

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

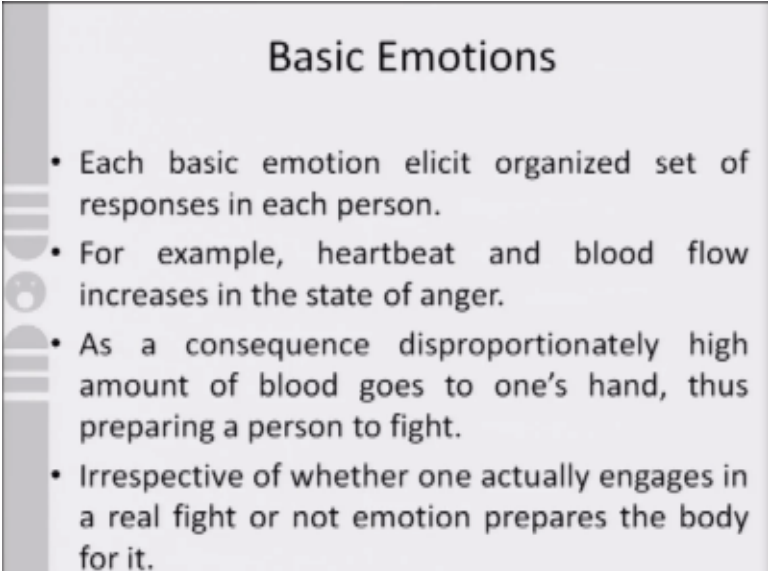
Lecture – 24
Emotion

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Now that we have talked about whole lot of issues that lead into human emotions, this is going to be our last lecture, and therefore our focus would be on two things. We have till now looked at the face, we have till now looked at the behavior, the culture, we have not still entered into the brain. So right now in this very lecture we would be doing two things, we would be looking at the biological aspect of emotional response one, and two and most importantly.

We would try to understand why is it that human emotions is given so much of importance, what is its significance.

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Basic Emotions

- Each basic emotion elicit organized set of responses in each person.
- For example, heartbeat and blood flow increases in the state of anger.
- As a consequence disproportionately high amount of blood goes to one's hand, thus preparing a person to fight.
- Irrespective of whether one actually engages in a real fight or not emotion prepares the body for it.

Now each basic emotion that we come forward with okay is associated with certain degree of bodily activities. Say for instance, heartbeat, blood flow will increase in this state of anger for instance, okay. But what happens in the case of anger, as a consequence of increasing the heartbeat, and increasing the blood flow, there is a disproportionately high amount of blood that goes into ones hand.

So if I am extremely angry, my heartbeat increases the blood flow increases, and then you realize that in the hands there is no disproportionately high blood flow, which basically has again biological significance, a survival significance, because it prepares you to fight okay, your increase blood flow in the hand prepares you to fight against the external threat, you are angry, your anger will make you move towards the source of anger okay.

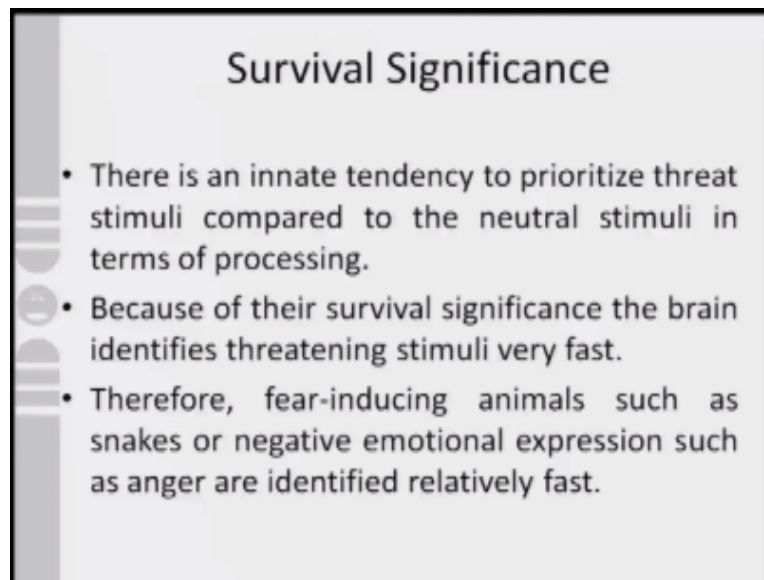
And you would try to know overpower the source of anger and therefore you have to be biologically ready, else you would be compromising with your survival. In order to make you ready for know, that engagement in the state of anger the blood flow and the heartbeat both increases. Now if you evaluate this argument with your real-life experience many times you get angry, but you do not revert back to the source of anger okay.

