

Social Behavior and the Brain: An Introduction to Social Neuroscience

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Week – 08

Lecture – 36

Hello and welcome to the course Social Behaviour in the Brain, an Introduction to Social Neuroscience. I am Dr. Ark Verma, an Associate Professor in the Department of Cognitive Science at IIT Kanpur. This is the final week of the course where we are going to talk about social affective processing with special attention to how negative effect is processed. Now a very interesting old custom in Guatemalan villages is of whispering one's worries to worry dolls at night and keeping them under one's pillow before going to sleep. It is believed that expressing or describing one's worries to such dolls has actually the potential to diminish one's experience stress.

In the following few lectures we will discuss this disruption to negative feelings when one verbalizes them. Now again if you think of this, it is something that is part of conventional wisdom as well, it's part of our experience truths as well that the more we actually talk about our troubles, the more we talk about our worries to our friends, to family members, to people who we know, to people who we share a lot with, it sort of provides us a perspective it diminishes how bad let us say we are feeling about something or how sad we are about something. And one of the most important aspects of friendship or one of the most important aspects of belonging to a family is the fact that we can actually share our feelings towards you know X, Y and Z with family members, with friends and basically get a better perspective. it not only helps us to get, you know, a more rational, probably more rational, more, you know, multifaceted view on certain things, but phenomenally, it actually helps us limit or reduce the pain, reduce the you know the negative feeling, the sadness that we are feeling about something.

This particular phenomena has been referred to as disruption of negative effect. Disruption of negative effect happens whenever we find a chance to express or verbalize our feelings. In the last week, in the next few lectures what we are going to be doing is we are going to try and understand how does talking about our sad feelings, how does talking about our negative feelings helps us to reduce or minimize them. Now this idea again that verbalizing negative feelings somehow diminishes them is it is neither new nor limited to just specific culture it is not new to Guatemalan villages who have their worry dolls you know the story is that every parent hands out a worry doll one inch small you know wooden dolls and teaches their children to sort of you know vent out all their worries and concerns to these dolls with the hope that these dolls will basically take their

worries away metaphorically speaking obviously. But the idea is that this is something which is known to work across different cultures.

For instance, in some of the oldest Buddhist texts, labeling of emotions is proposed to induce a healthy level of detachment with them and say for example, speaking out one's mood and emotion is expected to reduce one's identification with them. So the idea is if you are analyzing your feelings, if you are talking about them, if you are labeling them that, oh, I am consciously feeling sad, I am feeling sad about this thing, I am feeling angry, I am feeling angry because of this specific reason, it basically helps us get... you know, a little bit detached with this.

The idea is that I am not all the rage, but I am experiencing rage. And once you go to that level that, oh, I am experiencing rage because of X, Y and Z, you start understanding your thought processes better. You start understanding the cause of the rage and then you can start rationalizing to yourself that, okay, this may be a good thing, bad thing, you know, survivally important, not important. And you can actually decide to sort of lower down the physiological arousal, the emotional upheavals that you are feeling as a result of whatever events are causing them. And it's not only with, you know, in the Orient, it's not only with the Buddhist texts, also a lot of Western thinkers have actually talked about the benefit of verbalizing one's emotions.

For example, Spinoza, Benedict Spinoza, the well-known philosopher, suggests that emotion, which is like a passion ceases to be such once an individual forms a clear and distinct idea of the same. One of the things that you know you will see is a lot of times people describe emotions or emotional fuels as a result of you know hormonal changes, as a result of you know particular kind of physiological or neurological events. The thing is Once you start understanding the locus of these events, once you start understanding why you're feeling extremely angry or extremely disappointed or you're feeling extremely low on a particular day and because of what this is happening, you basically, the intensity of that emotion diminishes. The intensity of what you're feeling diminishes and in that sense one gets a better idea of how to deal with them. Even William James sorry even William James the father of psychology in his famous book Principles of Psychology proposes that the act of naming emotions you know you call out that oh this is exactly what I am feeling pinpointing that temporarily reduces the force of the feelings you know the it reduces the amount of surge in these feelings that one is feeling.

