

'I'm extremely controversial': the psychologist rethinking human emotion

David Shariatmadari | *Guardian* | 25th September 2020

In early March, as the world began to realise that coronavirus wasn't going to go quietly, psychology professor Lisa Feldman Barrett was thousands of miles away from home. "I went to New Zealand because I was getting an honorary degree," she tells me over the phone from lockdown in Newton, a leafy suburb of Boston, Massachusetts, where she runs a lab devoted to the study of emotions. She had arranged the trip to coincide with spring break so her college-age daughter could join her and see the sights. But as countries around the world began to impose restrictions, she started having second thoughts. "I was asking myself, should she really be coming, or should we be going home? Like, how serious is this exactly?" Her heart began to race as she weighed up the possibilities – and she found herself in a state someone else might label fear, panic even. Eventually she rang her husband, but instead of saying "I'm scared," she blurted out: "I'm experiencing high arousal from uncertainty."

This is only an odd choice of words if you're unfamiliar with the paradigm-busting ideas set out in her extraordinary 2018 book, *How Emotions Are Made*. For Barrett it's simply the language that most closely reflects what science tells us about how and why we feel what we do. Her family have adapted. "My daughter will say, like many college students, 'I'm really anxious', and I'll look at her and she'll sigh, 'OK Mom, I'm having uncertainty and I'm having high arousal.' Or, 'I'm really depressed.' And I'll be: 'Are you depressed?' and she's like, 'OK my body budget is out of whack and I'm feeling unpleasant. Are you happy now?'"

If this seems like a robotic response to give a distressed family member, in reality Barrett is anything but cold. She comes across as compassionate, funny and a touch mischievous. But she believes people have misconceptions about emotion – indeed about all of consciousness – that can make their lives harder. In the emotional upheaval of the pandemic, her ideas deserve a wider audience.

Chief among these misconceptions is the view that feelings are innate and

universal, and can be consistently measured. So, anger, for example, is thought of as a fundamental building block of human nature with a tell-tale physiological

“fingerprint”; all we’ve done is gone and named it. But that idea is categorically untrue, Barrett says, and reams of scientific data now back her up.

“Anger” is a cultural concept that we apply to hugely divergent patterns of change in the body, and there’s no single facial expression reliably associated with it, even in the same person. (Some cultures don’t have a concept that corresponds to “anger”, such as the Utku Inuit of Canada’s Northwest Territories.) The same is true, astonishingly, of “happiness”, “excitement”, “disappointment”, you name it. No emotion is tied to a single, objective state in the body. Rather, emotions are cultural artefacts.

How could that possibly be the case? Don’t babies and toddlers fuss and bawl at some obstacle long before they have a word to describe the feeling? And don’t the Utku also experience their blood pumping faster and their muscles tensing up when confronted with a difficult problem? The answer is that of course they do, but that “anger” is merely one interpretation of these events, a culturally specific attempt to give them meaning.

Barrett argues that the universal components of human experience are not emotions, but changes on a continuum of arousal on the one hand, and pleasantness and unpleasantness on the other. The term for this is “affect”. It is a basic feature of consciousness, and people in different cultures learn to mould this raw material into emotional experiences in different ways. So you can have high arousal and high pleasantness, and your brain might construct “ecstasy”, or low arousal and high unpleasantness and you might create “misery”. Low arousal and high pleasantness might be “satisfaction”, and high arousal plus high unpleasantness could equal “fear” (you could also construct an instance of fear while feeling pleasant, though – riding a rollercoaster, say). Another culture and language might home in on a similar physiological state, but its word could have subtly – or wildly – different connotations. Among Ilongot people in the Philippines, for example, high arousal and high pleasantness can be “*liget*”, which Barrett glosses as “an intense jolt of energy while actively and often aggressively pursuing a challenge with other people, like when playing football”.

Barrett’s point is that if you understand that “fear” is a cultural concept, a way of overlaying meaning on to high arousal and high unpleasantness, then it’s possible to experience it differently. “You know, when you have high arousal before a test,

and your brain makes sense of it as test anxiety, that's a really different feeling than when your brain makes sense of it as energised determination," she says. "So my daughter, for example, was testing for her black belt in karate. Her sensei was a 10th degree black belt, so this guy is like a big, powerful, scary guy. She's having really high arousal, but he doesn't say to her, 'Calm down'; he says, 'Get your butterflies flying in formation.'" That changed her experience. Her brain could have made anxiety, but it didn't, it made determination."

