

Memory
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Lecture - 15
Retrieval of Memory - V

Hello everyone, I welcome you all in the lecture series of memory. This is lecture number 15, last lecture on retrieval memory. Earlier we discussed about the collaborative memory. Taking this topic further down the line, we will today talk about the collaborative inhibition. What does this mean?

We were talking about the individual memory retrieval. Then we started to discuss about the collaborative inhibition. Group individual, collaborative group individuals, sorry, collaborative memory, when we were discussing about it, in collaborative memory, we were discussing about the group retrieval performance, how a group in an office or at a workplace setting is performing on the retrieval task. Now, what we have seen in this type is that when the group is performing to a task, there is a performance benefit. There is a better recall.

There is better recognition. However, after some time, a drop in performance is observed. A drop in performance of a group in a collaborative memory is known as collaborative inhibition, which means an inhibitory mechanism is working towards the memory processes where a group is not performing as they are supposed to perform. In addition to this, what we have seen, high number of wrong answers are also being reported in collaborative memory. High number of wrong answers are reported.

However, the individuals, they tend to assume and pretend that their answers are correct. These high number of wrong answers are known as false intrusions. In a collaborative group, we have seen that the individuals are overconfident to their wrong answers. which means that when they perform badly, when they give a wrong answer, they are very much confident that their answers or the solution provided is correct in nature. This overconfidence could be inter reliability on other individual.

And that is why in a collaborative memory, the reliability and the dependency could be cross checked. The collaborative group is as they are overconfident to their own answers what we have seen is that these collaborative groups are prone to misinformation effect also. As we discussed several occasions earlier also when in a group and individuals are working together. Another important point here also we have to understand when we are talking about the group, it is more than two people. So, we will see in coming lecture that how this group versus dyad which means the two individuals are performing.

So, when we are talking about the group, the interdependency of each individual in this group is actually creating such problem. So, an individual who is incapable to answer rely on the same another person, a person who is also not engaging much or having social loafing depends that the other person should be answering that interdependency, that dependency on the other is actually leading towards this kind of problem, problem like wrong answers and overconfidence with the wrong answers and misinformation effect. So, if we see misinformation, what is misinformation means? So, misinformation means spreading incorrect as a part of conforming to the group. Now, if a collaborative group is there and the group individuals are overconfident, then you can imagine the retrieval or recollection of information could be wrong.

As a result, the performance in the long run will be affected. And this is the reason why in some studies people have seen that after certain period of time, the group is being dismantled. The new group is being formed, the new hierarchy is being brought up in the system so that a change can be seen. If the system is stagnant, if the system once it is being formed, the group is being formed, then the more and more inhibition over period of time is seen and more and more interdependency will be there and more and high social loafing will be there. As a result, you know, the misinformation also starts to spread because of the reliability or dependency on one or two individuals present in a group. So, when the information is being spreading, incorrect information is spreading, then it affects your reconsolidation processes also.

As we discussed earlier also that reconsolidation is maintenance and update of old information. So, in this case, when a group is there and collaborative memory is there, then in that case, any misinformation could update the old information. Authentic

information with some faulty information. Now, reconsolidation or retrace updating theories, procedure is being used just to predict this aspect. But what we have seen is that once the information is being added to the previous information, the reconsolidation reveals it, predicts it that there is mishappening or misinformation has already occurred.

The presence of wrong information during the recall may be consolidated with the original memory and that is what we were talking about it. So, as we discussed earlier, there is a document dated on 12th January 2024. You are retrieving this document and once you are retrieving it, you are registering this document I am in Delhi. And when you are saving this document on 12th of March 2024, you have updated this information. You have updated the old document, the document which was being retrieved from 12th of January.

Now, when the information which you have provided, I am in Delhi and when you were actually in, I am in Roorkee currently. So, this is the authentic information. I am in Roorkee is the authentic information. So, this authentic information, I have retrieved it and I have updated it with some new information. I am in Delhi. This is the misinformation.

This misinformation, addition of new information or update of the old information is nothing, but it is a reconsolidation. And this reconsolidation effect is actually fault in system because you are saving some the consolidated memory, or you are saving some wrong information after the recall into the original memory. Now, what we have seen is that the collaborative inhibition is not only happening because of the misinformation, collaborative inhibition is not happening because of the individual effect, but it is also happening because of the social loafing. Now, there are so many individuals present in a group and one such individual does the social loafing. What do we mean with social loafing?