More recently however, emotions are also thought to be relatively uncontrollable and you know with direct attempts at regulating one's own emotional state often backfiring. So a more recent account of emotions and you know emotions as both aspect of physiological and cognitive arousal We have seen there are so many theories, James Lange, you know, Karen Bart, Schachter Singer, there are so many theories of emotions. But typically, for example, Ledoux says that, you know, emotions are relatively uncontrollable. Once

you're feeling something, it is very difficult to not, you know, to immediately snap out of that feeling. If I'm feeling very happy or if I'm feeling very sad, it's relatively difficult to snap out of that.

The screenshot shows a web browser window with the URL `chitralekha.ai4bharat.org/#/task/65826/transcript`. The page is titled "Chitralekha" and "Powered by EkStep Foundation". It features a navigation bar with "Organizations" and "Tasks" tabs, and a user profile for "Irfan Ahma". The main content area is divided into two sections: "Lecture 36" on the left and a transcript on the right. The transcript is a list of text segments with timestamps and a green checkmark icon. The segments are:

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And direct attempts at you know controlling one's feeling down regulating one's feeling sometimes don't work actually they end up making you feel worse sometimes you know it's just like if i ask you to not think of the pink elephant the pink elephant is all what you end up thinking about So, in this whole course we have actually talked about different kinds of you know things, we have talked about processing race information, gender information, how these lead to stereotypes, we have talked about people who profess to be egalitarian want to control them and find it very difficult to control the effect or the influence of these stereotypes on their own behavior. So, we have been seeing so far in the series, this is the 36th lecture, in the last 35 lectures also, you have seen the fact that it is very difficult to actively control our emotions. Yes, regulation which you have been talking about in the last week or so, you know, deliberately or automatically is still something that people struggle with and not all people sort of, you know, become very good at it. A lot of people need a lot of training to sort of, you know, control and get a grip on their emotions. but this is something you know the idea that we were talking about verbalizing our emotions and how it may have this potential to reduce how intensely we are feeling those has also it's not only part of conventional wisdom it's not only part of people typically practice even you know despite not being experts and stuff it has actually also found its way through different forms of psychotherapy for example cognitive behavioral therapy and psychoanalysis both basically ask individuals

to verbalize their feelings and with the hope that during that process they will be able to manage or transform those feelings into more rational outcomes or into more rational perspectives.

This is why I am talking about the fact that I am so angry at somebody for a certain reason when I am describing the entire genesis of that feeling and the you know the extent to which I am feeling angry or the extent to which I am feeling sad what happens you know through cognitive behavioral therapy for that matter is that I might arrive at a rational perspective I might arrive at a different way to look at you know the scheme of events and understand how you know it's almost like getting that epiphany that okay I should probably not be sad with this because this is something that happens with everybody with all you know and it is a common thing that keeps happening in the world. So this idea that verbalizing one's feeling can have mental and physical health benefits has also been captured experimentally through work on expressive writing. So one of the ways not only talking but it also if you are writing expressively if you are basically describing what you are feeling a lot of people you will know that for example they have the habit of writing diaries you know it is considered a very good habit by therapists it is considered a very good habit in the sense that it provides you with some perspective at the end of the day. And when you're writing about what you're feeling at any point in time, that also sort of it allows you this avenue to vent out. And once you vent out, almost seems like that, you know, the cloud has just, you know, passed away and it's not feeling as intense.

You know as before. So Pennebaker and Bell and different other researchers basically they did these studies where they required participants to write about their past negative experiences on four successive days. So four continuous days the participants kept coming and they were being asked to write about their negative experiences whatever they have experienced over the past few days. it was discovered that these participants' visit to the doctors actually decreased over the following half-year period compared to people who wrote just about their trivial experiences. So, it seems that these are, these were patients, these were people who were visiting the psychotherapists for some kind of counseling, for some kind of help and when they were actually encouraged to write about their negative experiences, write all what they are feeling, where are these feelings coming from, how do they want to go about that, eventually what was seen is that people themselves it seems that they got some perspective, it seems that they got this idea of being able to regulate these feelings better and as a result you could see that in the following 6 months period their visits to the doctors actually decreased significantly which meant that they did not feel the need for professional help to be dealing with those traumas that they had experienced.

