Psychology of Personality and Individual Differences: Theory and Applications
Professor Dilwar Hussain
Department of Humanities and Social Sciences
Indian Institute of Technology, Guwahati
Week 6
Lecture 13: Behaviorism and personality 2: Operant conditioning and personality

I welcome you all to module 6 of this course. This module is about behaviorism and learning perspectives in terms of understanding personality. So, today's lecture is lecture number 13, which is the second lecture of this module. Today's lecture is about operant conditioning, a particular perspective within the behavioral school of thought, and how it relates to personality. This is what we will be talking about in today's lecture.

Before we talk about today's lecture, let me briefly recap the last lecture. So, lecture 12, which was the first lecture of this module, talked about the Pavlovian classical conditioning perspective and how it relates to personality. We discussed various basic concepts of Pavlov's theory of classical conditioning, we tried to understand the basic terms and the experiment that led to the development of this whole concept of classical conditioning.

We discussed various processes associated with this concept of classical conditioning, including stimulus generalization, stimulus discrimination, extinction, and so on. We also tried to understand how this perspective, or learning perspective, or classical conditioning perspective, relates to, and how it can explain certain personality characteristics that human beings display. So, in that context, we tried to understand that classical conditioning can explain a lot of the emotional aspects of human behavior, referring to it, certain experimental research also provided evidence for certain traits like neuroticism and how it can be explained using classical conditioning. We talked about J.B. Watson and his contribution to behaviorism, we also talked about the basic ideas of behavioral therapy, some of the ideas from classical conditioning, and how it can be used in therapy sessions.

In continuation, we discussed that during the late 90s and the beginning of 2000, some of them renewed interest in classical conditioning and how this concept has been used in certain socio-psychological processes and so on. So, in today's lecture, we will be talking mostly about Skinner's operant conditioning. This is also a very prominent paradigm within

behaviorism. We will talk about the process of operant conditioning, more specifically reinforcement and punishment, schedules of reinforcement, the concept of shaping, and how Skinner viewed the concept of personality.

Skinner's perspective on behaviorism is generally called radical behaviorism because he was a very orthodox follower of scientific methodology, and his perspective on behaviorism. There was no scope for any kind of looseness around the basic ideas of behaviorism. So, his whole idea of behaviorism is also called radical behaviorism, and he is probably one of the most important figures within behaviorism and overall the personalities of psychologists among all psychologists. He proposed something called operant conditioning.

John J. B. Watson, who was also called the father of behaviorism, left the field of psychology, and behaviorism which was carried forward by many other psychologists later on, including people like Clark Hull, who developed a systematic driven theory of learning, John Dollard and Neil Miller applied Hull's theory to the phenomena of drives and intra-psychic conflicts which are relevant to psychoanalysis. She tried to apply some of the behavioral concepts within psychoanalysis.

However, the most influential figure after J. B. Watson, not only within behaviorism but overall in the field of psychology, especially in 20th-century psychology, was B. F. Skinner, who was a Harvard psychologist known for his impact in the field and particularly his contribution to the school of behaviorism. Skinner is regarded as one of the most eminent psychologists of the last century, and he expanded behaviorism beyond the typical classical conditioning paradigm and made it a more comprehensive philosophy in terms of behaviorism as a school of thought. So his contribution to behaviorism is immense and that is what we will be looking at some of his contribution.

He articulated broad behavioral principles and developed technologies aimed at improving human experiences. He not only provided various theoretical perspectives within behaviorism, but he also gave many tools for implementation and application in various aspects of human life as well as animal life. He expanded this whole scope of behaviorism beyond just typical learning and classical conditioning. Skinner was influenced by the

research of Pavlov and Watson, and he later expanded their work. He did not specifically deny the existence of unconscious processes or the inner state of the human mind. He believed these were not necessary to explain human behavior, and a lot of the approaches that were already existing at that time were mostly unscientific, particularly psychoanalysis. Skinner accepted this principle of classical conditioning because that is also part of behaviorism conditioning, but he believed that the application of classical conditioning in terms of explanation and application is very limited in the range of learning situations. So, he expanded this whole scope.

He argued that the consequences of behaviors are crucial to learning as it is one of the main concepts of his theory that the consequences of behavior are very important, affecting the likelihood of behavior being repeated. He stated that to understand the impact of learning principles, one of the things that we should focus on is, what are the consequences of a behavior. When a person carries out a behavior, what are the consequences of that behavior? So that is more important in terms of determining whether that behavior will be repeated again or not.