Every time you get angry, you do not fight, so is it that the heartbeat and the blood pressure okay, it such as know, what you call gets modified if you plan to fight the blood flow will increase, the heartbeat will increase, and if you do not intend to find then it will not increase that does not happen. The biochemical regulation of emotions suggests that whether you fight or not heartbeat will by default increase, blood flow will by default increase.

And this increase in turn will now get extended to the two arms and you will be ready for fight. This is an interesting mechanism, towards the end we will again look at this very slide trying to say and understand, that we are social human beings know, we are social creatures. So irrespective of whether you actually engage in the real fight or not, the state of emotion prepares your body for it okay.

So heartbeat by default will increase, blood flow will by default increase, but then the social moderator works. And that social moderator okay, tells you whether to fight or not, that means that even though you are biologically ready for an act, socially your brain controls you.

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Now there is an innate tendency in us to prioritize the threat stimuli compared to the neutral stimuli or any other stimuli okay. Now why is threat given so much of importance? If I look at an angry creature in front of me I developed great degree of fear okay. And this threat actually has to do with survival significance. I consider that the anger, that the object in front of me has towards me, and is reflecting at me, could know prevent me from my healthy survival.

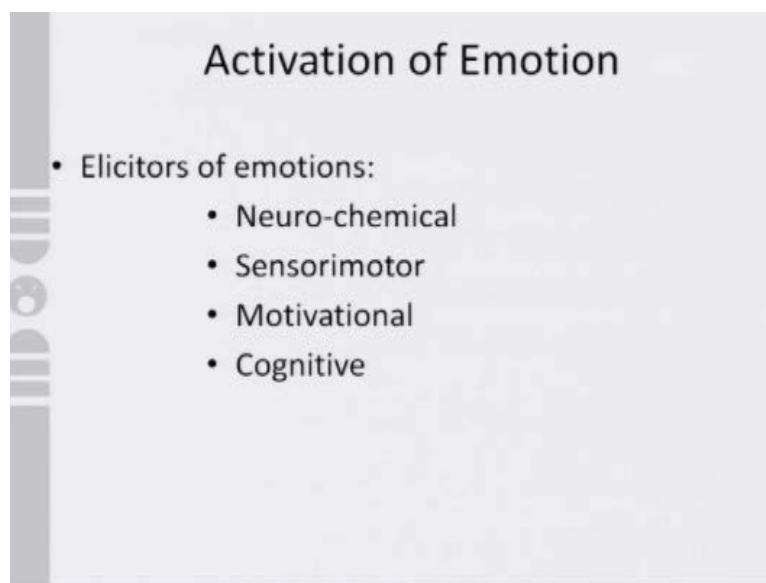
And in order to know, what you call help myself survive, this fear induction very fast it propagates to the brain and on a priority basis the brain processes it and therefore you would realize that all threads are always processed in priority compared to any other emotion you are say for instance know sitting with your friends you are cutting jokes at each other you are enjoying the evening okay and suddenly you see a snake in the lawn now the fear-inducing animal has made you focus at it itself rather than anything else in the environment you will not

look at the joke now you are processing of the joke freezes at that time and you process the fear at the snake has induced in you.

Okay so this is now an interesting mechanism in terms of emotional expressions now emotional expressions and survival significance it suggests that there is an attention preference for such a stimuli and therefore reptiles such as snakes angry human beings okay all such things will always get priority in terms of processing by the brain now understanding the biological significance of processing certain type of emotion let us look at the activation pattern what elicitors of emotions.