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Lecture 36

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So, it seems that these are, these were patients, these were people who were visiting the psychotherapists for some kind of counseling, for some kind of help and when they were actually encouraged to write about their negative experiences, write all what they are feeling, where are these feelings coming from, how do they want to go about that, eventually what was seen is that people

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And this is not really just, you know, the Pennebaker studies. There have been a large number of studies which have actually shown and documented the health benefits of expressive writing. And it has been across different domains. For example, the physical health benefits include benefits in blood pressure, chronic pain, cancer related symptoms, lung functioning, liver functioning and even improvements in immunity. So it seems that this is a very interesting and a very useful way to deal with one's feeling.

Either you find somebody who you can talk to, you can share completely what you're feeling, how you're feeling and you know the works or you just you know start keeping a diary where you're writing about whatever you're feeling every day. which events are making you very happy, which events are making you angry or sad and especially with negative feelings. So this obviously you know works a lot more with negative feelings. If you are able to express, write, document, talk about our negative feelings it has been shown you know research supports the idea that it not only has mental health benefits but physical health benefits as well. you know as we just saw, so blood pressure, chronic pain, lung functioning, liver functioning, immunity, even you know cancer related symptoms.

Again it does not imply that these things are some sort of you know medical things that will completely take your diseases away but if those diseases are of psychosomatic origins then obviously they will be able to provide some relief on that account. Also, different studies have shown that expressive writing translates into benefits in general emotional well-being as well and general improvements in mental health as well. Again,

if you are able to, you know, pen down or speak out our emotional upheavals that we go throughout the day, obviously, it will provide mental health benefits. Obviously, it will provide us with a better perspective with, you know, in some sense, when you're writing something, you write everything down and you take a break, you come back and look at it, you already start seeing, oh, this is, you know, not well written. This is probably a foolish thought.

This is something I should not be taking too seriously. And once you get into the habit of doing that, you know, expressive writing, that is, you It certainly adds that extra benefit of improving your overall emotional well-being, improving your overall mental health. And this is again what we are going to try and understand in the few lectures that are going to come after this. So, although it is unclear that which aspects of expressive writing produce the mental and physical health benefits, it is certainly evident that merely thinking about negative experiences, again without organizing them into words, without putting them into words, either speaking them out or writing them, it does not carry the same benefits. So, if you are brooding, if you are ruminating over your negative thoughts, if the negative thoughts of anger, of sadness, of disappointment, of you know feeling I don't know annoyed at somebody or annoyed at something in life if you continue brooding over them it actually has a contrary effect if you continuously are thinking about negative things in life it will actually have negative effects it will be detrimental for your mental health and overall emotional well-being now where is this really coming from let's try and begin the process of understanding this whole phenomena Is this actually intentional emotional regulation while we are writing, while we are speaking out? Are we emotionally down regulating the effect of these things or you know are we unintentionally doing it? Is this some kind of you know mechanism that allows us to unintentionally emotionally regulate? So let's try and understand that.

So, while the process of you know while the process of expressive writing seems very similar to that of emotional regulation, per se it does not carry some of the very important hallmarks associated with emotional regulation that we have been discussing in a few lectures past. For example, for emotional regulation, one typically thinks of an actual intention, of a conscious intention to change one's emotional experience or at least the outward manifestations of that. For example, if you're feeling extremely angry, you know, we've seen how people struggle with the effects of stereotypes. If you're feeling extremely angry or if you're feeling extremely sad, there are two things you can do. You can actually either, you know, drown in that feeling or you can say that, okay, I will mentally try to deal with this and the first thing will be that okay let me try and change the outward signs of it I should not appear you know with droopy shoulders with a hung up mouth and you know things like that I will at least first try to you know change the outward manifestations of either sadness or anger or I will and at the same time I think

not or but you know along with that I will try to mentally rationalize ah to reduce the effects of how sad or how angry you are feeling at that point.

