Indian Institute of Technology Kanpur
National Programme on Technology Enhanced Learning (NPTEL)
Course Title
A Brief Introduction to Psychology

Lecture – 9
Learning

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Now that we have learned how classical conditioning takes place okay. What we have done till now, we have seen that bell food getting associated. Chemis experiment we saw sound and light getting paid with electric shock okay. What if the – what you call situation, this association the S-R bond that we learn in one situation, can that be extended to the other situation. Remember the first lecture where we discussed while defining learning, that it is a relatively stable change.

If it is a relatively, if learning is a relatively stable change, so what would it lead to, it would lead to a scenario where this S-R bond repeatedly helps us arrive at a prospective decision much easily okay. We do not invest much time and come across most appropriate response given the fact that we know that in these type of situations these are the – what you call successful response patterns.

Hence we come to important concepts in classical conditioning, two important concepts let us discuss and gradually we will move.

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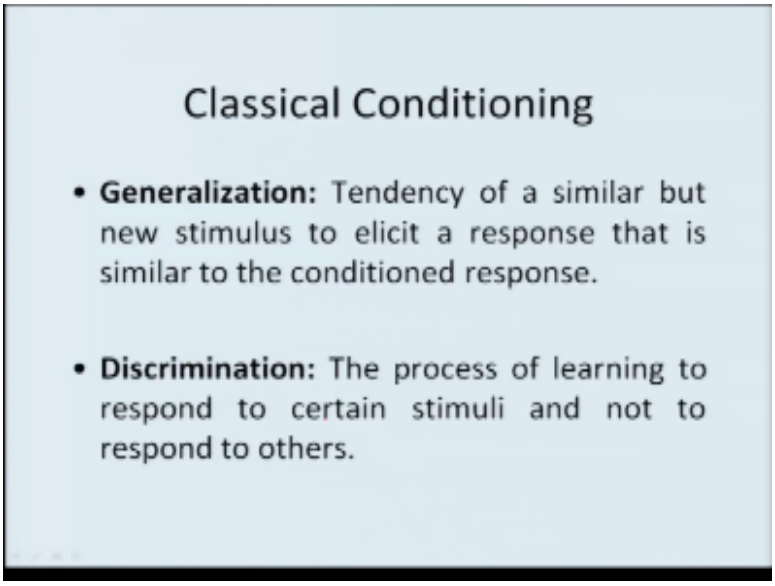

One generalization and two, discrimination, what would be generalization, now the tendency to generalize okay? So a tendency of a similar, but new stimulus to elicit a response that is similar to the conditioned response that is a generalization okay. So if I say for example, the example we took in one of our lectures where the student will leave the seat if the teacher comes into the class okay.

And if this is extended okay, not only to the teacher is entering the class, but to all elderly people, you have generalized it okay. So what is it that is being generalized okay, depending on the similarity the response is now generalized. The reverse of it would be discrimination okay.

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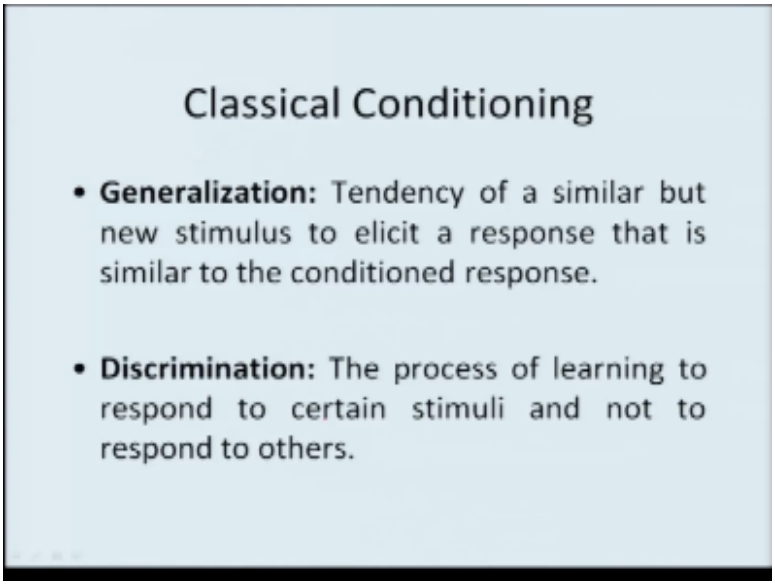

In one case you are favorably responding and extending the response that is generalization, in discrimination it is basically the process of learning to respond to certain stimuli and not to respond to others okay. Take the same example, you have learned to leave your chair and wish a teacher who enters the class, and say instead of a teacher somebody else enters the class okay, somebody who has come for dusting enters the class, and you immediately use your discrimination okay.

