



Science of emotions

Jen Fisher (Jen): Simply put, humans are social creatures. We need each other to survive. But social connectivity is not quite as simple. It involves diverse and multifaceted feelings, behaviors, and interactions. To unpack the complexity of human nature, we need to start by better understanding our emotions, how they impact our behavior, and ultimately, shape the world around us. This is the WorkWell podcast series. Hi, I am Jen Fisher, Well-being leader for Deloitte and I am so pleased to be here with you today to talk about all things well-being.

Dacher Keltner (Dacher): I read Charles Darwin, *The Descent of Man* 1871, and he said those communities with the most sympathetic members will flourish and raise the greatest number of offspring. Sympathy is our strongest instinct. When I read that, I was just like..., my jaw dropped, and I screamed, because you think of Darwin as saying, it's all survival of the strongest or the most violent. There there are parts of the brain that are very old that light up when you feel compassion.

Jen: I am here with Dr. Dacher Keltner. He is the founding director of the Greater Good Science Center and a professor of psychology at the University of California Berkeley. His research focuses on the biological and evolutionary origins of compassion, awe, love, and beauty, as well as power, social class, and inequality. So let's dive right in. You are a leading voice on emotions and the study of emotions, how did you get into emotions and why are they important?

Dacher: You are asking me to talk about my whole life. So personally, I was raised in this really experimental home, my mom was a literature professor and my dad was an artist. They really believed in the passions - the passions of literature, poetry, painting, but I always had a scientific mind. I love measuring things and data and statistics and testing ideas. I got interested in emotions in that context. My parents believed, like Russo and David Hume and Charles Darwin and others, that passion is really the core of our soul, it's what moves the mind. I went into PhD work at Stanford and it was a time in mid to late 1980s when people weren't studying human emotion, it really hadn't gotten off the ground.

I went to a talk at the recommendation of my advisor and she said, "you've got to hear this guy named Paul Ekman, he is kind of unusual, he is a little bit on the outside of the field, but he is studying emotion." And Paul had figured out how to measure facial muscle movements with his system that would allow you to describe emotional expression. When I heard the talk, I got goosebumps, I was like we can measure emotion. So that got me into it and then it's been a wild ride ever since.

Jen: I bet. I feel like in today's society, we tend to kind of lump emotions into either good emotions or bad emotions. Like its good to feel happy, its bad to feel sad.

Dacher: That's one of the big fallacies that science of emotion is correcting. As an example, I got to consult on the film "Inside Out" and the central question that they were grappling with is sadness. Pete Docter, the director wanted sadness to be the main character, the executive team did not because there is this view out in our culture that sadness is bad, it's dangerous, it incapacitates you. Pete wanted to say sadness has its place, it has its wisdom, it has its depth, and I think he won an Academy award in a billion-dollar movie and that was the genius of the film. The view that we are coming to Jen, is really Aristotle's view, which is interesting, and a lot of deep thinkers that all of the emotions have their place and function and they drive reason and behavior when done appropriately in the right ways. Even an emotion like jealousy, which we are embarrassed to feel jealous about, we want to kind of shut it down, but in point of fact, what it does is it says look there is a potential rival for your love, you have got to be careful, you have got to show that you are willing to sacrifice your self-respect for this commitment and it helps relationships. So, we now are viewing the idea that there are good feeling emotions like laughter, content, joy, gratitude; there are negative emotions anger, sadness, jealousy, envy, and the like but they all help us preserve social relationships in an adaptive way and that is a big change in our culture. I remember 26 years ago going to give a talk at Harvard at their negotiation project and somebody said like, "emotion, we should just check them at the door, they don't have a place in work." Now, we are in a much different place where people realize, like work is emotional, relationships are emotional. We really need to make best of them too.

Jen: That was actually a great lead-in to my next question because I think we are moving to a different place in the work world but in some respects that is still there, you shouldn't bring emotion into the conference room with you. Where did that "you have to check emotion at the door" come from? Because it does still exist in the working world, but I think it is getting a lot better.