So, whether verbalizing ah either during expressive writing or other forms of expression constitutes an intentional or unintentional form of emotional regulation is not very clear in the literature so far. So, it is not really clear whether we are you know actively making this decision to down regulate while we are you know ah writing or speaking expressively or whether it is something that is happening automatically when you write or when you express yourself. So, this distinction between intentional versus unintentional emotional regulation is not very you know clear and it is clear probably a little bit in early work on emotional regulation studies of Lazarus and colleagues 1964 and 5. But again, there seems to be a deficit in a clear understanding of how expressive writing or expressive speaking, especially when it comes to negative emotions, actually provides us with a degree of relief about them. Now in some of the studies for example participants physiological arousal was measured typically while they were watching you know some kinds of disturbing films very sad very violent films maybe and later they were provided a verbal narrative explaining the content of the said film in different ways.

And then the changes in physiological measures were measured, physiological responses were measured again. So once they're basically physiological states like skin conductance, you know, heart rate etc were measured while they were watching the movies. And in the other in the second time what is been done is they are basically being described these scenes and their physiological arousals are measured again. So, this time you are having in one time you are actually just seeing the movie and in the other time you are having a commentary of the movie and again your physiological responses are being measured. For instance, telling subjects that the scene that they were about to see, for example, it's an extremely violent scene or a gory movie or something like that.

If you tell people that the scene that they were about to see was actually created by actors appearing to get injured and these injuries were actually fake. actually led to diminished skin responses so when you tell people that oh this is not real and you explicitly make it make it out there that oh this is not real see this is a fake blood this is basically you know very good acting very nice special effects and so on and this reduced led to reduction in physiological responses to you know injury or stress or you know the pain that you know you will feel as a result of empathizing with them as compared to when the subjects you know physiological responses for subjects who were not informed about these things. Who are not, see typically you would say that everybody knows that you know movies are make believe fiction and so on. But the fact is a lot of times we get very engrossed in watching them and we sort of lose that sense with the idea that oh this is all make-believe, this is all acting and nobody is really getting hurt or crying or killing each other and so on. But the fact is in these conditions what happened was in one case they were actually provided an explicit narrative about this.

And in the other case they were provided no narrative about this and basically what was seen was that when people were provided explicit narrative that these injuries were fake and etc the physiological responses to those injuries and those scenes actually diminished significantly. So, what basically is happening here is probably that the framing of the scene changes you know changes the appraisal of the scenes meaning and thus seems to have some kind of regulatory effects in terms of diminished skin conduction response reduce heart rate and so on. And again it is not very clear that why this is happening it is whether people are actively or consciously down regulating their emotions. Or that this is just happening through some kind of a semantic route that they now understand that these things are fake and they are make believe. Now a range of work on placebo effects for example also has very similar underlying explanations.

For example a belief or an appraisal that a pill will prevent pain actually leads to diminished experience of pain despite the fact that you know for half of these trials the pills were actually having no active ingredients. So, if you you know and a lot of people say that about homeopathy and I do want to you know take sides here. But a lot of people you will say argue the same about homeopathy that you know at the concentrations that of active ingredients that are measured they seem to be at best placebo effects and so on. But the fact is people do you know report feeling better as a result of homeopathic medicine or as a result of some of these placebo treatments. So, what is it that is happening in the brain that is making people feel that relief get you know making people feel better about this is something that is is not very clear.

Also, fMRI research for example, attributes these reappraisal processes in the hands of the subjects and thus makes you know and basically makes the process fully overt in all in subjects to understand our system. in ways that make them less aversive. So, fMRI researchers basically when they are dealing with these kind of experiments they basically attribute all of this actively to subjects. They say that subjects are reappraising, they are re-understanding the meaning of the events and the stimuli in new ways that make them less aversive and hence the emotional down regulation that is observed is basically coming about. So if you keep all of this together, you know, the range of different kinds of studies that talk about this, it seems that expressive writing studies and appraisal studies together suggest that verbal processing of emotional content, you know, putting feelings in words basically, you know, that's the nutshell.