You discriminate that although this is an adult may be of the same age of that of the teacher, but because he or she is not my teacher therefore I do have to leave my seat this is discrimination okay. Interesting thing that Pavlov also found in his research was two interesting things one, what is called as extension and other is the spontaneous recovery.

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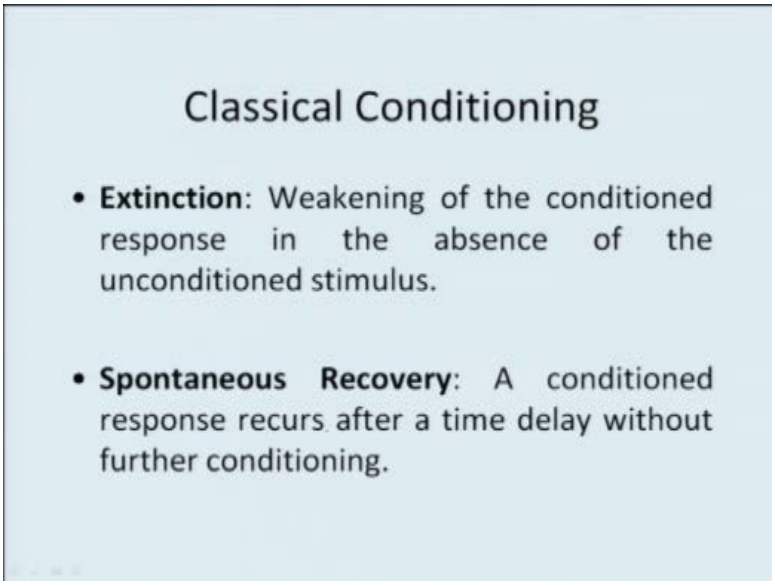

Now recollect the experiment the dog in our Pavlov's lab okay, had learn to respond to the sound of the bell anticipating that every time that the bell is rung the food will definitely be presented. Now once this association was formed and Pavlov stopped giving food to the dog and only generated the sound from the bell, gradually what happened the amount of saliva that the dog was releasing which was being collected in the beaker okay started diminishing.

This means that association which was formed and which was now influencing anticipation in the dog that everything that the sound will be rung, food will definitely be presented and it started becoming weaker and weaker. Once the bell was rung, but the food was not present twice, thrice, ten times, twenty times, and then you realize that gradually the S-R bond which was initially very, very strong starts becoming weaker enough okay.

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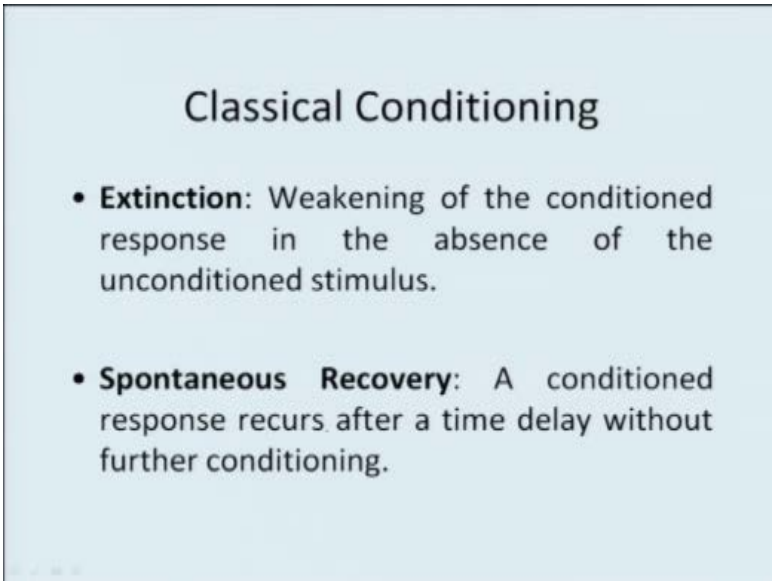

So weakening of the conditioned response, because the unconditioned stimulus is now absent is what is called as extension okay. And Pavlov could find this in his experiment, but another interesting thing that he also observed was the fact that the dog which had forgotten to salivate on sound of the bell okay, could again it do the same exercise of salivating on the sound of the bell when the experiment was repeated for the next time.