Dacher: Well, it comes from old cultural biases against the emotions, probably gender biases, when work was more male. There may have been this suspicion of the emotions because that felt more female. An old antipathy toward the emotions that you can trace back in a lot of different thinkers that emotions are disruptive, they are dysfunctional, they are irrational and there is just tons of new data, like Danny Kahneman's whole idea of system 1 is intuitions that are about emotion. That is a good deal, I feel right about that, ohh my body tells me that is inappropriate investment, or this is going to be a good leader or work colleague. Those are fast, old, deep emotional intuitions that are important to recognize. There are these old older biases against the emotions in the workplace as work in the past 20 years has been... there are more women, its more multicultural, it's more team-oriented, which anytime you try to get a bunch people to do something, you are going to have emotion! Then we have to credit Danny Goleman 1996, Emotional Intelligence, EQ is

more important than IQ in the workplace, I believe that and that book sold 10 million copies, it changed everything. So it's a different world today.

Jen: So, tell me a little bit more about the work you did related to emotions for the movie Inside Out.

Dacher: That was one of the great privileges of my career you know. I have been teaching human emotion for 26 years, text book, as this science has kind of come to popular awareness that we have been talking about Jen and you have such nice questions around it. So it was about 7 or 8 years ago, I get a call from Pete Docter who is the director of Inside Out and he was a friend through mutual friends and some panels we had been on, and Pete said, this is Pete Docter, he had just done Academy Award brilliant movie, and he was like, "you know what I am thinking about, I want to ask you about this movie I am thinking about." I was like, wow. Maybe he will ask me to do some voices for it. I literally thought that. I am not that good of a drawer. He is like, it is interesting, I am really interested in emotion and I know you teach emotion. Pete, I think he read my textbook and listened to our podcast, this old iTunes human emotion podcast. I said yeah, and he is like I am thinking about doing a movie about emotions. I was like wow, cool. It's the emotions in an 11-year-old girl who is going through a lot of stress in her life is feeling. He had a daughter who was going through that passage. I had a daughter who was going through that and I was like Pete, good luck, I will talk to you in 5 years. I was like, can't touch it. It blew my mind the thing that Pete does at Pixar and what I did there was I go and visit and they started with a really small team, couple of people, and they are drawing stuff out, drawing the emotions, which emotions, and they always consult scientists and historians and people who have studied stuff.

So my first few visits to the small team were things like how many emotions are there, I was like, Pete, I think there are 23 and he is like we are thinking about doing a movie on 5, and what do they do for us? And why do we have sadness? And what happens to emotions after we have experienced them? Do we remember them, where does that feeling go, and that was grappled within the movie. What happens to a young girl's emotions and there is this amazing literature on how young girls when they hit teens, they get really anxious and it just rises precipitously for most young girls. So they wanted the science and I was there just to kind of deal with questions like how do we remember emotions, that became a big theme, how many are there, they ask me like what other emotions, here is what we are thinking, what other ones would you add and I was like, you've got to do awe, Riley could be at The Grateful Dead, that didn't happen. I had returned every few months and I would say like I would get emails from Pete. I remember he was like "Dach, I am in Russia and they have me in conversations with a bunch of neuroscientists, what is the neuroscience of happiness?" So, I just fed them science and then there were strategic things in the movie that we all grappled with, like one of the fundamental ideas of the movie is that kind of emotions drive reason. So, emotions in the control panel, we talked a lot about that. Fundamental ideas, emotions have functions and so that's clearly evident in the movie and then the big one was... it was so fascinating at the middle of the movie and they didn't feel it was working and Riley is about to go on this journey through her mind or Joy goes through Riley's mind, Joy is the defining emotion of Riley's character. A lot of people at Pixar wanted it to be with anxiety or fear because fear is funny, it was Bill Hader, he is funny, fear is funny. Pete really thought it should be about sadness and fought that and I think that is why it was a good movie and I provided... They were asking questions like well

isn't the character sadness really depression. Well sadness is different than depression. Depression is like you have no passion. Sadness has this wisdom to it. So, we kind of navigate, use the science to make the case.