In the lectures Barrett gives to explain this model, she talks of the brain as a prisoner in a dark, silent box: the skull. The only information it gets about the outside world comes via changes in light (sight), air pressure (sound) exposure to chemicals (taste and smell), and so on. It doesn't know the causes of these changes, and so it has to guess at them in order to decide what to do next.

How does it do that? It compares those changes to similar changes in the past, and makes predictions about the current causes based on experience. Imagine you are walking through a forest. A dappled pattern of light forms a wavy black shape in front of you. You've seen many thousands of images of snakes in the past, you know that snakes live in the forest. Your brain has already set in train an array of predictions.

The point is that this prediction-making *is* consciousness, which you can think of as a constant rolling process of guesses about the world being either confirmed or proved wrong by fresh sensory inputs. In the case of the dappled light, as you step forward you get information that confirms a competing prediction that it's just a stick: the prediction of a snake was ultimately disproved, but not before it grew so strong that neurons in your visual cortex fired as though one was actually there, meaning that for a split second you "saw" it. So we are all creating our world from moment to moment. If you didn't, your brain wouldn't be able to make the changes necessary for your survival quickly enough. If the prediction "snake" wasn't already in train, then the shot of adrenaline you might need in order to jump out of its way would come too late.

The brain also receives information about heart rate, what the lungs are doing, the immune system, hormone levels and much more. "Interoception", the constant monitoring of the state of the body, carries on largely below the level of conscious awareness. But it is absolutely crucial, because it determines affect – those feelings of pleasantness or unpleasantness, arousal or non-arousal that are always present, and which feed into our emotions.

The brain deals with inputs from the inside the same way it deals with ones from the outside – it makes predictions about what’s causing these changes based on what it has learned, assigning them meaning in the process. In *How Emotions Are Made*, Barrett tells the story of a date she reluctantly agreed to go on, which took an unexpected turn as her stomach flipped while she was having coffee with the guy. “OK, I realised, I was wrong,” she writes. “I must be attracted to him.” A few hours later she found herself in bed with ... the flu. What had happened over coffee was that her brain had made a prediction of “infatuation” based on sensory information from her gut combined with her culture’s understanding of that emotion and how it is supposed to unfold.

The brain, Barrett argues, is constantly trying to balance a “body budget”, her translation of the “fancy scientific term” allostasis. An imbalanced body budget – too much stress on bodily systems, not enough opportunity for rest and repair – intrudes into consciousness as negative affect. That in turn might get interpreted as “coming down with something” or “feeling depressed”, depending on how bad it is, your past experiences and the cultural context.

Barrett regards anxiety and depression as metabolic illnesses that result from strained body budgets, as do heart disease, type 2 diabetes and Alzheimer’s. Working too hard, not sleeping enough and eating poorly result in a chronic deficit. But keeping things balanced isn’t simply a question of personal will. “If you were going to design a system that really fucked up humans’ metabolic budgets, it would be the world that we currently live in,” she says.

Feldman has her detractors, primarily among those who still cling to the idea that emotions are innate. In fact, she points out: “I’m extremely controversial ... I really find it compelling when people are lying to themselves, and that’s what this is. Does it hurt me when someone doesn’t like me or accuses me of grandstanding? Yes, it hurts my feelings but so what? My job is to be a scientist, right? My job is to attempt to sift the truth from bullshit.”

That is a big job, and it’s a typically fearless statement of intent. As one of the chapters in *How Emotions Are Made* has it, Barrett is offering nothing less than a “New View of Human Nature”. Her next popular work, *Seven and a Half Lessons About the Brain*, due out later this year, seems both broader in scope and more light-hearted. “I thought it would be fun for people to be able to read a neuroscience book on the beach,” she explains. Though if her writing up to now is anything to go by, be warned: you may find your world turned upside down before it’s time for cocktails.