So if in the initial trial the dog took a same say for instance, twenty trails to learn to form the association in the next case the dog took substantially less number of trails 8, 9, 10 trails okay. So you reduce the total time taken to relearn what you had already learned okay, and this is called as spontaneous recovery.

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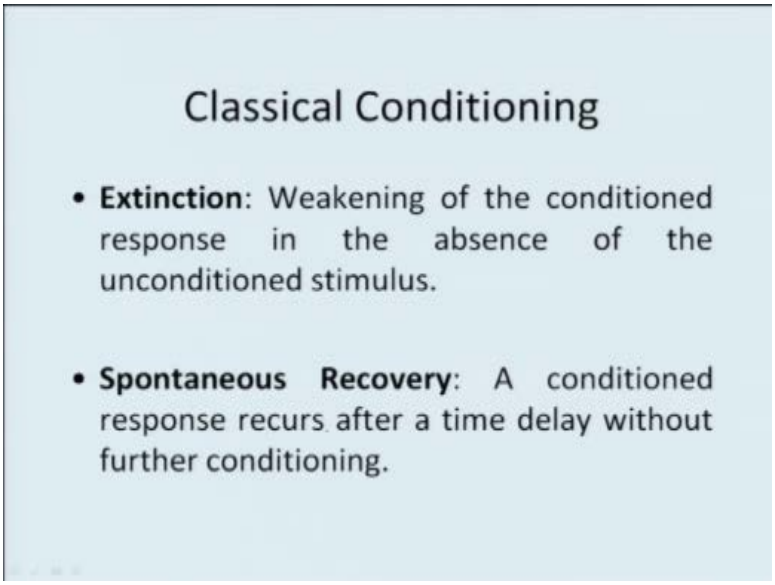

So a conditioned response reoccurs, resurfaces after a time delay okay without further conditioning, without further demand at no S-R association should once again be formed, this is called as spontaneous recovery okay.

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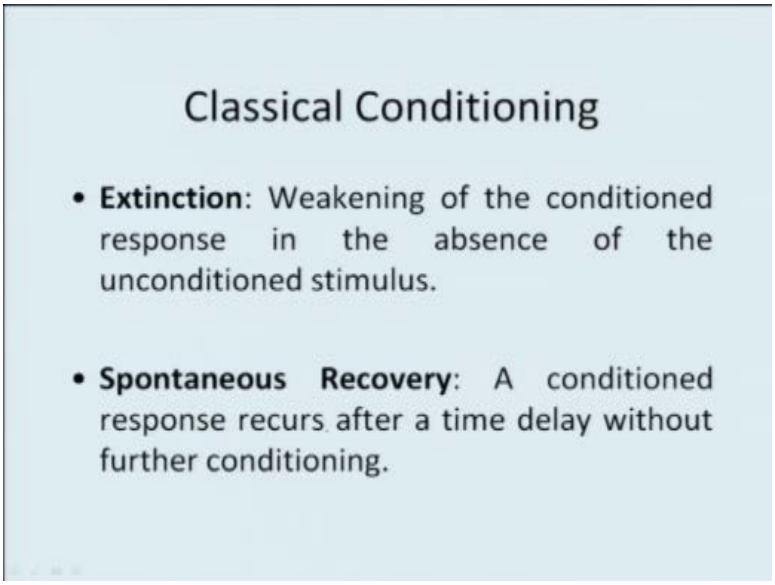

So these were now the important constructs and this was the first and of course one of the -- historically I should say a mega theory in learning that Ivan Pavlov contributed. In terms of what you call the appraisal okay, in terms of types you can say how many types of classical conditioning you can think off okay. Again it has to do with the valency, positive valency and the negative valency classical conditioning can be divided into two types.