A lot of human behavior could be explained by understanding this relationship or association between the behavior and the consequences. In the case of classical conditioning, the association was between stimulus and response. Most cases of stimulus-response situations in the case of classical conditioning were very automatic and automatic processes. Like in the case of that experiment, the dog experiment, food, and saliva are automatic processes, and then the associations are formed within another neutral stimulus. But in the case of operant conditioning or Skinner's concept, he was focusing more on normal behavioral things that people do, and what are the consequences of those behaviors. That determines a lot of varieties of behavior that we repeat or whether we stop some behavior.

According to Skinner, the classical conditioning model of stimulus-response is too simplistic. It can explain very simple phenomena, but it cannot explain a lot of complex phenomena and a lot of behavioral situations where more complexities are involved. He demonstrated what happens after a response such as praise or criticism influences whether the behavior is repeated. For instance, praise for a seminar presentation increases the

likelihood of future presentations while criticism decreases it. This is an example where he was focusing on the consequences of a behavior, and that will determine the future course of action. So, if some behavior is rewarded, it is more likely to be repeated, and on the other hand, if a behavior is not rewarded, criticized, or punished, then the possibility of such behavior decreases in the future.

Let us understand this whole concept of operant conditioning as a concept of learning and how it can explain a lot of human behavior, as well as animal behavior. One of the basic concepts within operant conditioning is the concept of operants. From there the operant conditioning came. What is an operant? So, in Skinner's model, operants refer to behavior that is influenced by the consequences that follow them. Unlike reflexive responses in classical conditioning, operants are voluntary behaviors that an organism performs, which then produce effects in the environment. Therefore, operants are any behavior that an animal or a human performs, which is voluntary behavior.

So, for example, somebody walks, somebody sits, and somebody plays. All these are voluntary behaviors that you intentionally carry out certain behaviors. And each of these behaviors has certain consequences. Therefore, when an organism is actively involved in a behavior voluntarily, all these kinds of behavior are called operands. If you look at classical conditioning, the behaviors they focus on in classical conditioning are mostly reflexive processes. Like saliva production on the site of food. This is not a voluntary thing, rather it is an involuntary response. So, most of the classical conditioning situations were reflexive responses like fear responses and so on, as it happens automatically. But in the case of operant conditioning, an operant is mostly a voluntary action that an organism carries out in an environment, and it produces certain effects in the environment. Depending on the effect, the future course of action takes place. So operants are actions that operate on the environment to produce outcomes, and these outcomes shape future behavior. Any behavior or action that operates in an environment and is voluntary, all these kinds of action can be called operants. Skinner was more interested in operants because most of the day-to-day actions are that only. Very few actions are actually in the reflexive category. But most of the behaviors that we do or an animal does are operant behaviors, therefore, it’s impact will be far-reaching as compared to classical conditioning. Skinner's

view is that stimuli in the environment do not force the organism to behave or incite it to act. So just the presence of a stimulus automatically does not incite or stimulate any kind of action, therefore the initial cause of behavior is the organism itself. It is the organism that decides to take an action. Just the presence of any stimuli doesn't automatically, will not stimulate an action, the organism itself is the cause or source of action. So there is a statement that very clearly explains what these operands are.

There are no environmental eliciting stimuli for operant behavior. Operant behavior need not be carried out in response to some stimulus in the environment. You can just walk, or sit, not because of some particular reasons, but those kinds of behaviors will also be called an operant behavior as it simply occurs. In the terminology of operant conditioning, operants are emitted by the organism. So whatever organism does, for example, the dog walks runs, and romps, the bird flies, and the monkey swings from tree to tree. The human infant bubbles vocally. In each of these cases, the behavior occurs without any specific eliciting stimulus.

All these behaviors, say walking, running, swinging, are not because of any specific stimulus that causes this behavior. These are operant, automatically voluntary behaviors that originate in the organism itself. So it is in the biological nature of an organism to emit operant behavior. It is like an organism will do various actions irrespective of whether it is stimulated or not. So, all these are collectively called operands.