So, first thing before we discuss about the social loafing, we talk about that collaborative inhibition could be of, could be having two elements, social or cognitive. So, social loafing is a name to the situation in which individual, individual, this individual, this individual of a group, try less hard at an activity which means do not contribute much is

there but just there to do a minimal activity in a group like doing only signature entire project is being governed or being addressed by these three individuals and the person who was who is doing the social loafing is just doing the signature. The three individuals are putting an effort in understanding the assignment implementation of the project on the ground. But the third person who is doing the social loafing is just seeing the report and then approving the report or just clapping the hand on the successful completion of the project. so, such aspects is being seen quite frequently in the collaborative group in a collaborative group and that is why such in such collaborative group in a collaborative memory collaborative inhibition starts to happen social loafing is not could be happening it for several reason

If we see, then it could be happening because the individual lacks necessary skill and abilities Individual lack social context. Individual comes from different social context. Individual lacks the mode of communication. And when we talk about the mode of communication, it could be the language itself and the language which could be aiding the individual to coordinate and aid. So, imagine a group of individual, Russian group of individuals are there. They are being headed by a Japanese supervisor. So, there is always a communication gap, cultural gap.

As a result, disinterest and these things will be there. However, a person who will be doing a social loafing also this he or she will be trying to keep himself or herself away from the group activity and always trying to be present in the group activity. But their role in such group activity will be least and minimal. These individuals may be expecting that the responsibility of the others are more on this project, the stake of the others are more in this project, so they should be handling the project rather than me. When such understanding comes, then the inhibition starts to happen.

If one individual is doing the same, then the other individual observes it and we human being learns from observation. So, then the another person starts to do and then the another person starts to do. So, what we have seen, generally collaborative innovation happens in a group. However, when an individual is performing, such innovation does not occur. Recall improves when people work alone after a group recall effort.

So, recall seems to be working in an individual when they are working alone but not in a collaborative way of course it is two sides of the same coin this also depends on the task if there is a task which requires four different skills and if you have four different individuals with four different skills then the distribution of these individuals and the task distribution for these individuals may be helpful in the recall and this recall helps in the collaborative memory performance, group performance. But if any of those skills or if any two or three skills is being handled by any one individual, then in that case the interdependency starts to arise. Then this suggests the cognitive elements to disruption goes beyond the loafing also. So, loafing is not, so you know there are some more elements there which may play role in collaborative inhibition. Only social loafing cannot be an additional parameter.

What we understand with that, that there could be some more elements are there which are playing role in collaborative inhibition. These elements could be cognitive in nature. And this brings me here to discuss with you the nature of and the types of cognitive elements towards collaborative inhibition. So, first such element is the retrieval strategy disruption. So, you know disruption is happening to retrieval strategy and individual is trying to have that specific strategy.

Evaluation apprehension is there, part set cueing effect, and the fourth type of cognitive element is the cognitive overload. So, if we discuss this thing in detail, let us see about the retrieval strategy disruption effect. Retrieval strategy disruption hypothesis suggests it is possible that our own internal retrieval cues are the best for the retrieval. What does this mean? Four individuals are working and four of these individuals are having different internal retrieval cues. and all four of them believes that my retrieval cue is better than the other.

My retrieval cue is the going to provide better solution towards a problem. As a result, it brings inhibition to a collaborative memory and then in the long run we see a effect on the performance. And that is why in such scenario, a specific strategy is required, hierarchy is required, a systematic approach is required, sequential analysis is required, or sequential task processing is required. Because if in a group, every individual believes that his or her retrieval cue is the better one, then in that case, it becomes challenging for

the group to decide what is the optimal solution related to the recall. And once this optimal solution investigation starts, the search for this optimal investigation starts, then we see that it is very challenging to select one or decide one.

And this eventually leads, this search eventually leads to collaborative innovation. Now this is not, this would not be novel to us because we have seen such effect in an organizational workplace setting. And that is why, you know, the group assignment, different groups are being assigned. The team of four people are assigned so that the bias should not be there. If a group of three people is there or a group of five people is there, then always there is a challenge.

The group of four, group of six, even number of groups, one can find an equal distribution in the perspective or a thought. Now, another type of cognitive element is the evaluation apprehension, which talks about group members do not want to introduce the mistakes. So, when they are doing the evaluation, they try not to introduce the mistakes. Everybody in a group tries not to introduce the mistakes. And as a result, you know, they elect not to share much also.