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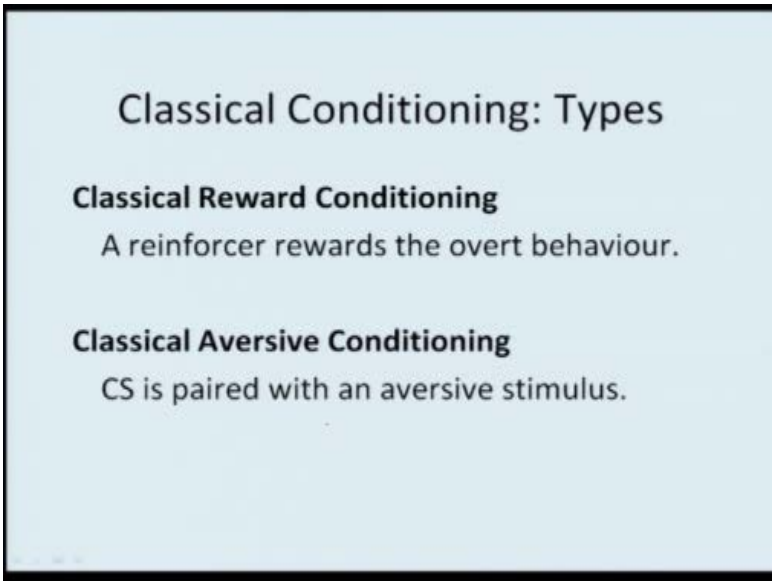

Two types of classical conditioning, classical reward conditioning and classical aversive conditioning. And, because you can understand a reward means you will be now basically reinforcing the behavior. So if you now ask the dog to do a desired behavior, and what you want the doctor do if the dog has done any how to give food pallet you have reinforce the dog, this is classical reward conditioning okay.

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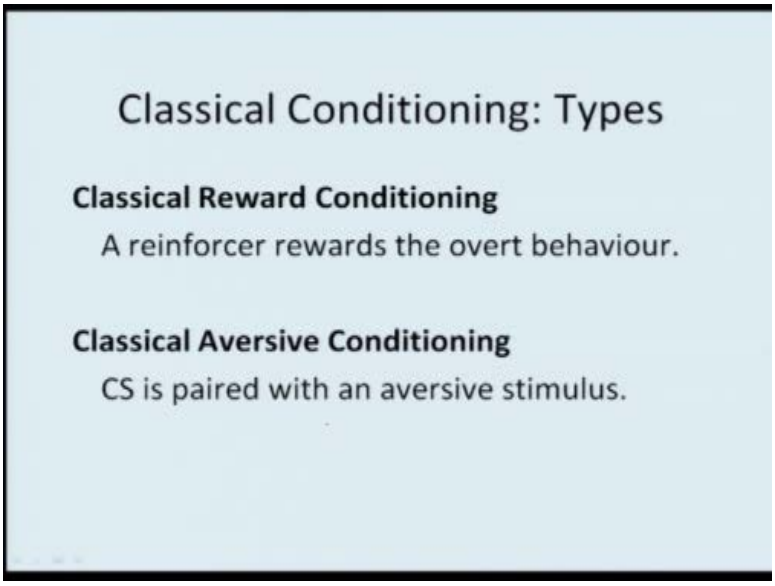

So if the student has they given the correct answer to the teacher and the teacher now praises the student, the students behavior has been reinforced, this is called classical reward conditioning. What is classical aversive conditioning; this is basically the condition to stimulus that is appeared with aversive stimulus. So if you receive a negative consequence okay, that is the aversive conditioning reward in positive reinforcement aversion will be negatively taught.

Two interesting cases no, till now we have talked about only animal experimentations two experiments are worth mentioning there.

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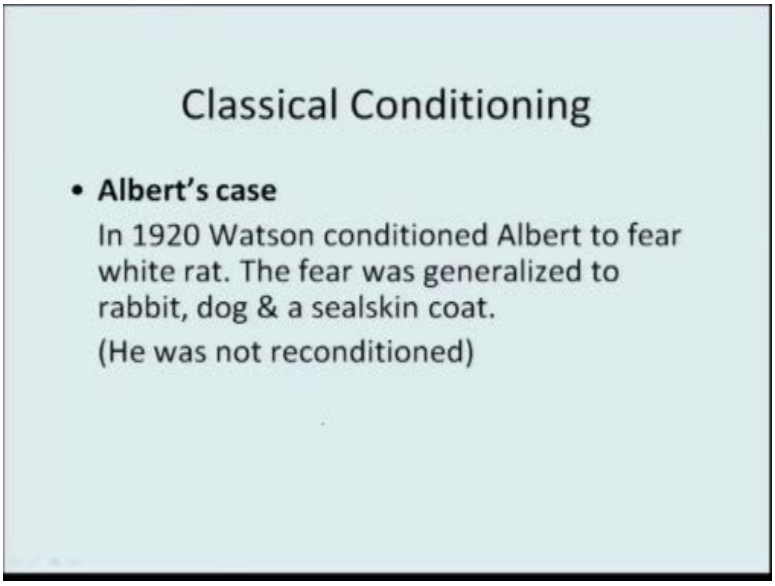

