henry Murray**, and the physiologist and well-known positivist biologist W.J. Crozier became his mentors. He earned his **MA in 1930** and **his Ph.D. in 1931.**

Skinner's work **carried a strong implication for psychology**. In **1948,** he published his **well-known book, *Walden Two, about a fictional community based on experimentation and the use of naturally occurring contingencies of reinforcement.*** In **1935,** he **wrote Science and Human Behavior.** He exhibited how people's everyday activities could be understood using the science of behavioral analysis. In **1971**, he published his con**troversial book**, ***Beyond Freedom and Dignity***, where he suggested that society was retarded in its use of behavioral science because of its dedication to the myth of psychic entities as the source of behavior.

Skinner was one of the few behavioral scientists to win the Presidential Medal of Science. He became **chairman** of the **psychology department of Indiana University in 1945** and was **later invited to work at Harvard University, where he spent the rest of his life.**

On **August 10, 1990, B.F. Skinner was awarded a Citation for Outstanding Lifetime Contribution** to **Psychology** by the **American Psychological Association**. Eight days later, he died of **leukemia** at the **age of 86.**

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Skinner concentrated on the relationship between environmental events and behavior. He described **respondent behavior** as that which is **elicited or emitted by a known stimulus**. All **conditioned and unconditioned responses** are examples of respondent behavior. He believed that behavior can be explained and controlled purely by the manipulation of the environment containing the behaving organism, and that there is no need to take the organism apart or make any inferences about the events that are going on inside it.

Structure of Personality

Skinner was indifferent to structural variables and de-emphasized the biological or genetic determinants. Instead, he **focused** on **behavior that can be modifiable or changed.**

A key concept in Skinner's theory is the **process of operant conditioning**, simply stated as, ***"If the occurrence of the operant is followed by the presentation of a reinforcing stimulus, the strength is increased."*** In other words, if a response is followed by a reward, the response will be strengthened. A reinforcer, positive or negative, always increases the operant response rate.

Punishment does the reverse and has many undesirable consequences. Skinner distinguished punishment from forgetting and extinction. Each must be evaluated with respect to the speed of attaining its main objective and its possible unfavorable side effects.

Skinner believed that personality is nothing but a collection of behavior patterns; ergo, the development of personality is nothing but the development of these behavior patterns.

Operant Conditioning

Operant conditioning occurs when an **organism's spontaneous activities are either reinforced or punished**. Any consequence that increases the likelihood of a response is called reinforcement. **Extinction** of a response occurs when it is no longer rewarded or reinforced. Different schedules of reinforcement produce different patterns of behavior. When reinforcement depends on some responses **(ratio schedule)**, the organism tends to respond faster; if reinforcement is dependent on time **(fixed schedules)**, the organism tends to pause after a reward; if the reinforcement appears irregularly **(variable schedule),** the organism will keep going at a steady rate.

According to the operant theory, the **best way to teach** a complex skill is to **divide it into basic components and gradually shape it one step at a time.** The shaping process has two components: **1) differential reinforcement**, where some responses are reinforced but others are not, and **2) successive approximation**, where some responses are reinforced successively, but others are not. **Successive approximations** are reinforcers that are given one after the other until the desired response is attained.

The **shaping process** uses reinforcement to create new responses out of old ones. This method can be used to teach someone to do something they have never done before by rewarding the person for any action close to the desired response

***"Self is simply a device for representing a functional unified system of responses."* (Skinner, 1953) Self-control** refers to responses organized around primary reinforcers. Skinner believed that the social conscience and super ego are simply terms for behavior working to the advantage of the community.]