Now, next is about what the process of this operand conditioning is. How does it happen? So, the basic concept behind operand conditioning is that what are the consequences of operands or any behavior that will determine the future course of actions. So, whenever an organism or any humans or animals carry out certain actions, there are certain consequences. Now, these consequences will determine what the future course of actions will be, or whether that particular behavior will be repeated or not. The whole process of operant conditioning is the association between the action and the consequences. So, one of the main principles of operant conditioning is the concept of reinforcement. Reinforcement, basically in terms of the Skinner model of learning, is a central concept. It refers to any consequence that strengthens or increases the likelihood of a behavior being repeated. So, reinforcement is any consequence of a behavior that increases the likelihood

of that behavior. If an action is reinforced, that means the probability of that action will increase in the future. So, in layman's terms, it is more like a reward or any kind of rewarding experience. The consequence of any action, when it is rewarding, the probability of that behavior in the future also increases because the person learned that if I do this action, the consequences will be good. So, in that sense, the idea is that any consequence that increases the probability of behavior in the future is more like a rewarding consequence. So that is the meaning of reinforcement in the concept of operant conditioning.

So, reinforcement can be positive or negative, but in both cases, the probability of behavior will increase. So that is the basic definition of reinforcement. When we say reinforcement basically, the probability of behavior increases. Only then can we call it a reinforcement. Therefore, any consequence that increases the probability will be called a reinforcement.

Now this reinforcement can be of two categories. One is positive reinforcement and the other is negative reinforcement. Positive reinforcement involves presenting a pleasant or rewarding stimulus after a behavior. So, when a person carries out an action, then the consequence of that action is rewarding or it is pleasant, it is called positive reinforcement. As a result of an action, a rewarding stimulus or any rewarding consequence is presented, called positive reinforcement. So, something positive is presented after the action, as a result, the probability of the behavior increases. For example, A teacher praises a student for completing their homework on time. This praise is a positive stimulus or positive reinforcement. It reinforces the behavior of timely submissions, so it is more likely that the particular student will also complete their homework on time in the future because one action of completing the homework was rewarded or praised by the teacher. So, the probability of that behavior increases, called positive reinforcement. Something positive is presented after the action. So then it is called as a positive reinforcement.

Negative reinforcement is again a reinforcement where behavior increases but in a negative sense. How is that negative? It involves removing an unpleasant stimulus after the behavior. So, if something unpleasant is removed as a consequence of that behavior, then also the probability of behavior increases. So we can say reward can be in two categories. One is when I get something positive which is is positive reinforcement. We also

experience a rewarding experience when something bad or negative is removed from our lives. That is also a reward because if something is disturbing in your life and if it is removed, you feel good about it. So, removal of a negative stimulus is also a reward, or reinforcement, and it is considered to increase the probability of that behavior, defined as negative reinforcement. Therefore, something unpleasant is removed as a consequence of that behavior, and the probability of that behavior increases in the future. For example. A driver starts regularly obeying the speed limit to avoid receiving traffic tickets or traffic fines. So traffic fine is an unpleasant stimulus, because if the driver follows the traffic rule, the possibility of an unpleasant stimulus decreases when this unpleasant stimulus is removed, so a penalty won't be there, resulting in driving under the speed limit or maintaining the traffic rule. So that is an example of a negative reinforcement where a fine or a penalty is a negative stimulus, and no one likes it, as a result, this will be removed if you follow the traffic rule. So in that sense, it is a negative reinforcement.

Another example is when a person takes painkillers to relieve a headache. So relieving a headache is a negative reinforcement because nobody likes a headache, so if you take a pill or a medicine and it removes your headache, your probability of taking the pill in the future also increases because that will remove something negative and it is rewarding in that sense. These are examples of negative reinforcement, in the case of negative reinforcement, something unpleasant is removed as a consequence of the behavior. In the case of positive reinforcement, something positive is presented to you.

The next concept within operant conditioning is called punishment. In Skinner’s framework, punishment refers to the process by which a consequence is applied to decrease the likelihood of a behavior reoccurring in the future. So, this is different from reinforcement. In punishment, you present something as a consequence of the behavior, certain consequences are presented to the student or any kind of individual or organism to decrease the probability of the behavior.

So, in the case of reinforcement, either positive or negative reinforcement, the probability of behavior increases, while in the case of punishment, when something is presented as a mostly negative stimulus then the probability of behavior decreases. In the case of punishment, the basic idea is to decrease the behavior so that this behavior does not occur

in the future. In the case of reinforcement, the focus is on increasing that behavior, so the probability of behavior increases. So, that is the basic difference between punishment and reinforcement.

Punishment again can also be positive punishment or negative punishment, just like positive reinforcement, and negative reinforcement just in an opposite sense. So punishment involves the presentation of aversive stimuli. When you present something negative as a consequence of the behavior, then it is called positive punishment. For example, if a child does some bad behavior, parents scold them, so that is a kind of positive punishment, you are presenting something negative, as a child doesn't like it, and as a consequence of the behavior, you are scolding that particular child. So that is a case of positive punishment. The punishment also includes the removal of a pleasant stimulus. So, as we already explained removal of an unpleasant stimulus is a reward. Similarly, the removal of a pleasant thing is also punishment. So something that you like but is removed as a result of certain behavior, also is a kind of punishment for a person, that is called a negative punishment to reduce the frequency of a particular behavior. So, in the case of punishment, the focus is on reducing the behavior.