Watson in 1920 tried to condition a human baby named Albert and in all books of psychology he will find Albert's case. Albert was basically know condition to fear white rats, so what actually happened was, Albert the small baby would crawl, move to a soft toy and the movement Albert was about to hold the soft toy, Watson would create a big sound, big of roaring sound in the lab. This was repeated couple of times and the human baby, Albert started no getting scared of that furry toy.

So the movement the furry toy would come there, Albert would perhaps anticipate that now definitely this will result into that frightening sound. And this very fear that was initially for no furry white rat got even generalized to rabbit, dogs and sealskin coats.

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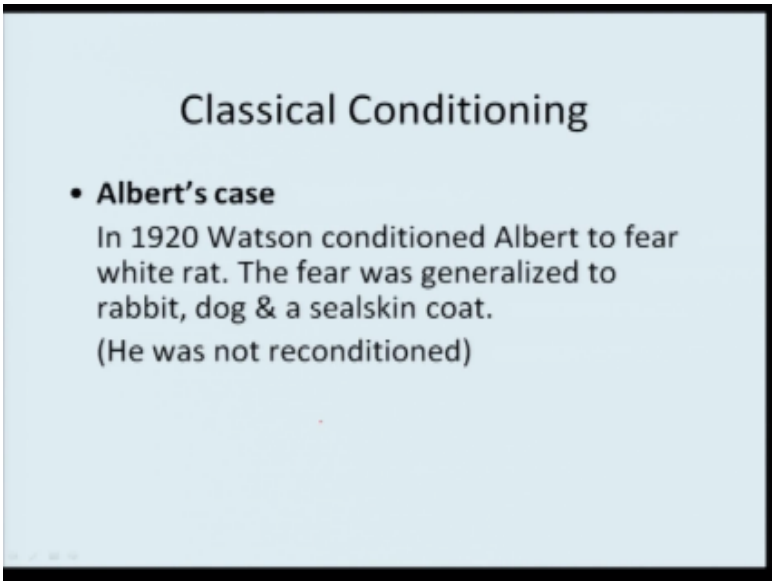

Remember it is a very old experiment ethical considerations were not so important in those days. And Albert was not re-conditioned, okay, after the experimentation. But what Watson was able to prove using Albert's case was let us see, even in human beings also you can induce certain types of learning using classical conditioning module. One of the associates of Watson, Mary Jones in 1924.

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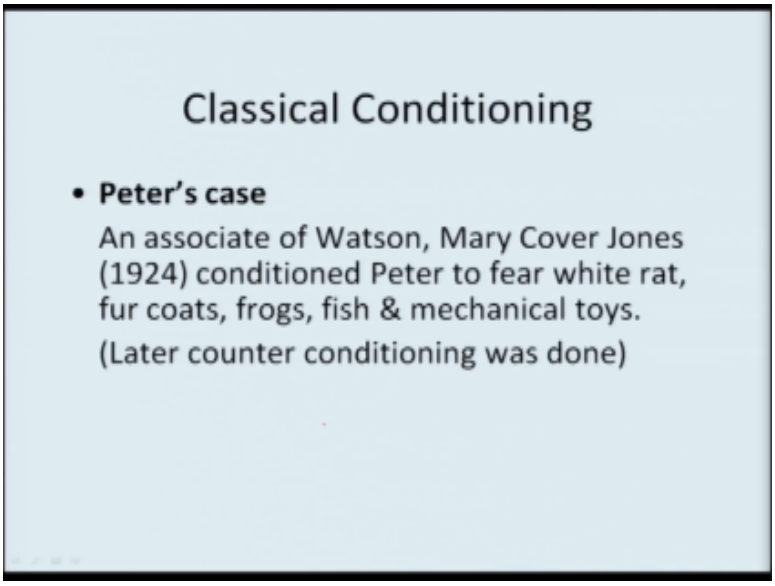

What this team did was they took another boy, named Peter and Peter was basically made to fear white rats, fur coats, frogs, fishes and mechanical toys, okay. But then this was an experiment which went one step ahead of Watson's experiment, okay. And Peter was later counter conditioned and it was this success of counter conditioning which later on brought a big change even in clinical psychology in terms of intervention that all learned behavior, okay.