JEAN PIAGET– COGNITIVE DEVELOPMENT

- **BORN** ON **AUGUST 9, 1896**, IN **NEUCHÂTEL, SWITZERLAND**
- A **SWISS PSYCHOLOGIST *KNOWN*** FOR HISWORK ON **CHILD DEVELOPMENT**.
- **EDUCATION**: UNIVERSITYOF NEUCHÂTEL (1918), UNIVERSITY OF ZURICH
- **CHILDREN**: JACQUELINE PIAGET, LAURENT PIAGET, LUCIENNE PIAGET
- **WIFE**: VALENTINE CHÂTENAY
- ONE OF THE FIRST PEOPLE TO STUDY CHILDREN'S DEVELOPMENT
- THE FIRST TO MAKE A SYSTEMATIC STUDY OF THE ACQUISITION OF UNDERSTANDING IN CHILDREN

DEVELOPED THE THEORY OF COGNITIVE DEVELOPMENT TO EXPLAIN HOW CHILDREN ACQUIRE KNOWLEDGEAND LEARN. HE BELIEVED THAT **CHILDREN CONSTRUCT AN UNDERSTANDING OF THE WORLD THROUGH EXPERIENCES**

THAT CREATE DISEQUILIBRIUM FORCING ACCOMMODATION OR ASSIMILATION OF NEW SCHEMAS.

PIAGET IDENTIFIED **FOUR STAGES OF COGNITIVE DEVELOPMENT: SENSORIMOTOR, PREOPERATIONAL, CONCRETE OPERATIONAL, AND FORMAL OPERATIONAL** - WHERE CHILDREN'S REASONING AND THINKING SKILLS ADVANCE AS THE IRBRAIN MATURES. HIS THEORY EMPHASIZED THAT **LEARNING RESULTS FROM INTERACTIONS BETWEEN BIOLOGY AND EXPERIENCES IN THE ENVIRONMENT.**

COGNITIVE DEVELOPMENT

A progressive reorganization of mental processes as a result of biological maturation and environmental experience.

Children construct an understanding of the world around them, then experience discrepancies between what they already know and what they discover in their environment.

Theory not only focuses on understanding how children acquire knowledge, but also on understanding the nature of intelligence. It has specific characteristics, examples, and implications for education and positive psychology.

COMPONENTS

SCHEMA

- Represents one's understanding of how something works or what something is.

ASSIMILATION

- Describes how we interpret new experiences in terms of our current understanding or current schemas.

ACCOMODATION

- Refers to adjusting our current schema or creating a new schema when new experiences are presented.

EQUILIBRATION

- It's the process that moves us from confusion to understanding.

DISEQUILIBRIUM

- An unpleasant state that occurs when new information cannot be fitted into existing schemas.

PIAGET'S STAGES OF COGNITIVE DEVELOPMENT

SENSORIMOTOR STAGE (birth to 2 yrs old)

- During this period, infants learn about the world primarily through their **senses and motor actions**.
- Key developments include the emergence of **object permanence** and the gradual understanding of **cause-and-effectrelationships**.

- **Age Range**: Birth to approximately 2 years
- **Learning Method**: Through **senses** (sight, touch, taste, smell, hearing) and **motor actions** (reaching, grasping, crawling).

PREOPERATIONAL STAGE (2 to 7 yrs old)

- During this stage, children begin to **use symbols** and develop language, but their thinking remains largely intuitive and egocentric.
- **Age Range:** Approximately 2 to 7 years.
- **Key Characteristic:** Development of **symbolic thinking** (using words and images to represent objects).

CONCRETE OPERATIONAL STAGE (7 to 11 yrs old)

- This stage is about how kids start to think more and understand that things can stay the same even if they look different.
- They start to understand other people's perspectives better.
- Children can conserve number, mass, and weight. Conservation is the understanding that something stays the same in quantity even though its appearance changes.

- **Age Range:** Approximately 8 to 11 years.
- **Key Characteristic:** Development of logical thinking and the ability to understand that quantities remain the same despite changes in appearance.

FORMAL OPERATIONAL STAGE (12 and up)

- This stage is about adolescents who begin to **think abstractly and reason hypothetically.** They can also **reflect** on their own thinking and understand that there can be multiple perspectives.

- **Age Range:** Approximately **12 years and onward.**
- **Key Characteristic:** Development of abstract thought, logical reasoning, and the ability to think about hypothetical situations.