They have their first screening at Pixar and you go and it's a firm date, so there are these layers of animation that they do to the films, multiple layers, really complicated. So parts of the film are still kind of just sketched, but we saw the whole thing, and I was just crying because I was like because the science, what they did to like, he we need the emotions. There are no 10,000 studies that could make the case like that. It was an amazing experience.

Jen: So, do we, and this is probably a silly question, but do we all experience emotion in the same way?

Dacher: That is not a silly question, that is the hardest question you could ask, does my joy resemble the joy of somebody in Nicaragua or Beijing? In some sense, we don't know scientifically, what we do know is there is a core to the emotion that's pretty similar in different parts of the world, the kind of the subjective feelings state, the physiological pattern is probably going to be similar. I study the vagus nerve which is this branch of our physiology that tracks compassion, this is a long bundle of nerves that slows your body down, helps you vocalize and connect, and we find those reactions are similar in different parts of the world but there is a lot of interesting variation we feel emotions about different things. So, in China where we study awe, their experience of awe is more likely to be about social, interpersonal things. And then there are these kind of values that surface during emotions that really differ. So, in China, awe is more hierarchical, US it's more horizontal and connected. So, it's always the case that it's both.

Jen: For those people that have been taught either by society, family, workplace not to embrace their emotions or kind of block their emotions, what advice do you have for people trying to kind of get back in touch with their emotions or build greater emotional intelligence, especially for leaders to bring that back into the workplace.

Dacher: I think there are few things to really think about. One is to recognize the wisdom of your emotions. So you know there is new work coming out of England by Critchley and Garfinkel and this fits Goleman's thesis, which is buyers and traders in stock market like settings who are more in touch with their feeling actually do better and they have got this cool data that if you kind of tracking your emotions and you are listening to them, like this doesn't seem fair, this is a good thing to invest in, they do better economically. So trust the wisdom of your emotions and then the second big part of the equation is the emotional intelligence thesis that Stephane Cote and other studies of leaders have documented is look and listen to other people's emotions and if you are asking good questions and taking other people in, you will know more about how to negotiate, you will know more how to collaborate, you will know more how to push-off a bully, like here comes his bullying tactics, I can sense they are coming, you will be able to figure out the sociopath who is going to screw you over, sense it in them and there is a lot of data that align to being open to other people's emotions. The real challenge for us all is I think the third piece of wisdom is you are coming out of the emotional intelligence literature, for leaders it's like, learn the tools to do that work right. How can you be quiet and take in the emotions of others. How can you accept hard emotions, accept and move on and we are learning a lot about how to do that

through the mindfulness literatures and leadership literatures. It is so interesting Jen when I teach leaders, which I'd been doing for 20 years, is this cultural shift has taken place, no matter what the sector. They say, writing code that was hard or doing biotech or whatever they are in, handling people's emotions is the hardest part of leadership. Now, we know a lot about how to do that.

Jen: I would agree with that. So, I am going to switch gears a little bit but also connected, your research on Altruism and based on your studies, do you believe that human beings are innately good?

Dacher: Its funny, I wrote a book Born To Be Good that presupposes that we are innately good. What I am going to say is we're both but we have seen this really interesting shift in the last 10 or 15 years. Twenty years ago, the science that I work in of neuroscience and evolution and emotion was like you know maybe the great thinkers were right that people are just basically savages and we need society to reign in our violence and our moral inappropriateness and that idea like Thomas Hobbes, its just bloody in tooth and claw unless we have religion and rules and norms, really is prevalent. Sigmund Freud really wrote about two core passions being sex and destruction and that was it. Immanuel Kant this really influential philosopher said that sympathy, what you were thinking was a good emotion, is blind and weak, it misleads you. Ayn Rand was very skeptical, her whole philosophy is like its all self-interest and if you are doing anything other than self-interest, you are a liar, or you are bad for society. We have really in 20 years come to a different view at least in terms of what we are in our basic nature. There are parts of the brain that are very old that light up when you feel compassion. That tells us kindness and altruism is rooted in our nervous system, in the mammalian nervous system. 18-month olds, this is the work of Felix Vernican, 18-month olds, when they see adults struggling to do something, will just help out. Worldwide this is 27 different countries, if you ask people to share a resource with a stranger, they don't have to share, they will share 40%. So, all of these data are saying there are some pretty altruistic tendencies in there and then you have to figure how to make the best of them.