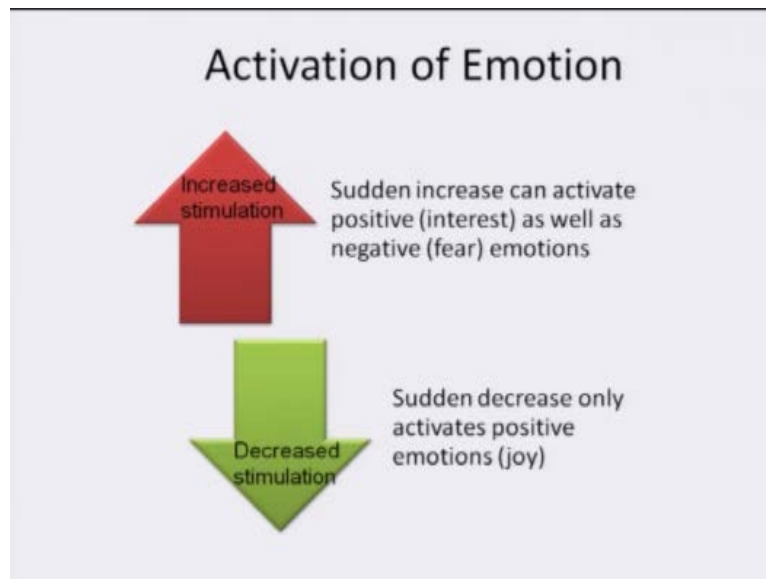
Remember we are exclusively interested right now looking at it from the biochemical regulation point of view number one the neuro chemical benchmark.

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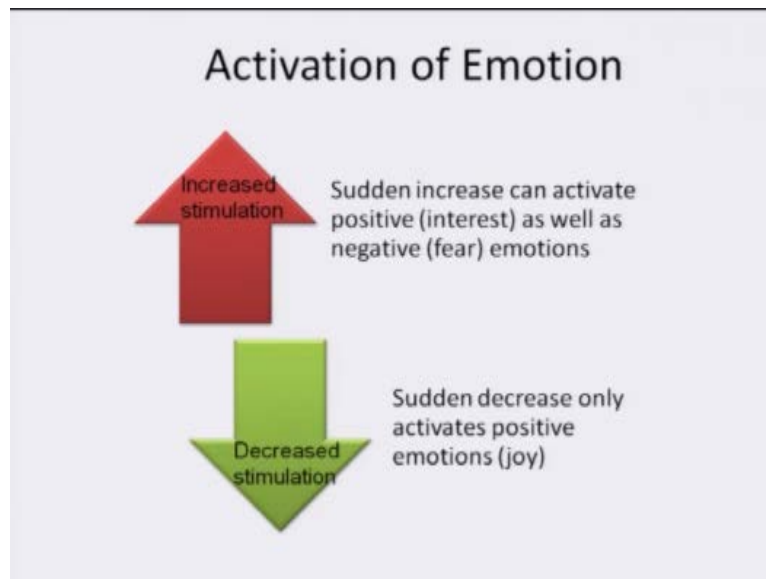
Okay the change in the neuro chemistry sensorimotor changes and off course two behavioral factors the motivation and cognitive factors, now look at the activation partner and compare it in terms of the increase what verse the decrease situation.

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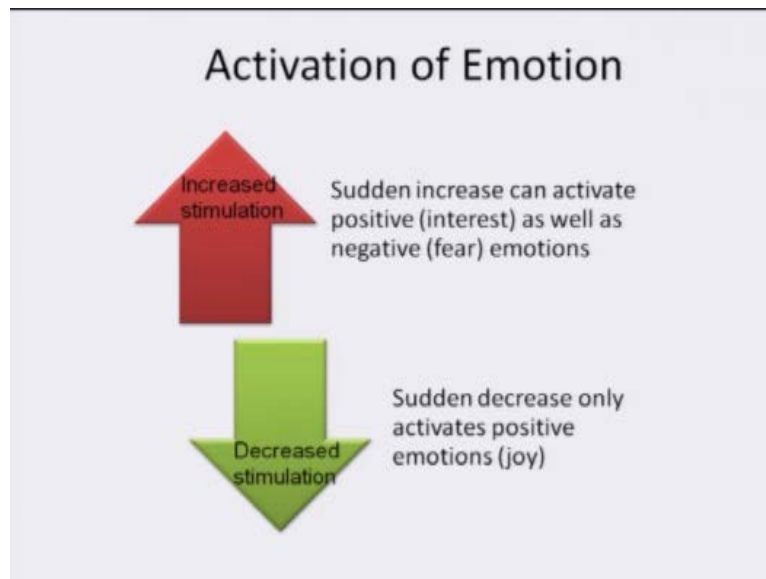
If the stimulation has increased what would happen and if the stimulation level decreases then what type of emotion will it lead to if there is a sudden increase okay in the stimulation then it can activate positive as well as negative emotion say for instance interest happiness these are positive emotion fear for instance is a negative emotion okay but then sudden increase in the stimulation can lead to,