Putting feelings in words basically, you know, causes explicit changes to the framing of the emotional content And actually can serve to regulate emotional responses even in the absence of any obvious regulatory intent. Even if you are not trying to you know downplay something, even if you are not trying to actively you know feel less sad or less angry, the fact that you are verbalizing, the fact that you are venting out automatically leads to these reductions. So, it does not require a conscious intention or an active effort on our part to down regulate, but as soon as we have avenues to vent out by expressive

writing or by speaking to somebody, sharing our feelings with somebody, it has this automatic effect of down regulation of these emotional feelings. Now both these paradigms you know typically could produce these spontaneous intentions to regulate one's emotions and this is something that is not measured. So the idea is that we were saying that you know that the locus is not very clear where are these down regulating effects coming from.

It is possible that both of these paradigms are producing automatic intentions to regulate one's emotions and this is something that is causing these you know these feelings. This is one possibility but two other lines of research actually suggest that the intention to regulate one's effect is not really absolutely necessary for the disruption of this negative effect. Again, as I was just saying moments ago, you don't need a conscious effort or an active, you know, intention from your own part to be able to downregulate, to be downregulating. It happens. It happens by itself once you get a chance for writing expressively, you know, venting out your feelings either through writing or through speaking.

For instance Wilson and Schooler conducted a series of studies demonstrating the fact that reflecting upon and writing about one's own affective states actually disrupted the impact that their affective states would otherwise have had on their decision making. So this is again something that you know is established through a large number of studies through different kinds of paradigms through conventional wisdom, through therapeutic interventions, through experimental studies. So, that reflecting upon when you are thinking about and you know sharing with somebody and writing about one's own effective states, the effect sort of gets reduced. It does not tend to be that overpowering and overwhelming. Interestingly, in all of these studies, the task was not was never focused on emotional regulation.

So, none of these experiments that we are reporting here actually actively ask people to regulate their emotions. It just happened by itself. And these Wilson and Schooler studies, these tasks were basically just to make good decisions without getting too affected by their own emotions and just consulting one's own effective responses as a guide to these decisions. So, as soon as people started thinking about oh how am I feeling oh how you know and or they started to write about you know how they are feeling with respond to a particular decision it automatically sort of you know reduce the effects of those decisions. Interestingly in one study when individuals were asked to choose between a number of works of art and they had the you know choice that you can take one of these artworks home with them And so this is a broad task.

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Organizations Tasks

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Lecture 36

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16 Interestingly, in all of these studies, the task was not was never focused on emotional regulation 00:25:48:848 00:25:53:971 14 Interestingly, in all of these studies, the task was never focused on emotional regulation

18 So, none of these experiments that we are reporting here actually actively ask people to regulate their emotions 00:25:54:011 00:26:00:074 18 So, none of these experiments that we are reporting here actually ask people to regulate their emotions actively

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36 And these Wilson and Schooler studies, these tasks were basically just to make good decisions without getting too 00:26:02:876 00:26:16:043 37 And in these Wilson and Schooler studies, these tasks were basically just to make good decisions without getting too

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Some individuals were also asked to reflect on their feelings about each of their prints before announcing their reading. So in one case, they had just said, OK, just think about this. Do you like this? Do you not like this? And you choose which one you want to take home. Just that much. In another case, they are basically asked to really reflect and describe about how they're feeling towards that work of art before they select something for print or announce their rating that oh this is 1, this is 2, this is 3 and so on.

Surprisingly individuals who actually were engaged in this task of reflecting on their feelings before choosing were more likely to choose an art print that they themselves would later actually regret choosing than individuals who did not reflect on their feelings ok. So this is rather interesting that when you are going through that conscious in some sense bringing these things into conscious expression then automatically if you've chosen something and you later regret oh why did I buy this you know it's a lot like shopping you know when you go to a shop you're finding nice products in the aisle maybe in a cloth store you're finding different things You like something all at once and you just pay for it and you buy it and it's suddenly after that if you've not really given it enough thought you will oh why did I buy this was not that much you know this was not worth the amount of money that I paid or I did not like it maybe I'll not wear it anymore and so on. So it's again a very interesting idea, it's a very interesting primer that we should be doing this a lot more. The authors of this study suggested that some aspects of feeling states are more verbalizable than others and when people make a decision and the fact that you know verbal feelings are weighted more than non-verbal feelings. So it's interesting if you are reasoning with yourself, if you are establishing rationally why you

are feeling what you are feeling, That gets automatically more weight in the decision making process and it will seem to affect your decisions or make your decisions more rational, less affected by the overwhelming, you know, influence of emotions.

