

## **Psychology of Learning**

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Hello viewers. Welcome to this NPTEL course on the Psychology of Learning. So, primarily we will be discussing about what learning is, how do we learn, what are the principles: all aspects of learning and the psychology behind this learning. So, let us start with the introduction. So, as you can see, let me explain a little bit of background of its subject. So, psychology actually was a part of philosophy in you can say in 16<sup>th</sup>-17<sup>th</sup> century like that. So, it has been a part of the philosophy under the discipline of philosophy. And as you can see, towards 1885 onwards in 19<sup>th</sup> century onwards it has become independent, an independent discipline. And if we look back its history, its evolution etcetera it has evolved over the years through different philosophies, through different ideas, experiments, research etcetera. So, it has different schools of thoughts.

So, I am just giving you a brief outline for example, initially because in the initial stage it was associated with philosophy and it has emerged from philosophy. So, the initial school of thought of psychology that is structuralism. It is primarily influenced by philosophical terms like mind, psyche, soul something like that. Then thereafter another school comes that is called as functionalism where they primarily focus on how do we function; and how do we act. So, how the organism lives in both forms like individual human beings as well as other organisms. How did they act, they behave, they function, how an action take place? All these things. So, that is called as functionalism. How do we behave, we act etcetera with regard to the different activities? actions of the organisms as they exist in the environment, as they are engaged in different kinds of activities?

So, the second school of thought is that functionalism. Thereafter it was primarily dominated by the Western school of thought that is American psychology. So, that is a behavioural aspect. So, behaviourism primarily dominates, and till now, we are also following certain principles of behaviourism, but over the decade to one or two decades thereafter, then again the behavioural psychologist perspectives were criticised by some of the neo-behaviorists or the later researchers. Those who slowly and steadily analyze the cognitive part and the cognition part and how the brain plays an important role and how mind functions. All kinds of things it is. So, out of their philosophy, they say that they

completely rejected some of the concepts of behavioristic school and thereafter cognitive psychology emerged.

So, cognitive psychology. It still exists and from there another school has emerged. It is a part of cognitive psychology which is known as constructivism. So, we will be primarily dealing with the main principles. basic principles theories of learning of behavioristic schools because they have contributed significantly to the domain of psychology and learning and thereafter, we will be discussing about cognitive aspects . Cognitivism. Cognitive theories and thereafter some of the theories of the constructivism. We will also consider the latest approach to constructive learning. Constructive approach. So, all the schools have a lot of theories, but we will not be able to completely cover all the theories, but prominent theories we will be discussing. So, now to begin with what learning is actually? What that means, for a common man? For a common man learning means. It is more oriented towards performance, towards marks, towards you know, results in a test passing out some grades, all these things, but behind that, behind in the back end what actually learning is? What are the mechanisms? What are the processes? What exactly? How can we analyze the concept of learning? Especially it would be very helpful for the individual learner as such. So, let us analyze the concept of learning.

So, learning has been a central topic in psychological research like psychology and whatever the schools of thoughts they have they have been doing they have been dealing with different aspects of human behavior organisms behavior human behavior. So, learning is a very dominant part predominant part besides that they are also they are also focusing on the researchers like thinking creativity and you can say physiological aspects also all other kinds of things, but yes learning has been the central part because all our other activities the behavioral manifestations and other aspects even emotions thoughts etcetera some way or other way these are related to learning. So, learning plays a very vital role in our activities. So, learning has always been a central part in psychological research since its inception as a psychology as independent discipline independent science and the traditional that means, the eminent researchers like Ebbinghaus he has also Ebbinghaus laboratory was there he has also discussed some of the psychological attributes in 18 since 1885 and 1962. So, it is you can say from 19th century it has in all the researchers psychological researchers have already started.

So, and we will be discuss discussing in the later stage that is what does this psychology means how it has been defined that we will be discussing in the later part. So, psychology has been psychology of learning. So, here we are focusing on only on learning because psychology is such a vast discipline it includes everything A to Z things it is not possible for us to cover. So, now, let us focus on learning aspect because it is very important for all of us. So, learning and focuses so, here all the aspects of learning psychology of learning

focuses on how learn people learn how they interact with the environments and in which they learn.