If you have conditioned somebody you can re-condition and you can de-condition, okay. So in classical conditioning the entire process of behavior modification is based on this, okay. And the credit goes to the experiments done by Watson, Mary Jones and all their associates. Around the same time when no, Pavlov was doing experimentation on dog.

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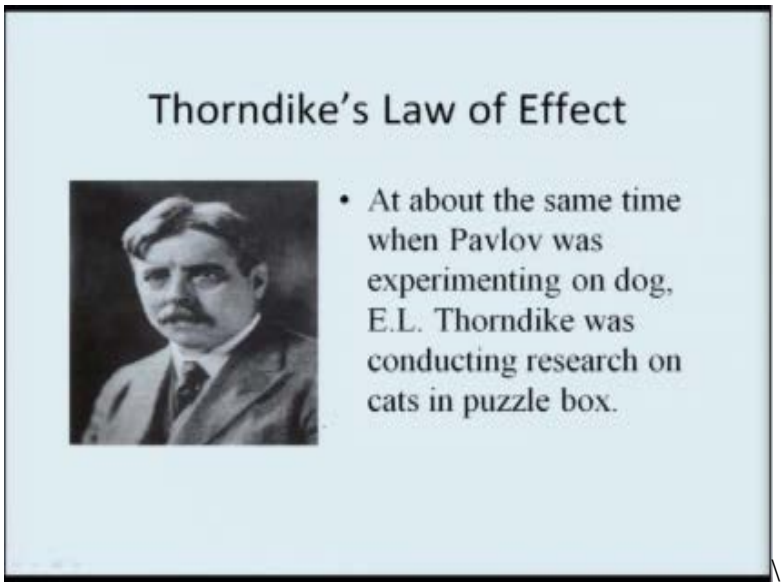

E.L Thorndike was now conducting similar type of research using cats and this was being done in a puzzle box.

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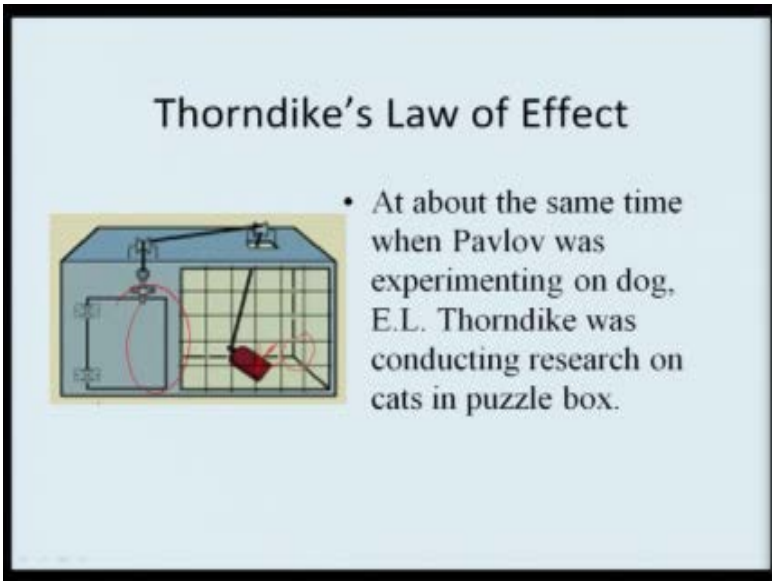

Now this was the puzzle box, okay. The mechanism was very, very simple the mechanism was that are cat was put here in the cage, the cat was supposed to press this lever and the moment this lever will be press this door will flung open and the cat can come out, okay. Too simple experiment, but the cat did not know that it was supposed to press the lever, okay.

So accidentally while making all types of random jerk movement. The cat accidentally happened to press the lever, okay. A fish was kept outside this cage, cat will press the lever, the door will flung open, the cat would come out, eat the fish and this is how the experiment took place, okay.