In the case of reinforcement, increasing the behavior. We will see more specific examples. So, Skinner was not really in favor of using punishment as a control of behavior, whose effects he found tend to be temporary and the administration may lead to people rebelling against the use, because the impact of punishment may not be very long term. It is generally short-term, and many times people may rebel against the person or the sense of punishment or use of punishment. So overall the effect of punishment may not be very productive as far as Skinner's perspective. He was not in favor of using punishment for controlling behavior. He was more in favor of using reinforcement for controlling behavior. So, throughout his career, Skinner emphasized the value of positive reinforcement in shaping behavior. He was more focused on positive reinforcement, presenting something positive to increase a behavior. So, let us summarize the different concepts that we used. So, positive punishment is adding an unpleasant stimulus to decrease a behavior. For example, scolding a child for drawing on the walls. So if a child does something bad like drawing on the wall, the parents come and scold that child. This is an example of a positive

punishment where something negative is presented to decrease that behavior. Negative punishment is removing a pleasant stimulus, something pleasant is removed as a consequence of the behavior to decrease that behavior. For example, taking away a toy when a child misbehaves. So, a child loves a toy, but when they misbehave, the parents take away that toy and say that if they do not behave properly, they will not give it, something positive is taken away. So, that is an example of negative punishment. So this is about punishment.

Positive reinforcement, as we said, is adding a pleasant stimulus to increase the behavior like giving a student praise for completing homework. Negative reinforcement is removing an unpleasant stimulus to increase the behavior, like taking painkillers to decrease a headache and so on. So if you see outcomes, both cases of positive reinforcement and negative reinforcement, it strengthens the behavior. In the case of punishment, in both cases of positive punishment and negative punishment, it weakens the behavior. So, these are some of the basic differences between the concept of reinforcement and punishment. So, a lot of our human behavior is shaped by these principles. Now, when we talk about reinforcement, Skinner has done a lot of detailed research on what are the different kinds of reinforcement, how it impacts the varieties of reinforcement, which are possible ways of applying the reinforcement, and how all these types of reinforcement impact the outcome and so on. So, one of the concepts in reinforcement, because reinforcement was mainly focused by Skinner was not focusing much on punishment. He said one of the things that can influence human behavior is not only just reinforcement or reward, but what are the schedules of this reinforcement and how it is given is also very important.

Schedules of reinforcement mean what is the pattern of giving reinforcement. That will also have an impact on human behavior to what extent it is repeated. So these are called schedules of reinforcement. So reinforcement can be provided according to different schedules which affect how quickly and strongly behavior is learned and maintained. So what kind of schedules are applied in case of reinforcement will determine, how strongly something is learned or how strongly something is avoided, and so on.

Two major categories of schedules of reinforcement. One is continuous reinforcement. Basically in this schedule, a behavior is reinforced every time it occurs. So continuous

means every time a behavior or action is performed by an individual, it is rewarded, so that is a continuous reinforcement. Whenever it happens, it is rewarded. This is useful for establishing a new behavior but can lead to rapid extinction if the reinforcement stops.

So, initially, to develop good habits or some good behavior, continuous reinforcement can be a good strategy, but then it can very easily stop if reinforcement is stopped. As a result that behavior may also get extinct very easily because there is an expectation every time it is rewarded, the moment the reward stops the behavior may also stop so that is called a continuous reinforcement.

Another is intermittent or partial reinforcement. In this case reinforcement, a behavior is not reinforced every time it occurs. There are several types of intermittent reinforcement. In partial reinforcement, every time a behavior is shown by an individual or an organism, it is not rewarded. Sometimes it is rewarded, sometimes it is not. So, there can be varieties of partial reinforcement. Let us see what are the possibilities in terms of intermittent or partial reinforcements. If you see schedules of reinforcement, one is continuous, one is partial. Within the partial, there can be an interval schedule or a ratio schedule.