Thing is that here when we talk about the learning in general we think of you know formal learning process formal learning process or learning from the books learning from the now is now is e learning platforms are there all learning for pleasure all these things, but now what is in the back end what are the processes and mechanisms. So, therefore, most of the psychologist yes they define it like when how can we convince how can we ensure that actually the learning has taken place definitely from some result. Now, in our formal learning process we look into the results that is the grades say GPA or the promotions all kinds of things then we see that also that means, we have got the result of our effort that means, the learning has taken place. So, similarly the psychologist that define learning that learning brings a kind of relatively permanent change in behavior. So, when so, when we learn something definitely it is going to bring some changes in our behavior and that change is not temporary purely temporary not permanent indefinitely permanent, permanent, but relatively permanent change in the behavior.

So, learning causes relatively permanent change in the behavior that results from the experience. Often sometimes we also acquire the learning that is experiences from we acquire it from the experiences. So, that is now in for example, in the workplaces and even in the educational institutions our very senior teachers very you know retired teachers they from their own experience they can also experience so many things. So, that is also the reason that means, learning also takes place as a result of experience and learning also takes place you know by you know making the effort like the by the formal learning the book learning from the books learning from the or from the information and that knowledge store house learning from nowadays it is learning from the Google learning from observing others learning from networking. So, learning has immense you know opportunities platform from where we can learn.

So, learning the resources the openings are many. So, here we can say so, learning brings a relatively permanent change in our behavior that results from experience. As we grow old as we grow up in and we step into the higher level of education according to our age and developmental stage definitely with experience with formal learning with training etcetera we learn a lot of things. So, learning that means, so, most of the psychologist in the initial stage they say that learning brings relatively permanent change in the behavior and that has results from that has resulted from the experiences. So, here we can say so, here so, change is a factor change is the factor.

So, learning as a change in behavior versus a determinant of changes in behavior. So, whether learning brings automatic change in the behavior or learning you know it is it

becomes a determinant of change factor of change in behavior learning as a process whether it brings changes in the behavior learning is as an it is a determinant is a factor of change that causes some changes in our behavior. So, these are the two types of opinions, but you know learning involves some kind of change in the organism. So, initial stages you know in the beginning also the psychology was not confined to just only human beings, but is animal psychology is there an organism, organism means any living organisms. So, psychology has another stream that is the physiological psychology.

So, and they used to conduct the experiments on the animals, animals for the animal cyclotrons that is why in the initial definition you can find organism and the word organism is there. So, learning a kind to kind of bring some kind of change in the organism which is necessary, but not sufficient for observing a change in the behavior. So, we can say even in case of the organism not suppose not in the human behavior in the organism it brings some sort of some sort of change, but that change may not be sufficient to being bring the significant behavior. For example, we give the trainings to the to our pets in the like pets like doggies and you know other pet animals that we. So, we in order to so, through training we can bring some changes in their behavior, but that change may not be permanent that change may not be sufficient that change.

So, for because their learning process is a little bit different from human learning processes. So, as you can so, learning is as an enduring change in the mechanism behavior. So, here depending on the type of you know subjects like maybe the animals, organisms or the individual human beings etcetera, the level of learning or the stage of the like the intensity of learning, the quality of learning, the sustainability of learning will change. For example, learning as an enduring change, a change which is sustainable change which is relatively stable change which is relatively permanent. So, that brings changes in the mechanism the behavior in the behavior that is modus operandi or the behavioral changes.

So, again similar so, it is another thing learning as an enduring change, relatively permanent change or continuing continuous change sustainable change in the mechanism of behavior. And learning as in contiguous cause causal effect of experience and the behavior. For example, again learning takes place as a result of experience because of our experience we learn certain things which is the effect of or we can say there is a cause and effect relationship between learning and our experience. So, contiguous cause effect causal effect of experience because of experience that change has taken place in our behavior. So, it has been the experience has been the cause and the changes in our behavior has been the effect.

So, contiguous continuous causal effect of experience on the behavior. Similarly, learning can be defined as a change in the behavior of an organism that are as a result of regularities.

Regularly and habitually and over a period of time it does kind that sort of you know change that sort of you know experience that sort of training that sort of orientation is being given to particular organism again and again definitely it is going to bring some kind of change. So, in order to see that learning has occurred. So, now, here two conditions must be there like this these two conditions are prerequisites for the learning in the sense that unless and until these two conditions takes place happens we cannot ensure that learning has actually taken place.