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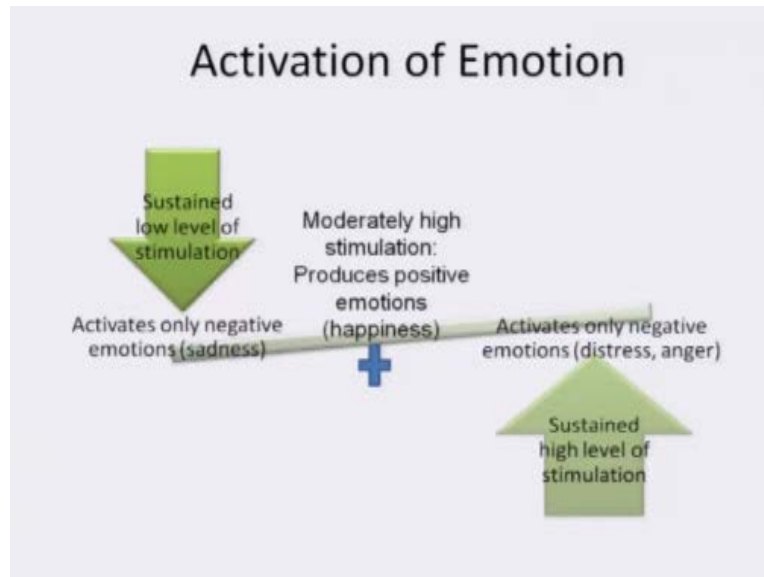
Either of them no your interest happiness fear all of them are dependent on sudden increase in the stimulation level therefore increases stimulation sudden increase in the stimulation is going to be either positive or negative emotion it can lead to but if there is a sudden decrease in the stimulation level.

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Then it is by default going to lead to positive emotions so there is an interesting things sudden increase it could be positive it could be negative if it is sudden decrease then it has to be positive emotions only what if the stimulation level is sustained okay in the previous case what we discussed was either sudden increase or sudden decrease are now we are talking about sustained level now if there is a sustained low level of a stimulation.

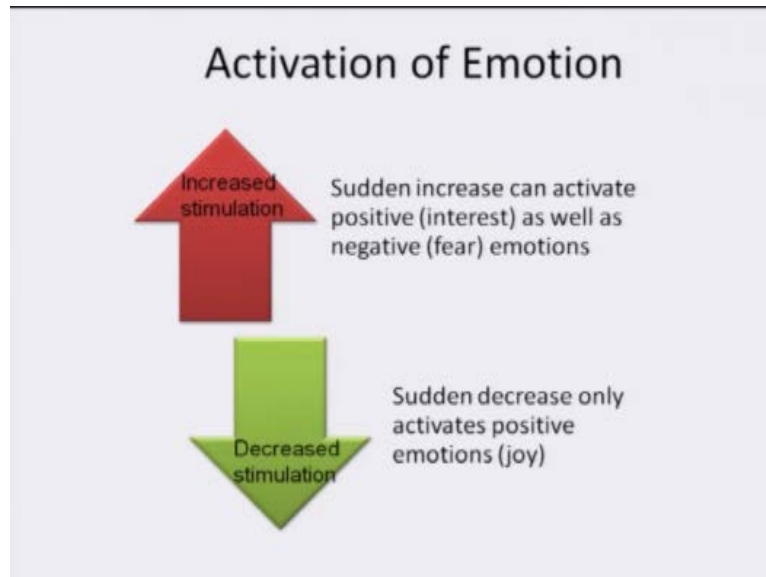
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Then it can no lead to negative emotions okay if there is a sustained high level of stimulation then it will activate only negative emotions okay interesting thing you see here sustained low level of a stimulation and sustained high level of stimulation and in both the cases it is negative emotions for instance sustained low level of stimulation might say activate sadness if you take a negative emotions like distress and anger okay it has a high degree of stimulation but it is negative in nature.