Jen: So, in your book, you coined the term or I learned the term or the concept rather survival of the kindest and I'm a big believer of if you can be anything in this world be kind. So that kind of really struck me. Can you say a little bit more about what you mean by that?

Dacher: Thanks for bringing that up Jen, I appreciate your careful reading. That was in Born to Be Good which is like 10 years ago, 9 years ago. I tried to think about like who we as a species are and how do we evolve out of chimpanzees and bonobos 7 million years ago. So, a lot of evolution and who we are. You answer that question by looking at the brain and genetics and emotion. As I was doing the deep research for that book, I read Charles Darwin, The Descent of Man 1871 and Darwin's really interesting, probably the most influential scientist who ever lived and evolution is our maybe the biggest idea that people have come up with for understanding humans. He said those communities with the most sympathetic members will flourish and raise the greatest number of offspring, sympathy is our strongest instinct. And when I read that, literally my jaw dropped, and I screamed because you think of Darwin as saying, it's all survival of the strongest or the most violent. The reason he was saying that, as historians have noted, is he was a really loving parent. He lost a daughter early in life, Annie, and he kind of got overwhelmed by sympathy, god what is this passion? And now we know that our altruistic tendencies, kind tendencies, are

there first and foremost to protect babies, human offspring are the most vulnerable mammal ever to be born. I like to joke, it takes 7 to 52 years to reach the age of independence because they are carrier genes and they take years of protection and that changed everything. So that, Jen, along with these other findings of like wow compassion is in the vagus nerve, it's their genetics for it. Kids are compassionate, babies are compassionate, we are compassionate to strangers, says maybe we should rethink the survival of what kind of species led to us.

Jen: So, tell me a little about how acts of kindness affect our physiology.

Dacher: This got really interesting and this is what is exciting about neuroscience and physiology is I could tell you, hey it is good to be kind, you will be like, thanks a lot, don't give me the sermon or whatever. But once neuroscience gets into the game, you start to get a new picture of how powerful this is. Couple of findings blew me away. Wow we share, I call it the 40% rule, like we are just going to share 40% surplus resource with strangers and we are kind and we have these responses and then along came various neuroscience groups, I think the first one was in Oregon of Harbaugh and colleagues where they showed that when I am given a resource, it activates a little part of the brain called the nucleus accumbens, which is where dopamine receptors are and when I share that resource with a stranger, it activates a nucleus accumbens. So, the brain is saying, receiving is the same thing as giving, and that's pretty cool. Then along came Thaler and Christakis at the social network level and they were starting to find this kind of contagious viral quality to sharing, which is like if I share with you, and then you go on and interact with Jamie later in the day, you are more likely to share with her even though I am not there, and then Jamie is more likely to go on and share with other people she is hanging around and that starts to tell us that this state that kindness produces in us spreads in social networks and that gets really interesting. So, there are a lot of these kinds of findings, kindness and sharing, reward circuitry, vagus nerve activation, our lab, better life expectancies, Stephanie Brown, so it really started, there's been a rethinking of like how do we think of the basic motives of humans and the mind.

Jen: So, when you are working with leaders or perhaps in your research, do you talk about leading and managing with kindness and what's the impact on the workplace.