Within the interval, there can be a fixed interval schedule or a variable interval schedule. Within the ratio schedules, there can be fixed ratio schedules or there can be variable ratio schedules. So, let us see all of these, determining what are these partial schedules of reinforcement. A fixed ratio schedule is when reinforcement is provided after a fixed number of responses. For example, let us say in an animal experiment, a rat receives food pellets every 10^{th} press of a lever. Skinner did most of his research using rats. The moment the rat shows certain behavior, the reward is given in terms of food pellets. Let us say if the rat presses a lever in a box, every time it presses the lever, the reward won't be given but let us say after the 10^{th} time the liver is pressed by a rat then the food is given.

So every 10^{th} time, the lever is pressed, it is called a fixed ratio schedule**.** So after every fixed number of times when an action is produced, a reward is given. Let us say after every 5^{th} time, every 6^{th}, every 10^{th} time, and so on. As a result, certain fixed intervals are maintained in terms of giving reinforcement, called a fixed ratio schedule. The ratio refers

to the number of responses. So ratio means a number of responses, so certain numbers after certain numbers, the reward is given.

In terms of the interval, it is time-based. After a certain number of periods, the reward is given, which can be a fixed time or a variable time. Here is the ratio number of responses, it may be stated that after a number of responses, a reward is given, or it is a variable number of responses reward is given. So, when we say interval, it is time-based, and when it says ratio schedule, it is number of responses based. So, the fixed ratio schedule means after a fixed number of times of response, like after every 10^{th} time a response is shown, a reward is given. A variable ratio schedule means there is no fixed pattern. Sometimes, it may be that after the second instance of the behavior, a reward is given, or it may be after the 5^{th} instance, or then it may be after the 10^{th} instance. So, there is no fixed pattern. The individual cannot predict when I am going to get the reward. For example, a lot of these gambling machines, such as slot machines. Are based on variable ratio schedules. So, people do a lot of this gambling, in slot machines where you press and certain numbers come and then, if you get certain numbers, certain prices are there and so on.

You do not know when this particular number is going, the price is going to come. Sometimes you may press,10 times and nothing is coming. Sometimes the first time it may come. There is no predictability there. So, that is an example of a variable ratio schedule. So, your reward is not predictable, and therefore you can't say when I am going to get a reward. So that is called a variable ratio schedule. A fixed interval schedule is an interval schedule, meaning time-based. So after a fixed time, you get a reward. For example, reinforcement is provided for the first response after a fixed period. For example, a worker receives a paycheck every two weeks. So after every two weeks or after every month, you get a certain salary or paycheck. So that is the reward based on a fixed interval schedule. Every month end you will get a salary, so that is a fixed interval.

Every month you will get it. Every 30 days it is fixed. So that is called a fixed interval schedule. Now, in a variable interval schedule, again you do not know how much time you are going to get a reward. So, the period is variable and you cannot make a fixed period. So, reinforcement is provided for the first response after varying intervals of time-based on an average. For example, checking for a text message might be reinforced on a 30-minute

schedule, or messages come at unpredictable times. We will see more details examples of this. So, here again, is a summary of all the schedules of reinforcement.

The last one is the variable interval schedule, here the reinforcement is given for the first response after varying intervals of time-based on an average. So, again after varying intervals of time, you are likely to get the reward. For example, the teacher takes pop quizzes in a class. So, quizzes will be taken after one or two weeks, the students, therefore, would not be able to know as there is no fixed pattern, and the students cannot tell when the next class quiz will be. The teacher makes it very unpredictable in terms of variable intervals. Sometimes, they may take the quiz one week or maybe after a month, there will be a quiz. So students are not aware, as it can be any time. So that is an example of variable interval schedules of reinforcement.

Fixed interval, as I have already said, could be, after receiving most of the salary and paychecks, after a certain interval of time. A variable ratio schedule is like winning money on a slot machine. You can never predict when you are going to get a prize in the slot machine. Most of these gambling using slot machines are based on a variable ratio schedule. The fixed ratio is again earning a bonus on every 10^{th} sale made, which is an example of a fixed ratio schedule. So every 10^{th} sale you make of a product, you will receive a certain reward or bonus. So that is an example of a fixed ratio schedule. In the case of continuous reinforcement, as you see every response is reinforced. Now if you see how it impacts our behavior. To what extent or what are the patterns of behavior that all these schedules of reinforcement develop within us?