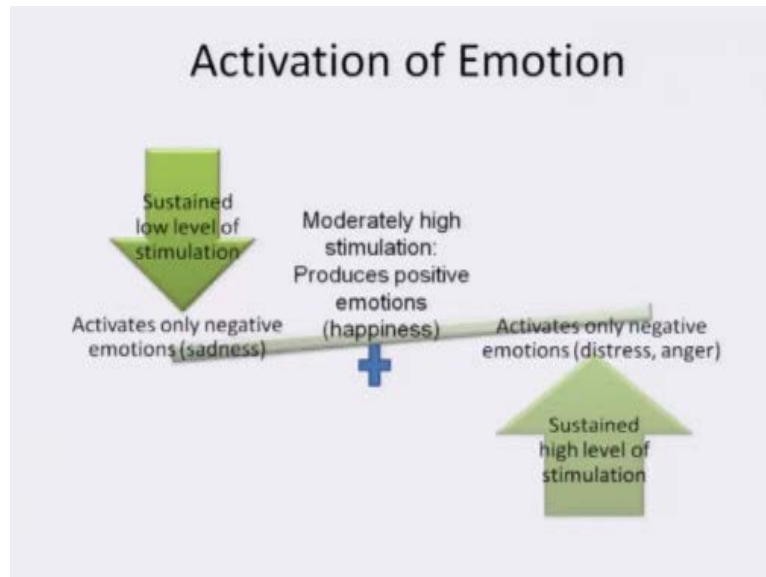
So sustained low and higher stimulation then it is bound to produce positive emotion okay happiness for instance okay now happiness is basically a moderately higher stimulation so this is an interesting pattern know what we saw in the previous slide okay was that the if there is.

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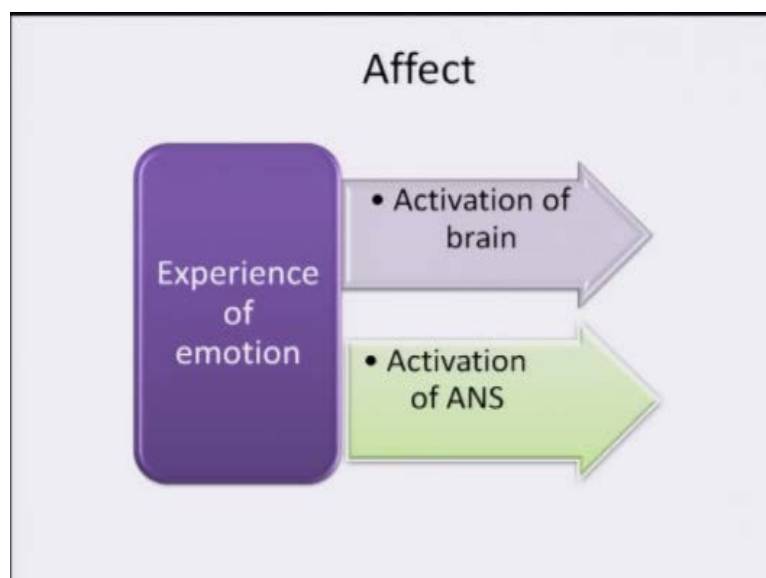
A sudden decrease in the stimulation then you can think of a positive emotion and in.

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Second case what we are seeing is that if we do not have sustained low or high level if the level of stimulation is moderate then you experience positive emotion you do not experience negative emotion but if high or low degree of a stimulation is sustained then it is only negative emotion now experience of emotion.

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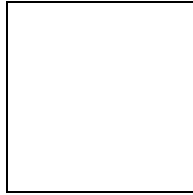
In terms of biochemical regulation will depend on the activation of the brain and activation of the autonomic nervous system in the beginning itself no we said that the heart beat increases the blood flow increases. So these are no level of changes in the activation of the autonomic nervous system. Now usually what happens in our day-to-day experience.

We have the sensory information which no invokes emotionless, okay. You remember we had talked about know how sensation is carried in the brain in the first lecture and we started on perception. Now sensory information which will invoke emotion has two path ways, okay.