Dacher: Yeah, I do, very explicitly. I wrote the Power Paradox in part out of that spirit, to like, profile how in a lot of sectors today work is different, you need to collaborate with move from horizontal, from vertical to horizontal structures more, and there are a lot of data, Adam Grant type data and Stephane Cote type data that, Jim Collins in his early book Good to Great Level 6 Leadership is like service. Abraham Lincoln, the highest rated president of all time of being really service-oriented. In the long run, the legacy of leadership is in how intact your social network is, by the end of your career, and your time on earth, and that will be strong if you are leading with kindness. It gets into tricky parts, can you be exploited, you watch out for that. Do you always have to be kind and Dalai Lama like? Well when you talk to Dalai Lama, he's like, sometimes you've got to be tough, and sometimes it's kindest to be hardest and clearer.

Jen: Survival of the kindest.

Dacher: I really do. There is pretty good data on the thesis, there really are. It is hard for our culture to understand because what we see is people abusing power, but that's what power does to people, it's not how you get it. I think it's worth bearing that in mind.

Jen: That will lead right into the next topic on power, that is maybe kind of your latest area of research. How do you actually research power? I'm fascinated by this.

Dacher: Yeah, but we do it in every imaginable way. So, you can do it experimentally and you randomly assign people, to like, you're the leader, and they kind of feel it that way, and then you watch what they do. You can study natural social groups. So I have studied sororities and fraternities and NBA basketball teams and organizations. You can get out in the world and some of our most well-known work had to do with do you drive differently if you are driving a BMW as opposed to a less powerful car? There are really interesting social scientists who have studied the legacies of US presidents. We recently published a paper on hedge fund managers. So, you can use the tools of social science and say what is it about, how do you get power, what is it once you have it, what does it do to you, who uses it effectively. So, we study power in a lot of different ways. One of the mind missions, Bertrand Russell the philosopher in 1938 said that just as energy is the basic medium in physics that objects relate to each other, transfer of energy, etc., power is the basic medium of human relationships, every relationship is defined by power and I believe that. So, we study power dynamics in couples and moms and kids.

Jen: So were there different definitions of power or perhaps different perceptions of power.

Dacher: That is one of the hardest things. When I wrote the Power Paradox and you are just like what are we talking about here. I think it's really...., especially today, right. A lot of people out in the world say well power is just money, the power is not just money and you can look at some of the most historic events that have happened in human history and they are done by people who had no money. My favorite example blew me away is Thomas Clarkson in 18th century wrote an essay when he was 19 years old. He wrote an essay about how slavery should be illegal. The entire European economy or big chunks of it was based on slavery. People start to get wind of this essay and he started popularizing the idea and he changed the economy. He is totally poor, no political connections, and he had this massive influence in the world. So people think of power as fame or money or title but you can critique all of those views, both empirically and conceptually. So, I like to think of power as your capacity to make a difference in the world, to alter the lives of other people. That is your power and it can come from money, it can come from a political act, it could come from a piece of art. Joseph Nye at Harvard, he is the person who coined the term "soft power". He said a lot of the American power doesn't have to do with money or military, it has to do with the culture and in some ways, our movies and our music and the idea of self-expression embodied in that are the biggest influence we have in the world. So, I think of it as your capacity to influence others.

Jen: Is that influence positive or negative or it can be both?

Dacher: I think that is a great question Jen, and I should have taken a strong stance on that.

Jen: Now is your chance.

Dacher: Thank you. I think it's both, right. So Stalin, Hitler had massive power, he influenced everybody, but they influenced their cultures in negative fashion, in a zillion ways, and what you saw, for example, with Germany is the counter response to Nazism. They became kind of this leading democratic state. Stalin is a little bit different. I think that's what's interesting is you can say here is the influence on the world and now we as a culture get to engage in the ethical, moral debate about is that a positive or negative influence? So, I stayed clear of that, I probably should have been bolder. I think it's interesting that there are certain sectors where the negative power is quickly routed out and there are certain sectors where it is entrenched right and its causing us troubles.

Jen: So how does power, kind of going back to emotions, how does power affect our emotions and our body, physiologically, emotionally...