So, if you see continuous reinforcement, in this case, generally behavior that is formed by continuous reinforcement, they can very rapidly get extinct also, as we already explained. Every time you are given a reward after a behavior, the moment the reward stops, the behavior is also likely to stop, if the reward does not come after continuous rewarding. Because the person understands, that every time I show this behavior, I should get a reward. The moment the reward stops, the person will also stop showing those behaviors. So, these are low-resistance behaviors created by continuous schedules of reinforcement. So, rapidly such kind of behaviors may stop. So, to maintain that kind of behavior, every time you have to produce a reward. Fixed ratio, moderate resistance, whenever anything is fixed,

because there is predictability, so the resistance is generally low, but it is better than continuous reinforcement in terms of maintaining that behavior. So moderate resistance. Basically it is a high response rate with post-reinforcement pose. So generally it is going to maintain a moderate kind of resistance in terms of maintaining that behavior. Now a variable ratio schedule is that it shows the highest resistance.

Whenever a behavior is formed, based on a variable ratio schedule, then it is very difficult to get extinct, as this behavior has a very strong resistance, it will not die very soon. So that is why in the case of gambling and other things, it is it becomes very difficult to stop because of this unpredictability, as a person may assume that I may get a reward today even though the person may have lost many times but still there is an expectation that maybe next time I will get it. So, that predictability is very strongly created by a variable ratio schedule. So, any behavior that is rewarded based on a variable ratio schedule is more likely to be high resistance and it is maintained for a long time. Fixed interval again has moderate resistance, which is not very high. The variable interval can be high, but the highest resistance is shown by the response-based variable ratio schedule. Again variable interval also is because you do not know when it is going to happen.

Again there is a higher likelihood of high resistance, but the highest resistance is shown by the variable ratio schedule in terms of the number of responses, but it is unpredictable. So, unpredictability is one of the factors that creates more resistance in the behavior. In that case, this creates the highest resistance, response-based schedules repeatedly generate higher levels of response than interval schedules. Giving a reward based on the response is a better strategy than based on time in terms of resistance. The time also has its influence in certain contexts. The highest response rate occurs within response-based schedules that are variable, so, a variable ratio schedule like a slot machine and other gambling devices.

So that is why it is very difficult to stop gambling because that behavior's resistance is very high. People generally maintain those behaviors because of this whole unpredictability created in the mind. So sometimes they will get a very high reward, and sometimes they may lose, but still, that tendency is there and people can’t stop.

Now Skinner found all these concepts and other things using research and experiments done on rats using a box, and then, these were applied in other human contexts. So, the box in which he did all this experiment is called as Skinner box. Therefore, Skinner developed a laboratory apparatus known as the Skinner Box to study the effects of reinforcement on behavior. So, all these experiments on schedules of reinforcement and how they impact behavior were done in on Skinner box. The skinner box is customized depending on the organisms being studied. For instance, a Skinner box designed for rats typically includes a lever that rats can press and a mechanism for delivering reinforcement.

So, in the Skinner box, the idea was he was trying to see what is the effect of reinforcement on behavior. Rat is supposed to show certain behaviors like pressing a lever and then automatically certain or there is the possibility of giving reward in terms of food for rats. He used all the schedules of reinforcement, ratio, variable, fixed, interval, and all kinds of schedules he used and tried to see how they impact behavior. By presenting the reinforcement, the reinforcer researcher observes the influence and the frequency of the behavior such as liver pressing. So, they try to see and develop all these concepts. Skinner viewed this controlled environment as the ideal setting to study the fundamental principles of behavior. He used a more controlled study and more experimental setup to study all these concepts and then impact on behavior. So, this is what the Skinner box looks like, this is a lever that the rat can press, and the moment it presses, certain food pellets, this is a dispenser where the food will come.

So, the rat learns if I do this, I am going to get food. Then how the food was given was based on different schedules and they tried to see how this reinforcement has an impact on the behavior of the rats and this is how a lot of these experiments were done. One of the concepts that comes out of this operant conditioning is the concept of shaping behaviors. For example, how do animals learn to do more complex than just pressing a lever. So in the case of the Skinner box, you might have seen, that it is just a simple behavior that the rat was showing like pressing a lever and so on. But how do a lot of animals are trained in terms of showing complex behaviors? Let us say if you go to a zoo, if you go to some circus, one can see that animals are doing complex behaviors like an elephant playing

football and so on. Which is not normally shown by animals, but how those complex behaviors are taught to the animals and how that is possible.

It is based on the concept of shaping which comes from operant conditioning. So according to Skinner animals learn complex behavior through the process called shaping which is also known as successive approximations. It is another name for shaping, successive approximations. How it is done? Shaping involves reinforcing increasingly complex behaviors gradually leading to the final desired behavior. The organism's behavior is shaped through a series of steps until it matches the desired response. So, here complex behaviors are learned one by one.

