

Memory
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Lecture - 14
Retrieval of Memory - IV

Hello, I welcome you all in the lecture series of memory. Today's lecture number is 14 and we are going to study about the retrieval memory in different context. Now, when we talk about in previous lecture, we discussed about the encoding context and retrieval context. When they are similar, then the retrieval is very good. We also understood that retrieval benefits in the improvement of learning repeated retrieval benefits in the improvement in learning more number of testing is there more number of retrieval is there more high number of retrieval performance can be seen we also studied that the retrieval mechanism might be very distinct from the encoding and storage mechanism.

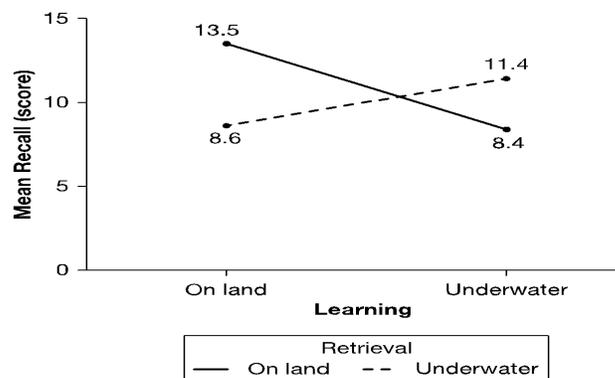
We also studied every time retrieval is happening, the accessibility of information is getting better and better. However, the number of items retrieved may vary. Now the point is, earlier we were discussing about the effect of context in retrieval. And we discussed about the Pavlov's conditioning model we even discussed about in different context if the learning is happening in one context retrieval is happening in another context relearning is happening in another context and then testing is happening in another context then the model is very different let me start today with place dependent queue what does this mean when the retrieval is happening, but it depends on the place. So, in this classical experiment by Gordon and Baddeley, 1975, what they did?

They gave the retrieval cue on land. As you can see, this is the solid line which depicts on land the cue was given to them and underwater the queue was given to them. What they tried to reflect upon is physical context during encoding aids as retrieval cue. That is the same thing we discussed in previous class. AAA, ABC, AAC, ABA and similarly many more.

So, what are these? A learning context, second relearning context and the third testing context. What we saw when the testing context, encoding context, relearning context same relearning gets decreases relearning is decreasing when relearning environment has changed then there is a competition between the two then this competition decides which information is going to be registered. When the testing phase is different then what we see the effect could be as same as this relearning decreases and when the testing is done in the original context then also relearning decreases. Now this understanding we are having it from context conditioning model, contextual conditioning model basically.

Lot of studies are there which talks about the context. And this is what Baddeley and Gordon reported in 1975. When the retrieval cue is given on the land and when the retrieval cue is given on the water, under water. When the person is learning on the ground, here you could see when the cue is provided on ground and when the person is learning on the ground, then the recall is higher. Similarly, it goes with the water also.

When the learning is happening underwater and retrieval cue is also given underwater, then they are performing better. The cue, retrieval cue is related with the underwater condition. Then only it is happening. So, the context seems to have a better effect in the retrieval, in the recall phase. However, when the learning has happened on land, but the cue is given underwater.



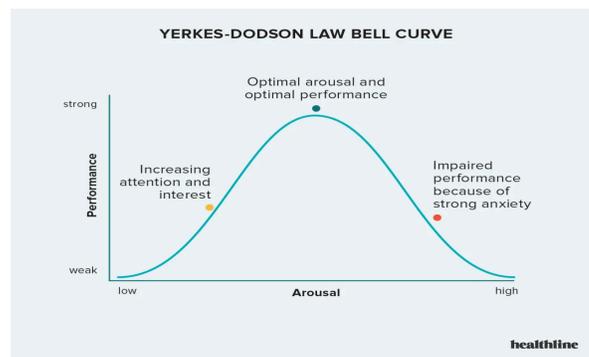
So, retrieval is getting affected. The same thing is happening here. When the learning has happened on underwater, and the cue is given on the land to retrieve. So, the physical

context during encoding aid as retrieval cue. If the context changes people rely on the internal cues.