So if good decisions are driven by feelings that cannot be easily verbalized, relying on that, you know, on feelings which can be verbalized will produce suboptimal decisions. So if you are making decisions based on feelings that you cannot really talk about that are just very amorphous in some sense to express, then they will tend to produce suboptimal decisions. On the other hand, if you are making decisions based on feelings that you can verbalize, you can put out, you can reflect upon, then they will probably lead to better and more rational decision so to speak. I am using the word rational here but it is it is not with the you know very philosophical connotation the idea is less emotional or more emotional. Now it is also possible that however, you know that verbalizing one's feelings temporarily alters the feeling states themselves by just dampening them a little bit okay, reducing the intensity of of them.

Interestingly behavioral data alone cannot easily tease apart these two interpretations, you know whether it sort of whether we weight verbal information more or whether we dampen the feeling states you know which of the two explanations really works and this was you know actually one of the original incentives for using fMRI to examine this issue and we will see in the coming slides or coming lectures how does it sort of fMRI sort of help us solve these things. So, one more study by Greenberg and colleagues basically you know try to address this issue more directly. The issue of whether regulatory intent is actually critical and its benefits of putting feelings into words are really there. So, in their study an expressive writing paradigm similar to Pannembacher's was used except that there was an additional condition wherein participants were asked to write about a trauma, but one that was imagined rather than real. So, this time they are not asked to write about a real trauma, but just write about a imagined trauma.

Interestingly, despite the imaginary state of the traumas that these people were writing about, individuals showed benefits of expressive writing similar to those seen in previous studies. So, even if we are sort of you know talking about imaginary troubles and imaginary traumas, it sort of you know makes things you will say calmer and more relaxed and the influence sort of comes down. So, it is therefore I mean it is difficult to argue that these benefits will therefore arrive from or derive from any actual conscious attempts at emotional regulation. Basically probably what is happening is that the understanding that people have of themselves and of those around them typically guide our emotional lives and thus new understandings when we are verbalizing them, the new understandings that we reach through introspection, through disclosure, through reappraisal, undoubtedly has the power to transform one's emotional responses. See, it's almost like the first emotional response and the second one and the third one.

It's almost like if you're revisiting that thing several times, you know, it's almost like if you say, if you... retell the same joke again and again, it loses the power to make people laugh. Similarly, if you rethink, introspect, write about your sadness or your anger or your envy or your disappointment, you know, again and again, your cynicism again and again, you sort of start getting a different perspective.

You know, you share it with somebody, they will have their own inputs, you disclose it to somebody. You re-appraise the whole situation when you're writing it down. You say, oh, maybe I was wrong here. Maybe this other person, I could have sort of responded differently and it would not have led to the chain of events that caused anger or fight or something like that.

So this is something that is very, very interesting. And the authors actually suggest that some of the benefits derived from these therapeutic techniques actually may result from the neurocognitive consequences of just putting feeling into words. It's nothing. It's not that you're consciously or unconsciously trying to regulate your feelings, but it is something that just because you're putting your feelings into words, it is helping you get a new perspective. It is lowering down the intensity or the overwhelming influence of that feeling state of that emotional state that you're going through. through and if this is the case these benefits could be put to actually good use therapeutically even in cases in which an individual is unwilling or unable to engage in emotional regulation.

So something that therapists practice and probably you know do that a lot and again even if you are not a therapist you can do that with yourself, you can do that with your friends, your family members that just get people to talk about their feelings, just get them to you know tell you right about their feelings. If you know the feelings are too personal to be shared with somebody you can just ask them to please do you know start this habit of writing a diary and you know vent out your feelings and stuff and it will probably help you in the long run. We've seen that it helps in the long run in terms of both physical health as well as mental health. So that's all for this lecture.

I'll talk to you about the same thing. We'll try and understand how this really happens in the next lecture. Thank you so much.