Dacher: You are asking exactly the questions that have motivated my 25 years of study, so thank you. So as an emotion scientist, it's so interesting Jen, I was studying emotions, laughter, joy, and awe, fear and anger, and in the science of emotion, and I couldn't believe it, we hadn't thought about how power influences our emotions, right. Sociology had but psychologists had really been blind to it. I was doing this research on embarrassment and shame and coding the nonverbal behavior of embarrassment and shame, eventually looked at physiology and I was like, I would watch it and this is about low power, this is about submissiveness at its core and there is no theorizing about this. So that actually was the reason I started to study power 20 years ago. I think what we have learnt are a couple of big things about power and emotion, which say a lot about why people abuse power, why suddenly bosses are swearing at their subordinates, and people are acting out when they have power. One thing, we've learned is when you feel powerful, you become more impulsive and we got really excited to show that even down to basic parameters of your emotion, like you just smile more and your voice is bigger and when you see good things you desire them more and when you're flirting with a stranger, you feel more sexual desire, it is just like all the impulsive emotions, the volume is turned up. You touch people too much, just all of these sort of approach-oriented emotions are just more intense. I think it just as important a story is when you feel low power, you feel anxious and worried and like self-critical and ashamed and your body is stressed out and on cortisol and suddenly a life of less power is bad news for your body. So, we started to say, man the body is impulsive and going after good things when you feel powerful and constrained and self-critical in states of low-power. Anybody who has been at work, it is so remarkable, wow I am with people who respect me, I feel I am talking all the time, I am embracing them, and I am proposing we go camping whatever it is but I go into a context where I am the subordinate, it's like I am sweating and my heart is palpating and my throat is all dry, that is stress versus kind of approach.

And the other big one Jen is that power really diminishes your empathy. Suk Obendier, one of my dear friends and colleagues in Canada did these studies where he could study almost like mirror neurons, do I mirror your behavior and if I am randomly put in a low-power position, I mirror you. I know what you are doing, I can track it. If I'm in high-power position, that mirroring tendency at the physiological level is shut down. Keely Muscatell, some neuroscientists have shown if I am a high-power friend and I'm hearing my friend talk about a struggle in their lives, the empathy networks in the prefrontal cortex are not as active. So it's a tough recipe right. if I'm feeling powerful, I feel really impulsive and the empathy networks aren't constraining my behavior.

Jen: So, what are some strategies for embracing power but making sure that we don't abuse power.

Dacher: You sound like my editor at the Harvard Business Review. He was like, hey I love your book but what do we do about this. Jen, I have been teaching this for 20 years like power diminishes your empathy and makes you impulsive and then all hell breaks loose. Our research like two of my favorite findings, one is the first which is you bring three people to the lab, they do a long boring experiment, one of them has power randomly assigned, you put a plate of chocolate chip cookies in front of them, everybody takes one cookie, and so we ask who takes that last cookie, high-power person always reaching out like that's my cookie. And then we coded how they ate their cookie, high-power people are eating with their mouth open, lips smacking, cookie crumbs falling all over their shirts, that the impulsive tendency. What can we do, I think the great leaders have learned this through trial and error sometimes, that was a bad time in my history of leadership and I offended people and I did overly risky stuff, I was toned deaf, I wasn't listening to people around me. I think the emotional intelligence literature gets really useful. Maybe team meetings are best when you let other people lead them if you are the leader. Great leaders are known for their respect of people around them and it's so interesting they just like they go down and talk to the person who cleans the bathrooms and know their name. Great leaders practice gratitude, which is a way to build the social network. I think you have to do that good to great work of like well how are you serving people with this work.

Jen: Empowerment.

