3. MAIN THEORIES ON ACQUISITION AND DEVELOPMENT DEL LANGUAGE.

3.1 LEARNING THEORIES: WATSON AND SKINNER OPERANT CONDITIONING

By the 1920s John B. Watson had left academic psychology and other behaviorists were becoming influential, proposing new forms of learning other than classical conditioning.

Perhaps the most important of these was Burrhus Frederic Skinner; Although, for obvious reasons he is more commonly known as B.F. Skinner. Skinner's views were slightly less extreme than those of Watson. Skinner believed that we do have such a thing as a mind, but that it is simply more productive to study observable behavior rather than internal mental events.

Skinner believed that the best way to understand behavior is to look at the causes of an action and its consequences. He called this approach operant conditioning.

Skinner's theory of operant conditioning was based on the work of Thorndike (1905). Edward Thorndike studied learning in animals using a puzzle box to propose the theory known as the 'Law of Effect'.

BF Skinner: Operant Conditioning
Skinner is regarded as the father of Operant Conditioning, but his work was based on Thorndike's law of effect. Skinner introduced a new term into the Law of Effect - Reinforcement. Behavior which is reinforced tends to be repeated (i.e. strengthened); behavior which is not reinforced tends to die out-or be extinguished (i.e. weakened).

Skinner (1948) studied operant conditioning by conducting experiments using animals which he placed in a "Skinner Box" which was similar to Thorndike's puzzle box.

B.F. Skinner (1938) coined the term operant conditioning; it means roughly changing of behavior by the use of reinforcement which is given after the desired response. Skinner identified three types of responses or operant that can follow behavior.

• **Neutral operant's**: responses from the environment that neither increase nor decrease the probability of a behavior being repeated.

• **Reinforces**: Responses from the environment that increase the probability of a behavior being repeated. Reinforces can be either positive or negative.

• **Punishers**: Response from the environment that decrease the likelihood of a behavior being repeated. Punishment weakens behavior.

We can all think of examples of how our own behavior has been affected by reinforces and punishers. As a child you probably tried out a number of behaviors and learnt from their consequences.

For example, if when you were younger you tried smoking at school, and the chief consequence was that you got in with the crowd you always wanted to hang out with, you would have been positively reinforced (i.e. rewarded) and would be likely to repeat the behavior. If, however, the main consequence was that you were caught, caned, suspended from school and your parents became involved you would most certainly have been punished, and you would consequently be much less likely to smoke now.

Reinforcement (strengthens behavior)
Skinner showed how positive reinforcement worked by placing a hungry rat in his Skinner box. The box contained a lever in the side and as the rat moved about the box it would accidentally knock the lever. Immediately it did so a food pellet would drop into a container next to the lever. The rats quickly learned to go straight to the lever after a few times of being put in the box. The consequence of receiving food if they pressed the lever ensured that they would repeat the action again and again.

Positive reinforcement strengthens a behavior by providing a consequence an individual finds rewarding. For example, if your teacher gives you £5 each time you complete your homework (i.e. a reward) you are more likely to repeat this behavior in the future, thus strengthening the behavior of completing your homework.

The removal of an unpleasant reinforcer can also strengthen behavior. This is known as negative reinforcement because it is the removal of an adverse

stimulus which is 'rewarding' to the animal. Negative reinforcement strengthens behavior because it stops or removes an unpleasant experience.

For example, if you do not complete your homework you give your teacher 5.00 you will complete your homework to avoid paying 5.00, thus strengthening the behavior of completing your homework.

Skinner showed how negative reinforcement worked by placing a rat in his Skinner box and then subjecting it to an unpleasant electric current which caused it some discomfort. As the rat moved about the box it would accidentally knock the lever. Immediately it did so the electric current would be switched off. The rats quickly learned to go straight to the lever after a few times of being put in the box. The consequence of escaping the electric current ensured that they would repeat the action again and again.

In fact Skinner even taught the rats to avoid the electric current by turning on a light just before the electric current came on. The rats soon learned to press the lever when the light came on because they knew that this would stop the electric current being switched on.

These two learned responses are known as Escape Learning and Avoidance Learning.

Punishment (weakens behavior)
Punishment is defined as the opposite of reinforcement since it is designed to weaken or eliminate a response rather than increase it.

Like reinforcement, punishment can work either by directly applying an unpleasant stimulus like a shock after a response or by removing a potentially rewarding stimulus, for instance, deducting someone's pocket money to punish undesirable behavior.