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That it takes in the brain, one where you have the thalamus, the amygdala and the hippocampus which finally goes to the activation of the autonomic nervous system. The second where the sensory information goes to the higher cortical areas and this is a very slow process but what it does is, that it allows you to go for appraisal of the emotion. That means that two systems are working, one which basically moves very fast, okay. Something that is knows circled here a red.

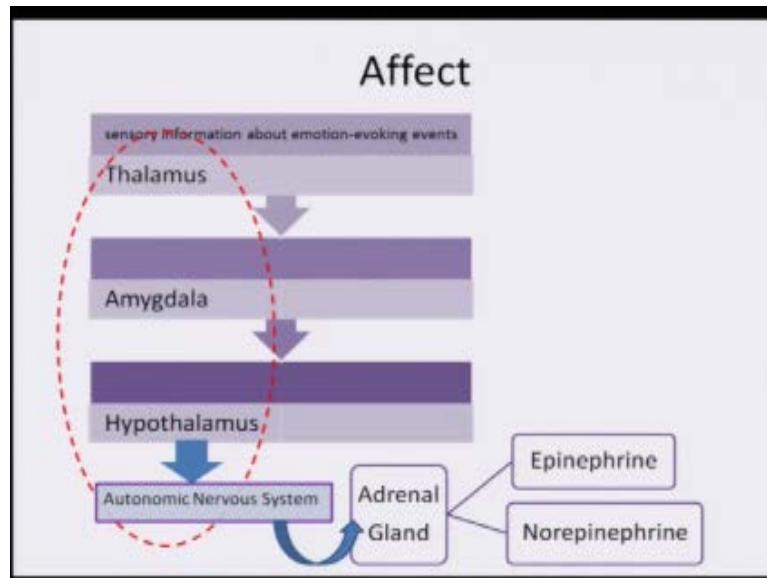
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And you realize that through thalamus, Amygdala and hypothalamus the anus system gets activated, okay. This is a very fast system, the slow system which actually no allows you to go for an appraisal of your emotion, little later we will talk about the appraisal mechanism also, okay. And then you realize that the higher cortical areas are involved. It is a slow process but then once the appraisal is done.

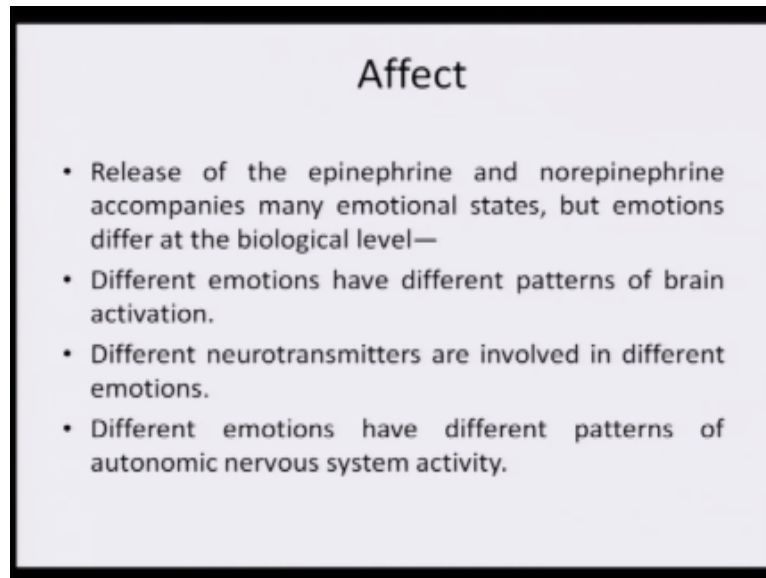
Again it will affect the behavioral outcome, okay. So the first channel that we were talking about once the autonomic nervous system is put into action.

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Adrenal gland comes into picture and then you have the secretion of Epinephrine, Norepinephrine.