Dacher: Empowerment is the whole. I should have titled my book perhaps other than Power Paradox, like Empowered because that is the new model of great leadership, and you are seeing it in a lot of interesting places. I have been lucky enough to work with Pete Docter on Inside Out. I got to be involved in that movie, I got to watch Pete build a team of 250 people, a billion-dollar enterprise at the time Pixar's reputation was resting on Pete's movie, and I was around him for dozens of hours and he was like, like he empowers everybody. And then the other more recently like I have gotten to visit several practices of the Golden State Warriors and just know some of their coaching staff and have watched Steve Kerr, their coaching staff, and it's like for people who follow sports, like Draymond Green, he is a brilliant guy in terms of defense and Kerr will be like, let's see what Draymond has to say about defensive schemes, its not this top-down. So, empowerment is big. As your framing of our conversation suggested, these are new ideas. 50 years ago, if you went into an organization, whether it was finance or sports team or nonprofit or government agency, it was totally top-down. There was a white male in the US telling people what to do and that was it, title driven and that is different now. People really are like we want you to be bold and clear but we want to be a good listener and empathetic. So, what I try to do Jen, alongside these principles we have been talking about is like try to work in contexts where this knowledge can be useful. One is in medicine, health care system, so many demands on medical doctors, complicated work, lives are on the line, they had a very top-down type structure, and they are transitioning, a lot of women are becoming medical doctors and just to be part of that conversation to expedite that development and it is always a challenge. It is just so humbling to study the abuse of power and then you feel powerful and so then you are like saying offensive things about the person next to you or whatever, so it is just a continual struggle in practice.

In some ways I think that the most important set of findings in the Power of Emotion literature that I write about in the last chapter has to do with what chronic powerlessness does to the human nervous system and it is this convergence of the power literature and the emotion literature and this really traces back in some ways to Robert Sapolsky, he is one of my favorite scientists at Stanford and he showed like if you are a subordinate baboon low in the hierarchy, you are constantly stressed out, you don't develop physically, you have these ulcers, the lack of power costs your nervous system. What started to happen in the science was people are like wow, shame is an emotion that really at its core is about powerlessness and now we hold shame is associated with elevated cortisol and increased inflammation in your body's immune system. If you have chronic inflammation, it is a major pathway to disease problems, poor brain development, etc. When you don't have power, you feel ashamed, you feel subcritical, and what we have started to paint a picture of is the cost of poverty, at the neurophysiological level of chronic inflammation, elevated cortisol, those processes then prevent the development of your prefrontal cortex. I grew up around really poor people for a significant part of my life and was always struck like they all seem sick, and mucousy, and hard to concentrate in school, and that actually is not feeling empowered that it starts to make your body feel like it's attacked and under threat and the immune system is hyper firing. I think once you start grasping those findings, it's this platform for rethinking what it's really like to be poor, its choice or it's character, just push to the side because your body feels like it's under assault and I think the science has been useful in that argument.

Jen: So last and final question, hopefully this one is a softball. What's your favorite well-being tip or what do you do for your own well-being, other than study power and emotions and altruism.

Dacher: I was lucky in that regard. It always changes. 10 Years ago, I would have said, compassion and kindness, and you have asked so many great questions about kindness. Karen Armstrong, the religious historian, kindness is the glue of our culture and if it fades, we are in trouble. I still believe that but I think that in light of our conversation, to me it's listening, it's like just go out into the world and be open to others, be clear about what your intentions are but just to listen. In particular for people at work right, if you orient toward just that simple task, you are going to be okay and you will sort out like that person is causing problems, those are good collaborators, this is where my opportunity is to innovate. I was really struck by a quote by Thurlow Weed who was a journalist when Lincoln was president and everybody was struck by Lincoln because he surprised the Republican candidates, he won on the third ballot or something like that. They didn't expect him to win. He is tall and awkward and poor and funnily dressed and poses often, he ends up being our greatest president and Thurlow Weed who was a journalist said the genius of Lincoln was he heard everything that people had to say to him and I think like the idea of just listening with depth is a good start.

Jen: What a powerful way to end. Well thank you so much for being on the show, this is great.

Dacher: Thank you Jen, it has been wonderful to be with you.

Jen: I am so grateful Dacher could be with us today to discuss Well Being. Thank you to our producers and to you our listeners. You can find the WorkWell podcast series on

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