Note: It is not always easy to distinguish between punishment and negative reinforcement.

Behavior Modification
Behavior modification is a set of therapies / techniques based on operant conditioning (Skinner, 1938, 1953). The main principle comprises changing environmental events that are related to a person's behavior.

For example, the reinforcement of desired behaviors and ignoring or punishing undesired ones. This is not as simple as it sounds — always reinforcing desired behavior, for example, is basically bribery.

There are different types of positive reinforcements. Primary reinforcement is when a reward strengths a behavior by itself. Secondary reinforcement is when something strengthens a behavior because it leads to a primary reinforcer.

Examples of behavior modification therapy include token economy and behavior shaping

Token Economy
The token economy is a system in which targeted behaviors are reinforced with tokens (secondary reinforcers) and are later exchanged for rewards (primary reinforcers). Tokens can be in the form of fake money, buttons, poker chips, stickers, etc. while rewards can range anywhere from snacks to privileges/activities.

Token economy has been found to be very effective in managing psychiatric patients. However, the patients can become over reliant on the tokens, making it difficult for them once they leave prisons, hospital etc.

Teachers use token economy at primary school by giving young children stickers to reward good behavior.

Operant Conditioning in the Classroom
Behavior modification therapy is much used in clinical and educational psychology, particularly with people with learning difficulties. In the conventional learning situation it applies largely to issues of class- and student management, rather than to learning content. It is very relevant to shaping skill performance.

A simple way of giving positive reinforcement in behavior modification is in providing compliments, approval, encouragement, and affirmation; a ratio of five compliments for every one complaint is generally seen as being the most effective in altering behavior in a desired manner.

Operant Conditioning Summary

Looking at Skinner's classic studies on pigeons' behavior we can identify some of the major assumptions of behaviorists approach.

• Psychology should be seen as a science, to be studied in a scientific manner. Skinner's study of behavior in rats was conducted under carefully controlled laboratory conditions.

• Behaviorism is primarily concerned with observable behavior, as opposed to internal events like thinking and emotion. Note that Skinner did not say that the rats learnt to press a lever because they wanted food. He instead concentrated on describing the easily observed behavior that the rats acquired.

• The major influence on human behavior is learning from our environment. In the Skinner study, because food followed a particular behavior the rats learned to repeat that behavior, e.g. classical and operant conditioning.

• There is little difference between the learning that takes place in humans and that in other animals. Therefore research (e.g. classical conditioning) can be carried out on animals (Pavlov's dogs) as well as on humans (Little Albert). Skinner proposed that the way humans learn behavior is much the same as the way the rats learned to press a lever.

So, if your layperson's idea of psychology has always been of people in laboratories wearing white coats and watching hapless rats try to negotiate mazes in order to get to their dinner, then you are probably thinking of behavioral psychology.

Behaviorism and its offshoots tend to be among the most scientific of the psychological perspectives. The emphasis of behavioral psychology is on how we learn to behave in certain ways. We are all constantly learning new behaviors and how to modify our existing behavior. Behavioral psychology is the psychological approach that focuses on how this learning takes place.

Critical Evaluation

Operant conditioning can be used to explain a wide variety of behavior, from the process of learning, to addiction and language acquisition. It also has practical application (such as token economy) which can be applied in classrooms, prisons and psychiatric hospitals.

However, operant conditioning fails to taken into account the role of inherited and cognitive factors in learning, and thus is an incomplete explanation of the learning process in humans and animals.

Watson (1878-1958)

John Watson was the founder of behaviorist theory. Quite innovatively for the time, he found Freudian-based explanations of behavior too theoretical and disagreed with the eugenic idea of heredity determining how one behaves.

Instead, he believed that people's reactions in various situations were determined by how their overall experiences had programmed them to react.

In experiments he performed in the early 1900s he showed that he could condition, or train, children to respond to a certain stimulus in a way that was different from what their normal response would be in the absence of such training.

For example, one infant named Albert who had previously liked and attempted to pet a white rat was later conditioned by Watson to come to fear it.

This was done by producing loud clanging noises whenever the rat was brought into Albert's line of sight; in a few weeks time, the rat alone could induce tears and an attempted flight response by the terrified baby. Because Watson repeatedly stimulated Albert to feel fear when the rat was present, the infant's experiences taught it to be afraid around rats and react accordingly.

Albert not only feared rats but had been programmed through the experiment to fear most other white and fuzzy objects as well, from coats to Santa Claus beards.