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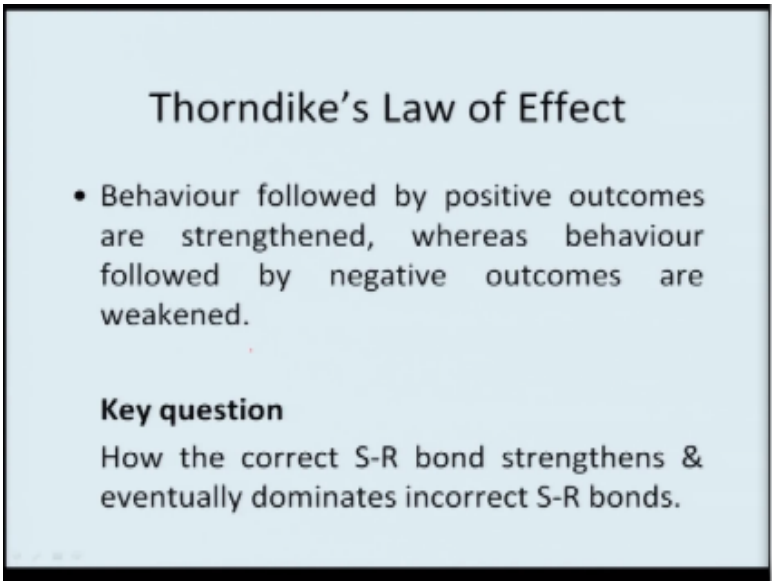

But then what was being demonstrated basically was, that behavior always follows a positive outcome, and behavior that is followed by positive outcomes are strengthened, whereas behavior which is followed by a negative outcome is not strengthened. Random movement leading to no consequence, but pressing of lever allows the door of the cage to get open; this is what the cat wanted. The cat was no attracted towards the fish kept out of the cage, okay.

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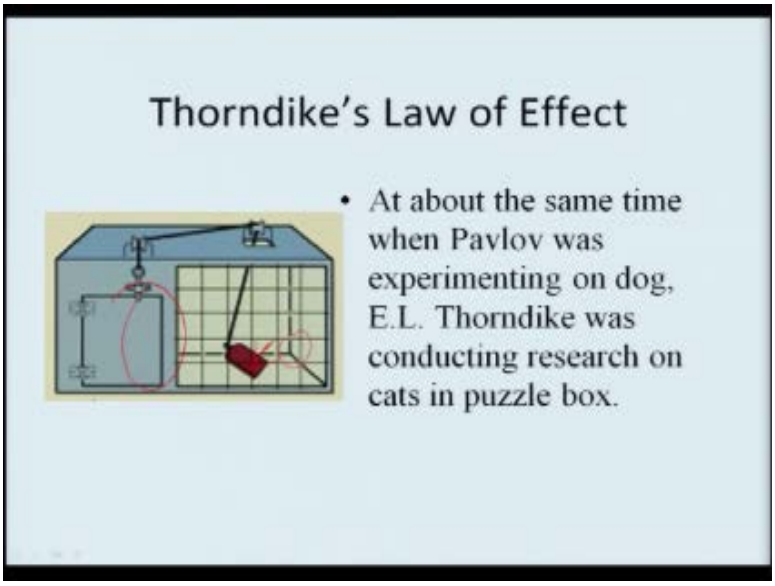

And it was this desired behavior it required the cat to come out of the cage. So now the key question is that how the correct S-R bond strengthens and eventually dominates the incorrect S-R bonds. So stimulus response association will be formed.

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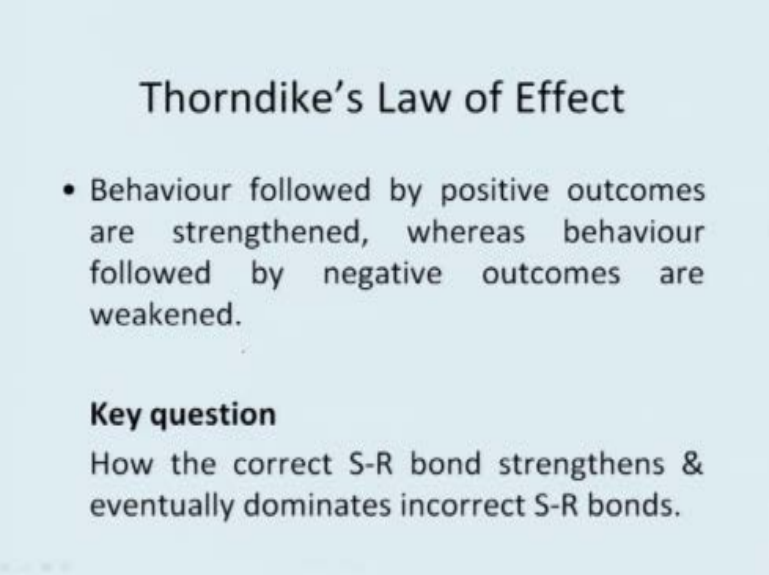

If I have learned an incorrect association, how does the correction take place? Now according to Thorndike.