And that is why we see such effect. Why the recall is decreasing here or why the recall was decreasing in previous example also. When the strong and weak cues were given to them. Because when the context is changing. When the nature of cue is also changing.

Then people rely on the internal cues. The information which they have registered in themselves. So this place dependent cue is still talking about the individual effect, the retrieval on individuals. Let us talk about the state dependent cue, the individual, how his state, his or her state is altering the retrieval. So we all are familiar with Yerkes-Dodson curve.

This is very famous curve and earlier also I told you about the arousal and performance. So, this Yerkes-Dodson curve what we see performance moves from low to high. It is increasing, as your arousal is increasing from left to right. However, there is a peak point. Once this peak point is reached, optimal arousal level has reached, the performance starts to come down.



So too much arousal is bad for the performance. Too much excitedness is bad for the cognition. Optimal arousal level is required. And that is why this is still, we are talking about the individual effect particularly. So physiological state of the body, a person is in excited state, a person is in calm state.

At the time of learning, if you are curious, if you have high arousal level, then you learn more. However, if arousal level is not there, you are lethargic, tired, fatigue is there at the

time of learning, learning will be bad. That is the state. Now, physiological arousal when we are talking about feeling tired or awake and many a time, many occasion, even an individual drinks an alcohol, consumes some amount of substance. They directly affect the learning.

This kind of studies has well has been well established and we have seen in recent past also substance abuse alters your physiological activity, physiological state and once your physiological state is altered the learning is going to be altered eventually. When individual state changes the performance also changes accordingly. So when a person's state, when you are sitting at home watching a beautiful movie and then you receive a phone call from your friend to join a party, you move from calm state, relaxed state to excited state, aroused state. And that alters your bodily state, physiological state. But if you are too excited, then you may end up in doing some mistakes.

But if optimal level of arousal is there, then everything goes as planned and safe. Now recall was best when participant didn't consume drug or alcohol. Now there are several such studies available here and we are quite familiar and previously also we have discussed about it that when the retrieval is happening then cellular changes are happening. When person is retrieving the information synaptic changes are happening. Cellular amnesia is possible.

Let us talk about the mood effect. If an individual is feeling happy, then the retrieval is better. People find easier to recall happy memories when they are feeling happy. Similarly, people find it easier to recall sad memories when they are feeling sad or low. So what we see here?

Happy cues and then sad cues. So when a person is in happy state and the cue is also happy, the recall is higher. When the person is in sad state and the cue is happy, the recall will be bad. Why this is happening? When the cue is not available and it is not in aligned with the mood.

When the mood is different and the cues are different, then we see person is relying on the internal cues. Some researchers have used techniques like hypnosis where they use the happy, sad, some videos and they even measure the current emotional state. How an

individual is feeling? Anxious, depressed, sad, resentment, sorrow, regret, All these mood affect the retrieval processes. Retrieval of information is a tricky part.

It's not as simple as it appears. Now, when we talk about the mood dependent, state dependent, we talk about the individual effort in retrieval processes. Let us talk about the transference appropriate processing. When physical context is there and this physical context matches the context of the learning, it aids the retrieval. So, you are having an old album in your hand, physical picture is there, you take this picture in your hand, and you just get flashes of your memory back.

So, if the physical context is there, at the time of encoding of the physical context and at the time of retrieval the physical context is same, then retrieval will be better. So when we talk about this stimuli, this is acting as an aiding tool for memory retrieval. For memory retrieval, this picture can be a cue, physical cue. Original context always helps in the retrieval. So initially, when we were talking about the model like ABC, AAA, ACB, etc., original context always helps in retrieval.

Always remember the first form of learning or the context where the learning is happening. Initial traces of memory is being formed, encoding is happening, Storage is happening. It's very, very robust in nature. Very, very robust. So its impression, its traces cannot fade away so easily from our memory system.