3.2 COGNITIVE DEVELOPMENT THEORIES: Bloom and Brunner. Jerome Bruner, Benjamin Bloom and Jean Piaget are three Theorists that studied cognitive and behavioral development. All three of these Theorists

are renown in their field and for their work in education. Jean Piaget's approach is central to the school of cognitive theory known as "cognitive constructivism." Bruner's work put more emphasis on the part played by language development and the extent that other people play in enabling children to learn. Bloom is credited with his work on taxonomy of questioning technique that is used by teachers.

Jean Piaget

Piaget's view of how children's minds work and develop has been enormously influential, particularly in educational theory. "He is best known for his work in the area of Developmental Psychology." He believed that children moved through certain cognitive stages of development into adulthood. The stages of development arise naturally out of exploration with one's environment. Piaget believed that children learn to accomplish certain tasks only when they were psychologically and developmentally mature enough to do so.

According to (Craighead, & Nemeroff, 2001) Piaget divided the child's path of development into four stages, which began with birth and culminated in the teen years. These stages are: Sensorimotor stage (0-2 yrs) is where the child interacts with the environment by sucking, pushing, grabbing, and shaking things. These interactions help build a cognitive foundation about the world. Preoperational stage (2-7 yrs) is where the child is not able to understand abstract concepts and will need to repeat experiences before they understand the cause and effect connection. Concrete operations (7-11 yrs) are where the child starts to develop a knowledge base from his experiences.

The child also begins to be able to use this knowledge base to make more sophisticated explanations and predictions. Formal operations (11-15 and up). The child's knowledge base and cognitive is similar to those of an adult. The child's ability to think in the abstract increases dramatically. The main concept of Piaget's theory of cognitive development is that these stages do not vary in order, cannot be skipped, and should not be rushed. This means that before these age's children are not capable (no matter how bright) of understanding things in certain ways, and has been used as the basis for scheduling and developing the school curriculum.

Jerome Bruner

Bruner believed that children learn best by their social interactions and by someone leading them through their learning experience. According to

(McLeod, 2007) Bruner believes that even a very young learner is capable of learning any material so long as the instruction is organized appropriately. He proposed three modes of representation. These modes of representation are the way in which information or knowledge are stored and encoded in memory. The first mode is called Enactive. Enactive involves receiving or registering action based information and storing it in our memory.

This involves representing past events through motor responses. It mainly involves knowing how to do something a series of actions that are right for achieving a certain result. One example would be tying one's shoes. The second mode is called Iconic. This is where information is stored in the form of images. This would be a mental picture in the mind's eye. For some people this image is conscious while others say they do not experience it. This may explain why some people find it helpful to have a diagram or illustration to go along with the verbal information. The third mode is called Symbolic and this stage develops last. This is where information is stored in the form of a code or symbol such as language. In addition to his work on learning, Bruner also developed the spiraling approach to curriculum. The idea of the spiral curriculum, is basically that as it develops it should revisit this basic ideas repeatedly, building upon the basic ideas until the student has grasped the full formal symbolic mode of learning.

Benjamin Bloom
Benjamin Bloom is best known for Bloom's taxonomy. Bloom's taxonomy refers to three learning objectives. These three learning objectives are Cognitive, Affective, and Psychomotor; also known as thinking/head, feeling/heart and doing/hands.. The taxonomy is a concrete assessment tool for educators to use. In later years, according to (Eisner, 200) he further classified them into six educational objectives in which students should engage. His levels of thinking are listed from lowest to highest in terms of complexity. His original taxonomy was first published in 1956 and then revised in 2001. Bloom was interested in providing a useful practical tool that was congruent with what was understood at that time about the features of the higher mental processes. Bloom's contributions to education extended well beyond the taxonomy. He was fundamentally interested in thinking and its development.

Comparing Theorists
According to (McLeod, 2007) there are obvious similarities and striking differences between Bruner and Piaget. Similarly, both theorists believed

that cognitive development occurred through interaction with their environment. While Piaget and Bruner focused on childhood development, Bloom focused his work on learning environments and instructional approaches that relied on student behavioral objectives. He changed the way that educators think about instruction delivery. His main work focused on the incorporation of academic standards and integration of multiple subjects in on lesson. In the field of education and childhood psychology and development there are many similarities and differences between theorists. While Bloom is well respected in the Education field, his focus on research was not on child development but rather on assessment techniques for educators.