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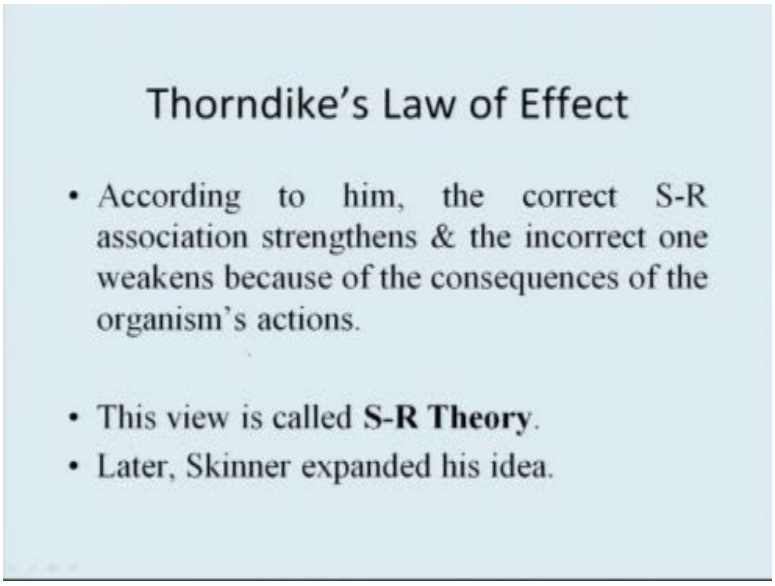

The correct stimulus response association actually strengthens and the incorrect ones becomes weaken, weaker enough, because the consequence of the action. So if I have not learned how to respond appropriately in a given situation, every time I repeat my inappropriate behavior okay, I do not receive a positive feedback from the environment.

And this absence of feedback from the environment gives me a sense that this association, the behavior that I am demonstrating is not appropriate, whereas if I change it make it appropriate enough then the feedback that is given to me is very positive. And, because I receive a positive feedback for the new S-R bond, this bond becomes stronger enough and the bond that was initially learned by me becomes weaker enough okay.

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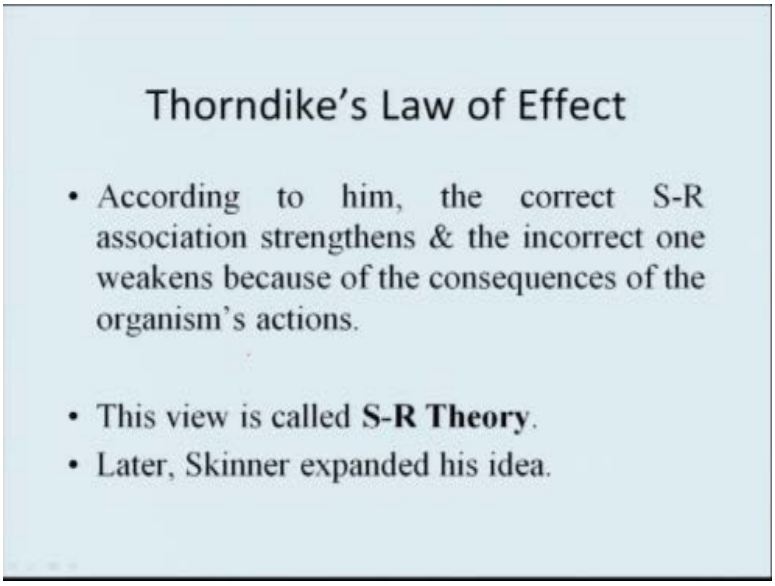

And this is this view is basically now called as the S-R theory, the stimulus of response theory. And later on it was B.F Skinner who expanded this idea of a stimulus response theory and he came forward with again another mega, mega, mega theory in learning what is called as operant conditioning okay.

So in the next lecture we would be may no, exclusively talking about Skinner's experimentation and know a new set conditioning that he proposed what was, what is popularly called as operant conditioning or instrumental conditioning.

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