So, there is a final goal that you want to teach to that animal or human being for that matter. As a result, there needs to be a complex series of steps to be learned to show that behavior. For example, teaching an elephant to kick a ball, a lot of things have to be taught. The elephant has to learn or be taught that this is an object they should come near to it then they should also touch it then they should kick it so then they need to learn a lot of steps before showing the final behavior of kicking a football with an elephant. So that is the meaning of successive approximation. So it is increasingly complex steps one after the other. So each step's first initial step is taught by rewarding it. Then once the animal learns this, the next step is the moment it shows it is rewarded. For animals mostly food is the reward. Then the animal is shaped to show the final behavior. So that is the concept of shaping. For example if one wants a rat in a Skinner box to run around in circles. Let us say you want to teach a rat to run around a circle. So that is a complex behavior than pressing a lever.

So they can simply wait for the rat to do so and then reinforce. So that is generally the rat may not show the circular movement and then waiting for it may not be a feasible thing. So instead they can use this concept of shaping to show this behavior. For example, the process may involve reinforcing simpler responses such as running, once the rat runs it is reinforced.

So the rat will learn running thinking it will be rewarded. Then, the experimenter waits until the animal begins running along a curved path, which is a desired behavior from an experimental perspective. Once the rat starts following this curved trajectory, it is rewarded

again. This reinforcement helps the rat learn that it should not only run but specifically run on a curved path. The process continues with further reinforcement, gradually waiting until the rat completes at least half a circle.

Then at least half a circle may once the rat runs it is again rewarded. Then it is understood that this is a rewarding path. Ultimately continuing this process until the animal is trained to run in circles. So this is successive approximations where different steps are designed and once the animal shows it is rewarded followed by the next step. Like this, the final complex behaviors can be shaped or learned. Skinner recognized that this step-by-step process of successive approximation is not only applicable to animal training but also to complex human learning. This method is commonly used in animal training such as circuses, zoos and so on. So, this kind of shaping could also be used in human learning which we will also talk about. There is something called a token economy is also another process of which also used mostly in a human context.

The token economy is a behavior modification. It can help to modify behavior based on principles of operant conditioning, something called a token economy. It involves using tokens as a secondary reinforcement to encourage desirable behaviors. Tokens are tangible items like coins, stars, points, or stickers given as a reward for specific behaviors. These tokens are later exchanged with primary reinforcements such as money, candy, etc., So in the token economy what is given, mostly it is used in certain settings like children who are let us say mentally retarded or specially abled children, then in some school settings also used, and some psychiatric patients. Such kind of token economy can be helpful in terms of shaping behaviors of those cases and teaching them to learn certain behaviors like their day-to-day activities and so on. Basically what happens here is that a secondary reinforcement is given once a desired behavior is shown by a person. Now, these tokens are mostly secondary reinforcements.

They are not directly valuable things, but they can be certain points that will be given certain stars points will be given or certain stickers will be given. So, then you keep collecting that. The more you show these behaviors, you will get more of these points and these points you can exchange them with direct reinforcement like money or some candy

in the case of children and so on. So that is why this is a kind of promoting certain behaviors. Specific behaviors identified as desirable and targeted for reinforcement are called target behaviors.

It may include completing homework for children, following rules, participating in activities, or exhibiting social skills. In various contexts, such token economies can be used to shape behaviors or promote certain behaviors. This system is widely used in various settings including schools, psychiatric hospitals, and rehabilitation centers where certain people are not able to even carry out their daily activities or daily functions or actions that are required. So, they can be taught to do this and rewarded, and based on that they can be shaped to do certain behaviors.

For example, in a token economy hospitalized psychiatric patients may receive reinforcement tokens for activities such as serving meals or cleaning floors. They can be shaped or certain behaviors like cleaning and serving meals and those kinds of activities can be promoted by using a token economy. In tightly controlled environments like state hospitals for long-term psychiatric patients. It is feasible to make almost anything a patient wants contingent on this desired behavior. So this method can be applied in a much more successful way, especially in this kind of tightly controlled environment. Like psychiatric hospitals, and so on. Where patients are not able to do a lot of activities because of their mental conditions. So they can be slowly taught to learn a lot of things by using this token economy.

Research supports the effectiveness of token economies in increasing behavior such as social interaction, self-care, and job performance in severely disturbed patients and individuals with intellectual disabilities. So for this kind of patient, this kind of token economy serves as a very important strategy for promoting certain behaviors. They have also been used in decreasing aggressive behaviors in children reducing marital discord and so on. So, in many contexts, this can be used more specifically with children and psychiatric patients, intellectual disabilities, children, or people with intellectual disabilities. In such cases, token economies can serve very useful purposes.