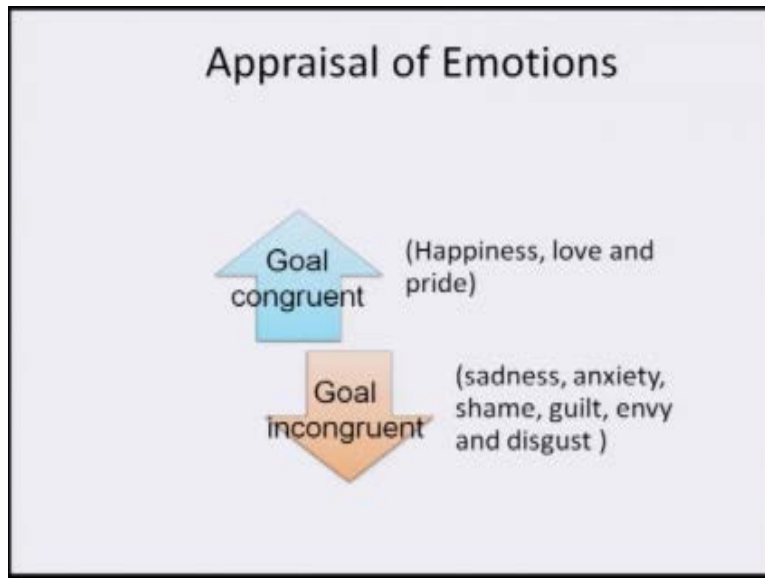
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Now release of Epinephrine or nor – epinephrine it accompanies many emotional states, okay. For instance you have different emotions which have different patterns in the brain activation given. There is a difference even in the at the level of neurotransmitters, you have difference at the level of Anus activity also. But remember one thing the slow process the second channel that we were talking about.

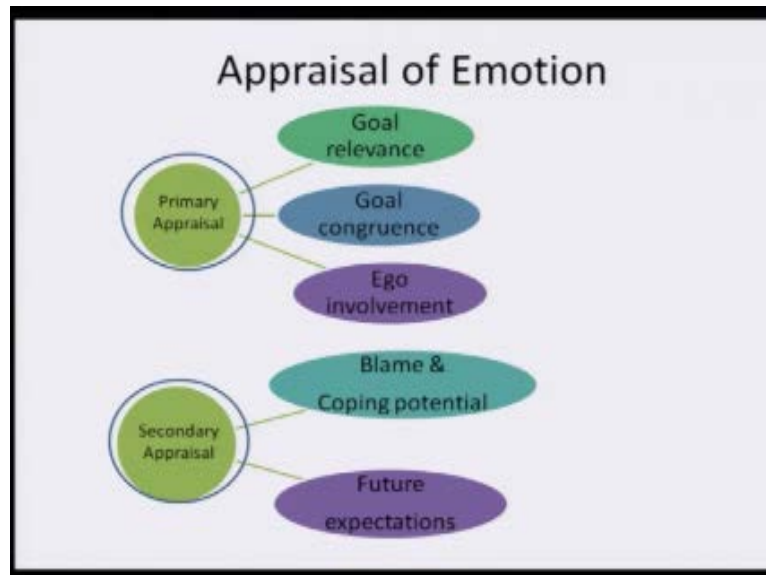
Which had to do with appraisal of the system. Now this know, the emotion invoking sensation that has been received by the brain when the higher cortical area processes, it looks at emotions largely from two perspectives, how Congruent or incongruent it is to the goal. So you can now clearly divide emotions in terms of goal congruent emotions and goal incongruent emotions, the goal congruent emotions will involve happiness, love and pride.

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Emotions like sadness, anxiety, shame, guilt, envy, disgust they all become the part of the goal incongruent emotions. Now what happens? The goal congruent and the goal incongruent emotions are primarily known and looked upon from two points of view.

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The primary operation mechanism and the secondary operation mechanism, the first filter is the primary operation, primary operations looks at the goal relevance, goal congruence and ego involvement, okay. These are the only three criteria's, secondary appraisal mechanism looks only at two things, the blame part who has to be blamed or who has to be given credit if you think of the opposite of it.

And the coping potential and then the second filter at the secondary appraisal mechanism uses is that of the future expectation. Let us come to primary appraisal first, okay. Goal relevance means you have set a goal for yourself, you remember in the one of the lectures we said no, that it is attainment of the goal or it is blocked in the process of attaining the goal know that helps you memorize things.

And this is how emotion and memory they merged together, you have set a goal for yourself the emotion that you are experiencing, how relevant it is to the goal that you have set for yourself, whether, whether it is congruent with the goal or incongruent with the gold, okay. Second

important thing and third is the level of ego involvement whether you find your ego to be involved in that situation or not.

