Week 3 Answer to Question 2
Step 4.2 Ask Mark

So here comes the second question, and it goes like this:

Question 2: you state that emotions are the perceptions of internal states of the body. In that respect, I was wondering the following: say you see a snake, and you get the emotion PANIC! You don't feel very nice, and your conscious reaction is to move away. But what about the order of things? First you have to see the snake, which is a conscious thing. Then your body raises the heart rate so that you'll be able to run faster away. This higher heart rate is perceived via the emotion panic as I've given in this example. But is this emotion the consequence of the already existing body state - that is heart rate - or does the emotion control the heart's state? So my question is: which comes first?

Well the answer to that is again not entirely simple, because different answers apply to different classes of emotion. Very broadly speaking we categorise - sorry, when I say "we" categorize, "I" categorize - I and the colleagues who I work most closely with - categorize emotions this way. There are many different taxonomies of emotion, so I don't want to give you the impression that everyone taxonomises this way, but you'll see it's a useful way of doing it. We speak of sensory affects, which are emotions that relate to - there's almost like reflexive responses to an external state. A good example of a sensory affect is surprise. [gasps] That's a surprise, we all know what that feels like, we all know what it looks like, and it relates to something outside of you. Another sensory affect is disgust. [gags] You know, it's a certain thing that you do, there's a certain feeling, and it has to do with something going on in the - in relation to an external substance. Pain - where you withdraw your finger from a pinprick, or from a candle - again it's a sensory affect. So that's one category.

Then, in the middle category, we have what are called emotional affects, or instinctual affects. These are much more complicated things, and I will spend, during this course, much more time discussing emotional affects, because they are psychologically the most meaty, the most substantive. These are things like fear, like attachment bonding, like maternal care, like rough and tumble play, like sexual lust, like foraging behavior, like rage - these are emotional affects, or instinctual affects. I think that's the kind of thing most people have in mind when they speak

about emotions, and in the example of this question, you know, the fear that one feels when seeing a snake is an emotion of that kind.

Then there are what we call homeostatic affects. Homeostatic affects relate not to the outside world, but to the internal world of the body. Very well-known examples of homeostatic affects are hunger, or thirst or the need to defecate, or the need to urinate. There are very specific affects, that is to say emotional feelings, that accompany each one of these bodies states. They're quite different from each other, and there's a compulsive urge that comes with them. Homeostatic affects - as I say things like hunger and thirst and the need to urinate - these relate to the state of the body, and in these instances the state of the body comes first.

So now I'm beginning to answer the question: in homeostatic affects, the state of the body comes first, and is perceived by the brain as this constellation, which it registers the meaningful affective state "this is hunger, this is thirst." And that releases the prediction as to what you have to do: I have to look for water, I have to look for food. So the sequence is very clear there. It's not to say that it can't be reversed - I'll come back to that later - but that is the standard sequence of a homeostatic affect: it starts with the bodily state. Clearly with a sensory affect, it starts with a sensory event - something happens out in the world which surprises you, something - you ingest something from the outside world which revolts you. There it starts with an external sensory event. Emotional affects - which are by far the most interesting ones, as I say - the affect is the actual brain state. It's not an external world state, it's not an internal bodily state, the affect is intrinsic to the brain circuitry for that affect.

Fear is an example, like fear of a snake but - and I know that in this instance it starts with seeing a snake, the instance asked by the questioner - but fear doesn't have to only relate to an external sensory event. Fear is an intrinsic brain state - there are free-floating anxieties which, by definition, relate to no particular object. You can just feel trepidatious. It does not start with the bodily state, it starts with the activation of the fear circuit. The same applies to, for example, foraging; the same applies to rough and tumble play - it's a joyous feeling, it just bubbles up from inside of you, want to do such-and-such. Not because there's something in your body that needs you to play - it's something in your brain that needs you to play, not because something's happened in the outside world that needs you to play, although it can happen that something in the outside world invites you to.

So there I'll come back to the caveat that I said earlier I would return to. The caveat is that, although these things are designed in those three different ways - and in fact that's why we categorize them in these three different classes. The one class of emotions starts with a bodily state - homeostatic affects; the other starts with an external sensory event - sensory affects; and the third is intrinsic - it's an intrinsic instinct built into the brain. Those are the emotional affects,

or the instinctual affects. Although that's the way that they're designed, they can be activated from above and below. Because they are constellations, they're sort of orchestras - the conductor is always in the brain, although the typical standard stimulus might come from within the body, or from without.

Let me give you an example: although clearly hunger starts with a bodily state, it can happen that you suddenly see something extraordinarily delicious, and although you're not particularly hungry, now you become hungry! That's a top-down recruitment of a homeostatic affect. The same applies to - I think I gave the example of rough-and-tumble play. Although play is something built into the brain - mammals need to play, all mammals play. It's something that they just do, it's an instinct that's in mammals. Once you see somebody else playing, you want to join the fun - you might not have had the inclination of your own internal instigation, but rather an external trigger might provoke it.

So again a long-winded answer. I hope that that clarifies things. It's not that all emotions start with bodily states, it's only the homeostatic ones that typically start with bodily states. There was an old-fashioned theory called the James-Lange theory, and when Antonio Damasio first started writing about immersion in the nineteen-nineties, he had a similar sort of idea - that affects or emotional feelings are perceptions of the state of the body. But that really - it can no longer - and Damasio would agree - we can no longer hold to that view. The James-Lange theory has long ago been discredited in regard to these other emotions that I've referred to, which really are built into the brain - they're not just perceptions of bodily states. Which is not to say that there aren't some that are.

Now let me give you one last little story, which is just sort of illustrating what I meant about the orchestration of emotion, that they involve external brain and internal events when you look at them as a whole. You can - happiness, presumably, is something that comes from within. You might imagine that feeling joyous, you know, is not a sensory affect. But there are things called laughing clubs, where you go after work all harassed and stressed, and then you go to the laughing club, and then you sit there and somebody on the stage makes you feel happy. Really? Do you believe that? Well, I'll tell you, it actually does happen. That's because you can trigger the whole affect of happiness, just with an external sensory stimulus, because they are these constellations that are - they're kind of wired together in that way.

Try it out yourself. You sit there, you watch somebody going [laughs], you see them doing that, you start to feel happy - much more so if you do it yourself. Now I'm doing it in front of the camera, you might want to try it in private. In the shower, start doing that tomorrow morning and see what happens. Throw yourself into it, but - of course, no matter what mood you're in - you start with the bodily movements. It's purely sensory, purely external - you go [laughs] - shake -

[laughs], and you watch. You'll see, you'll very soon feel happy. Just as I do right now. So thanks for asking that question!