However, what we can do about it, we can reframe this context. And in many studies, when people do the emotion regulation of the existing emotional stimuli, then they are regulating that emotional feeling which is getting aroused or elevated because of the presence of stimuli X. So what we do, we reframe the context. One hand when the original context is helping in the retrieval we also try to reframe this context so that it could be used to rewrite the previous learning such aspect of reframing or the original context or the physical context can be used by the educator, coaches or the instructor to create the learning situation. When the football coach take the individual to the football land, football ground and the players are playing, coach teach them the significance of the corners, the significance to play in defense, the significance to play forward or backward and the player try to use the contextual information in learning. Physical context is being

used and when the players are on the ground, any ground across the globe, the same set of learning, they start to retrieve the information.

The way, they have played in an original context, they try to use the similar information in the novel context. And that is why an educator or instructor, course instructor, teaching in a classroom, he or she has to create a learning situation where when the student is going to that classroom again, can use those cues, can use those information to enhance and improve their learning. So what we see here is that together the contextual cues, physical cues, physical context along with physiological state is important for the memory retrieval. Physical state of the person and the context together binds together and aids the individual at the time of memory retrieval so till this point we have been talking about the individuals how individuals are learning how individuals are performing. Now let me spend some time on the group learning group retrieval and when we talk about the group retrieval, we have to talk about the collaborative memory how the memory is there in collaboration more than two people are there in a group.

So, the study of group retrieval how the group retrieval is happening is the retrieval fast slow, in a group, how groups are altering the process of retrieval is called as collaborative memory. So what is collaborative memory? The study of group retrieval and how the groups are altering the process of retrieval is called as collaborative memory. So groups retrieving information may alter retrieval performance. So, when a group of people are executing a task together and when they are retrieving the information, when they are retrieving the information, it affects their retrieval performance.

So, this group, this group, group of two, their retrieval performance may vary. Now one may say that larger the group would be, better the retrieval performance could be. This is a scarce literature is available. The number of people in a group cannot be a deciding factor for the retrieval performance. But one thing is for sure that the retrieving information by the group alters their retrieval performance.

Third point, the drop in performance is seen is commonly present because of attempting retrieval in a collaborative group setting. This is known as collaborative inhibition. As I was telling you earlier, that the number of people in a group is not a deciding factor about

a group performance or retrieval performance. Similarly, a drop in performance could be there because of collaborative inhibition. Let us summarize this presentation.

What we studied is that place dependent cue, the context plays a major role. So, if the encoding and retrieval context is same, retrieval is better. Physiological state. When the encoding state of the individual and retrieval state of the individual are same, then also retrieval will be better. But, yes, in Dodson curve, arousal and performance, when we saw, we saw that as the arousal is increasing and the performance is increasing its inverted bell shape it reaches this optimal point, it reaches this optimal point after this the performance starts to decrease no matter how high the arousal level is, so the state.

Then we discussed about the mood. Positive mood or negative mood. If you are in a happy mood, happy cue will be providing an aid towards the retrieval. If you are in sad mood, sad cues will be providing an aid. But when you are in happy mood, but the sad cues are given to you, your performance will decrease.

Similarly, if you are in sad mood and happy cues are given to you, then also the performance may not be better. In these cases, generally we rely on our internal cues. Then we discussed about the transfer appropriate processing. In this we talked about physical context is an important element and this physical context, educator, coaches, instructor can use to create a learning situation where an individual is using a physical context to learn and enhance. Upon each retrieval, the learning gets better and better and robust in nature.

In many educational policies in educational courses, researchers have been using this principle of transference appropriate processing. Till this part and further as we discussed earlier, we have been talking about the individual effect on retrieval. Now with this we started to discuss about the group effect on retrieval and we saw that the performance if it is bad then it indicates the retrieval effect of the group. The number of percent cannot be a deciding factor also here we discussed. But I do not deny the fact that some studies have shown the number of people and their role in collaborative memory.

Now we also have a saying in English, too many cooks spoil the broth and that fits here under certain scenario, context. If we do not have a strategy, if the task is not sequential,

then more number of people collaborating together may affect the performance. So, with this, I will stop here and in next class, we will study retrieval and we will try to close the chapter on retrieval. After that, we will start with the week 4. Thank you and have a good day.