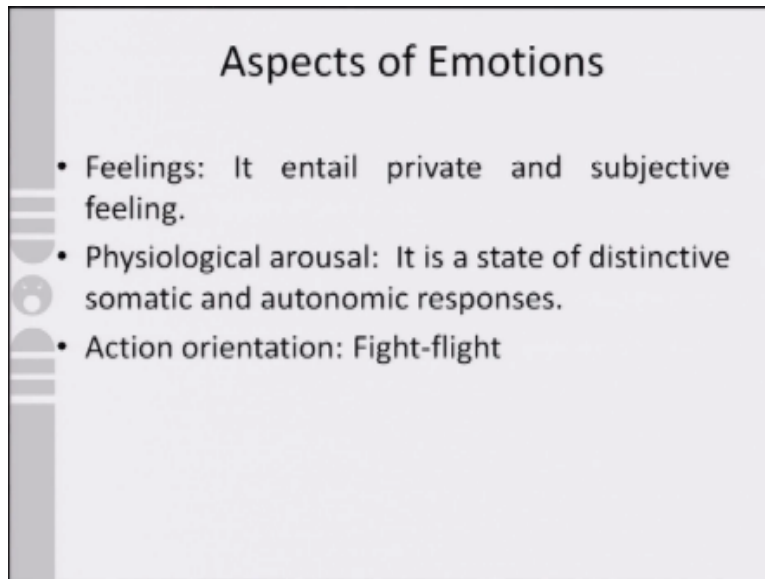
Say for instance if you find your ego to be involved in the process, okay. It is goal congruent, okay. It is goal relevant, okay. You can think of pride, okay. Because your ego will get inflated in that process. If you do not consider this to be a situation that can boost your ego, why will you have fright? So you understand these things now, so just goal relevance, goal congruence and the level of the degree of involvement of your ego, only these three filters are used and this leads to the primary operation mechanism.

Most of our emotions when they are undergoing the process of operation okay, are easily identified, easily experienced only on the basis of primary operation, in certain cases secondary operation mechanism comes into picture, where you search for the individual, who has to be blamed for it? If there is say something that has gone missing, then you search for a potential person to be blamed, who has to be held accountable, who has to be held responsible for it okay. And the reverse of it would be credit, if there is something that has been achieved then you say yes, I have done it, you take the credit, you derived pride out of it okay.

Besides blame and pride, the second thing is the coping potential, if the damage has been cost if someone has been found to be blamed for it, can I cope with it, can I handle this loss and depending on whether the answer is yes or no. And how capable you find yourself coping with know, this situation works as an important factor for secondary operation, and second important filter for secondary operation mechanism is the future expectation.

If same situation I experienced in the near future, in the days to come would I be able to handle it, that is the future expectation. If I find myself capable enough of handling the situation, now if it comes on my way then fine I am comfortable with it okay, I cannot have a negative emotion. If I think that I lost in this situation and I find myself incompetent to handle this, if this comes in the future also, then fine, I am bound to develop negative emotion in the situation. I would be scared of it.

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Therefore, the feeling the physiological arousal and the action orientation, the fight flight response okay. All these three things comes into picture when we look at emotion, at the end I would like to show you a video footage. The reason I am showing you this video footage is, that you see people in uniform, who are supposed to execute a command while you are on duty you are performing the Professional Responsibility emotions work and you have a cognitive operation mechanism okay, operation and then the emotional reaction. Look at this very episode.

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Look at this man in the sky blue shirt, who is trying to save himself from this Lahti charge, all his attempts turn in vain, he is surrounded by policemen. And then comes this officer, he saw this lonely target surrounded by so many policemen and came to stop others from hitting this young man. You saw somebody who did not think, who did not evaluate the decision of not continuing the Lahti charge on a single individual, you saw a set of people who could not stop themselves, in the process. And then you saw somebody who had a better control and taught that one single individual should not be made target okay.

This was a disproportionate reaction; this is no cognitive emotional regulation. So with this we come to an end to the last topic it was emotion, what we did as part of this very course, very succinctly we talked about the perceptual mechanism, which saw how we learn what we learn, how we memorize and then how emotion it colors our perception and memory both. So this was all about our understanding of human effective processes.

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