So, first thing is an observable change in behavior. So, if learning has brought some sort of change relatively permanent change or some cause and effect change whatever may be the change it should be observable at least we can observe that it should be visible, it should be conspicuous, it should be significant that anybody can notice it yes that has his improved his behavior has been improved means some changes has taken place. So, an observable change in the behavior must occur during the lifetime of the organism. So, here we are talking about the organism any living organism. Similarly, for example, over the period of time the training has been given and as a result of that training then some changes in the behavior has taken place that is the and that is observable change.

So, here observable change in the behavior it is a kind of precondition you can say. So, the change in behavior must be due to regularities in the environment that in the environment certain things happen regularly certain features about certain stimulus certain events that means, occurrence of that events in the environment takes place in a regularity basis. So, that is a that is that is also another cause of. So, learning is thus seen as an effect it is a result it is an outcome. So, that is it is an observable change in the behavior that is attributed to an element in the environment.

So, so, if learning brings learning bring some changes in the behavior and that is the result of maybe because of some occurrence of some stimulus in on a regular basis or any kind of significant event that has happened in our experience. So, learning so, it is learning is a result is the outcome because of either regularity in the environment some significant stimulus occurrence some say cause and effect relationship as a impact of as an impact of experience also. So, many things these are the factors under which learning takes place that is learning is actually seen here as an outcome as an effect. So, next is again however, non associative learning can also happen. So, here till now whatever we are discussing that is learning has some sort of association relationship with some stimulus some event some regularity of occurrence of some stimulus something some or some causes etcetera, but whereas, the non associative learning can also take place it refers to the decrease in the intensity of response.

Like for example, in the initial occurrence of the stimulus we may react we may respond

to that event, but if with the repetition of that stimulus maybe that our intensity or intensity of our response also decreases that means, that is the non associative slowly and slowly gradually we get dissociated with that stimulus. So, that is the non associative learning takes place. So, functional so, now, we will go to the different schools later on and we will define the different principles that govern learning. So, the functional definitions promote the development of different cognitive learning theories. However, this learning has been defined differently by different group of psychologists, different schools of thoughts.

So, same learning behavior defined by the behaviorist school in different way, cognitive psychologists in a different way and the constructive psychologists or cognitive science those who are working researchers who are working on the cognitive science now in the age of AI this again it has you know it is a interface of AI and cognition etcetera. So, their interpretation also slowly changes. So, now, the cognitive definition of learning and learning are the mechanistic and refer to the specific change in the organism. So, the change in the mental constructs. So, here till now we are using this concept organizing mind it organism because it includes both the animals as well as the human beings.

So, that means, all the living organisms. So, cognitive definition of learning is that learning when the it is when we talk about the learning bring some changes in behavior the cognitive psychologists they emphasis more on the changes in behavior has taken place because of some sort of changes in our mental constructs in our mind in our thought process. So, here the specific change in the organism has taken place because of some change in the mental construct. What do you mean by mental constructs? Our ideas our thoughts. So, such as the knowledge like because of the experiences when we change our thought process and we change our concepts ideas because of experience because of the training because of the new learning.

So, the knowledge, knowledge changes that means, the definition or the you can say the concept different concepts ideas. So, changes and different representation of the same concept changes the association different networks association also changes. So, the mental constructs all these are the mental constructs like the ideas the thoughts that we perceived we construct from time to time. So, all this mental construct is it includes all kinds of the knowledge information representations thoughts ideas association etcetera. So, that can function as a contiguous cause of the changes in behavior.

So, again and it is a and it goes on continuously this constructs mental constructs keep on changing and as a result of that changes in our behavior takes place. So, a change in behavior takes place because of the changes in our mental constructs that the schema the ideas or framework you can say mental framework or thought processes. So, here learning changes the physical structure of the brain through the process of continuous interaction

between the learner and the external environment. And science also says that that you know biological sciences also says that continuous learning that means, if we go to the neuropsychology of the brain and how the brain functions etcetera. The scientists they also say that learning also brings changes in the brain structure even brains you know the network there the neural network how the brain functions they also even the neurochemicals.

So, learning also changes the physical structures of the brain that is in terms of the neural network and the you know brain you know brain you can say neurochemicals then their orientations all these things. Now the next is so, there are certain things certain principles are there which governs learning what are these principles? Like the learning the learning environment makes a difference yes. So, here environment is also very important. So, initially you know different psychology they have their own view points like some of the psychologist they say that you know learning is predetermined by the heredity heredity or the genetics. How what is what would be the ability the talent the capability of the learning capacity learning ability etcetera that is predetermined by the genetics and heredity.