Now Skinner's view on personality, how he views personality. His views on personality are very similar to what other behavior is viewed it. Skinner's theory of personality is a departure from other structural component like psychoanalysis and so on, structural concepts or theories. Skinner was not again interested just like behaviorism he was not interested in explaining behavior or personality using internal concepts he was mostly focusing on how behaviors are shaped by the environment, in this case, he was more interested in how reinforcement shapes, human behaviors and it may include all kinds of behaviors where certain patterns and personality characteristics could also be explained using those things.

Theories like Freud, Rogers, Alport, Eysenck, and Cattell, most of which we have already discussed, utilize structural concepts such as different kinds of concepts to explain human personality. Skinner's approach minimizes all the structures and concepts inside human beings. He was not interested in those things. Skinner's perspective therefore focused on observable behaviors and their response to external situational forces rather than on underlying psychological structures. So that was a basic thing about all behaviorists including Skinner.

So this approach aligns with all the behaviorist beliefs and other behaviorist ideas. Skinner's perspective on human motivation was also very straightforward which is also an important aspect of personality. He believed that human beings are primarily motivated to produce pleasant events and avoid painful events whenever possible. So that was the basic idea behind motivation that human motivation can be explained very simply and very clearly that humans are motivated to produce pleasant events or pleasant consequences. So they will be motivated to get positive reinforcement in their life, and they will always try to avoid painful events whenever possible. So that's the basic concept of motivation according to Skinner based on getting pleasure and avoiding pain.

So according to Skinner, emotions can also be understood by analyzing behavioral events in the environment that preceded them. What events led to the cause or development of these emotions? Those environmental events can be used to explain emotions, not internal constructs according to Skinner. While he acknowledged that some behaviors are private,

he rejected the idea that internal private behavior causes emotions. So for causal factors, he was always looking at external factors.

So that was the basic idea of all behaviorists. In Skinner's view emotions such as anxiety are not caused by anxious personality characteristics. According to him, anxiety is rather something in the environment that stimulates anxious behavior. Just like the classical conditioning paradigm we discussed in the last lecture. So, some kind of conditioning that happens from the environment leads to things like people with anxious personality or neurotic personality and so on.

Therefore, according to Skinner, emotions are responses to external stimuli rather than being driven by internal private experiences. So, the focus is on the external. This perspective aligns with Skinner's broader behavioral approach, which emphasizes the role of observable behavior and the external environment in shaping human motivation, emotions, and personality. Skinner extensively scrutinized Freudian concepts in his writing, dismissing most of them as unscientific. So, he dismissed most of the concepts of psychoanalysis saying that they are unscientific and we have already discussed this criticism of psychoanalysis in the last module. While he agreed with Freud regarding some of the ideas that early childhood experiences have lasting effects that can persist in adulthood, He argued that it was the early conditioning experience of the child that shaped late behavior rather than the influence of inner conflicts. So his explanation was different.

Freud was explaining inner conflicts and unconscious mind and mental factors in terms of determining personality. Skinner also agreed that childhood experiences are very important, not in terms of inner conflicts but based on the environmental impact the child had during childhood. That will play a more important role. Skinner acknowledged that personality traits such as friendliness, and enthusiasm provide useful descriptions. No doubt they are useful in terms of describing individuals. However, he argued that these traits' names do not explain in any empirical way how they are developed. They are useful in the description but how they developed like just naming and trait names may not be of any help. For Skinner, a friendly person for example has been reinforced. More for being friendly than for unfriendly reasons so a person becomes friendly because the friendly behavior was reinforced again and again so that behavior increased within that person. This

is how he explained most of these personality characteristics in other words according to Skinner, personality traits are the result of differential reinforcement individuals learn and develop specific personality traits based on the consequences of the behavior.

If some behavior is reinforced again and again, they are more likely to show that behavior and that may become part of their personality. So these are some of the things about behavioral perspective. So operant conditioning as we discussed in today's lecture, plays a very important role in behaviorism, expanding this whole paradigm of behaviorism and it became a proper school of thought from the operant conditioning perspective. So, if you look at a behavioral perspective, they are not much interested in explaining human personality as such using all the structural concepts. Their explanations are very simple whatever human nature develops, it is because of the effect of the environment and what kind of consequences happened as a result of certain behaviors. So, their explanations, all explanation comes basically to conditioning. So, these are some of the concepts related to how behaviorism can explain human personality. With this, I stop here.

Thank you.