What does this mean? That certain individual contribution is there, but once the evaluation is happening and a mistake is being observed, in the observation of that mistake people try not to share so much because if more and more sharing is coming from their end then their stake in the collaboration their stake in the collaborative memory performance will be higher. As a result, the evaluation apprehension could be seen the third type of cognitive element in collaborative inhibition is parts at cueing effect which describes how people perform worse for material they have not yet recalled. So some material while performing a task, sometimes the task requires a response which they are unfamiliar towards it and when it is there, when they have to perform it. What has been seen is that they are performing it who are in this type of task.

This cognitive element, you know, because they haven't yet recalled when freely given some of the answers unexpectedly to them. So, some answers are being provided to them, but they still perform bad because they are not familiar with the items. So, in this case also an individual you know when we are talking about a collaboration people are very

particular about how they have to select the answers because of working in a group nobody wants to make an error. Nobody wants to project themselves as a person, as an individual who makes a mistake. As a result, every individual in a group looks at each other with the understanding that they may get an answer from the other person.

Even when the individual is knowing the answer, still he or she is reluctant to add such aspects and when the option is being provided, then also they have this hesitation to recall that information. So, such hesitation actually leads towards the collaborative inhibition. The another type of cognitive element other than the evaluation, apprehension, part set cueing effect, other type is the cognitive overload. the act of having the to coordinate the retrieval. Now, when the retrieval is happening from the individual, the point is that how to do the coordination, how this coordination may be helpful you know in that regard. So, such coordination, coordination among the retrieval Coordination of retrieval is a challenging task and is a tricky task also.

I mean, it is not that simple. And what we have seen is that people face a lot of difficulty in such coordination. And this coordination of retrieval is actually leading to cognitive overload. Now, one thing which we haven't addressed yet here in all these cognitive elements. When we are discussing about the cognitive overload or set cueing effect and retrieval strategy disruption and the evaluation apprehension, they also depend upon the social factor, emotional factor, motivational factor as well. So, these parameters one cannot rule out.

The point of discussion here is that when there is a collaborative memory, collaborative memory performance is good, but the recall is facing a challenge. Then there are social or cognitive elements. These social and cognitive elements are creating an inhibition. As a researcher or as a memory scientist, we have to ensure how can we reduce this collaborative inhibition. If we can reduce the collaborative inhibition, then the collaborative memory performance will get better and better in these individuals.

So collaborative memory situation, work teams are expected to make presentation together. So how we can do that? So, we ask for a group presentation. So, all the four people are coming together and together, and we ask them to perform together. Now

when such presentation is there, earlier we were discussing about it, their skill could be different S1, S2, S3, S4.

Based on their skill distribution, based on their skill ability, you can give them a different task and as a result, their collaborative performance will be better in this regard because they will be just providing the aid based on their skill and ability. Collaborative innovation may come more with some tasks than the others. What we have seen that collaborative innovation It is not same on all the tasks. And it cannot be same for one task in the different context also. So as the context will change, collaborative inhibition will also change. And collaborative inhibition can never be same for different types of tasks, so, it varies.

And it varies because of social and cognitive elements, which we already discussed. And along with social and cognitive element, emotional, motivational effect component could also be playing a role. In addition to this, the biological elements could also be part of it. So let us say a group of four individuals is there and one individual is having mental health issues. As a result, it will be affected as well.

So, in order to reduce this collaborative inhibition, we have to ensure that all the four individuals should be healthy and fine. Inhibition seems to happen with groups of three more than the pairs or a dyad. So, what does this mean is that this is a group of four people. So, inhibition is seen in group of four, group of three, group of six, group of five, group. In these groups, we have seen more than the group of 2 or dyads or other pairs.

So, this way, you know, it is easier to control the collaborative inhibition. What we have even seen is that collaborative group perform better with a cued recall task. So, if the cue is provided, then they perform better in this recall task. So, group actually, the individuals are more in number, the chances of responding or performing performance will get better and better. So, what have we studied in this section of this topic?

Collaborative inhibition is an important element and what we have seen is because of some cognitive and social element, inhibition seems to happen in the collaborative memory performance in an individual. And because the performance is being performed by the group, so some cognitive and social elements are there. In social elements, we

talked about the social loafing. And in cognitive element, we talked about the retrieval strategy description, evaluation apprehension, part set cueing effect, and cognitive overload. These cognitive elements are playing crucial role in the collaborative inhibition.

So, if an individual tries to address the social loafing along with cognitive elements, then collaborative inhibition can be rectified. So, how an individual can rectify this collaborative inhibition? It could be in by addressing these parameters. So, here I will stop the lecture on retrieval memory. In the next lecture, we will start with working memory, the new topic, the new topic for this NPTEL course on memory.

Thank you.