Whereas the other other other psychology primarily the American psychologist primarily the behaviorist they say that no they completely negate the completely denied the role of heredity and genetics or genetics. They say that learning learning is maximally and completely learn from the environment. So, here environment is very important if you can provide the very enriching environment to the individuals to the organisms then the complete learning can takes place or the learnings you know learning and performance can be completely different. So, they are you know this controversy still goes on whether genetics heredity is important or the general environment is important this is still ongoing debate, but yes of course, that means, the genetics often of course, takes some play some play some role, but you know we cannot find out we cannot determine we cannot generalize we cannot there is no universal thing like how much heredity determines how much is being determined by the environment. But yes of course, environment is a very important factor like it may be our work environment it our learning environment our home environment our social environment our community environment.

So, environment plays a very important role and it makes difference. So, people learn by making sense from the environment and the stimuli around you. Suppose you are so, we are we are in a suppose we are in a very enriched environment with all infrastructure all the facilities all kinds of healthy network all the community you know programs activities are so, definitely. So, it has got some impact on our mind like in terms of developing our you know ideas thoughts and you and also in terms of making us happy in terms of giving us enriching experiences in terms of developing the social networking so many. So, here

when we talk about the environment primarily in education field we talk about the classroom environment or school environment or the home environment.

These three environments are very important like you know school environment that is why it is a it is a it is an effortful task for the administrator to make the make the school environment very conducive the ambience should be you know very pleasing and you know there should be all kinds of facilities infrastructure all kinds of sports all kinds of curricular and co-curricular activities. So, that learners involvement will be very high. So, learners every individual learner they have some specific attributes also specific skills abilities etcetera some specific interest also. So, here learners involvement in the environment in the environment it can has it can have significant in impact influence on the learning process itself. So, in the classroom similarly in the classroom environment so, classroom environment that is why you know in our education also there is there are you know there are some guidelines like what should be the teacher student, student receiver and how the classroom size what should be the classroom size, ventilation and their infrastructure, the lab equipments, the even sitting arrangement all kinds of things all these aspects not only that ambience, but also environment and moreover the interactions teacher student interaction, peer interactions all kinds of.

So, all these taking into account all these aspects, we say that is the classroom environment is the school environment. So, here also that is that makes a difference that makes a difference. So, learners and involvement all so, environment plays a very important aspects of learning process. Similarly, another aspect is reinforcement. Reinforcement in the environment may be that reinforcement you can say the incentive, incentive is the teachers feedback, teachers praise.

Similarly the students are the peers. The classmates you know, their bonding, their cooperation, their collaboration. So, reinforcement here in the environment can be in terms of any aspect, any positive impact, any positive value, or positive significance. Be it positive feedback and then the peer relationship, then the teacher's feedback or any kind of award, award scholarship. So, reinforcements in the environment and the nature of the feedback is very significant for stimulating that learning. So, learning is based on the association. Here again learning is based on association. Connection means relations. When we connect one word with another word, one stimulus with another stimulus one topic with another topic.

And connection not just in terms of books learning materials, but in human connections. Here the environment and the content connection. So, people make the connection and draw the conclusion based on the sense of what they already know and have experience. So, all of us whenever we are coming to the school all of us were already having some

experience past experience, past learning experiences maybe in the previous schools or in the community school, in the public school, in the different kinds of institution etcetera. So, that is our backup, it is a backup experience. So, when we try to learn, when we are exposed to a new environment, new learning environment, or new content. we always try to take the help of that backup like we always refer to our backup experience.

So, we try to connect something and build a kind of concept or relationship or try to interpret it by analysing or relating it to our past experiences. So, the people we usually make the connections when we learn certain new things and we try to relate it or try to identify or interpret it on the basis of our past experiences. So, for example, you know for the learning to occur the facts, different facts, concepts, ideas, all kinds of events interpretation of the different events also must also be stored, connected to other parts concepts and ideas and built up. So, automatically whenever we learn different concept ideas concept are there. It is there in our repository, it is there in our experiences, it is there in our backup.

So, for the learning to occur we need the following condition. When we could retrieve those things we could connect the present concept with the past learning experiences. We can relate it, we can interpret it, we can get, you know, you can say, kind of new idea out of that. So, here learning also takes place as a result of associations and connections of the present concept and ideas with our old experiences or the knowledge that we have. So, now, I am just closing it right now and in the next class we will continue with this.