

Tara: It's because in India culture, the elderly are massively revered. So I've never had a fear of aging. And also because we believe in reincarnation. So I don't believe that's the end anyway.

Dave: So you're an MIT, neuroscientist, MD, and you believe in reincarnation. But you're skeptical of the quantum realms?

Tara: You know what, you're right. I'm a conflict, and I'm okay with that.

Dave: By the way, none of that was criticism.

Announcer: Bulletproof Radio. A state of high performance.

Dave: You're listening to Bulletproof Radio with Dave Asprey. Today's cool fact of the day is that light from outside your brain can turn nerve cells on inside your brain. Well, at least if you have some cool gear anyway. Scientists have discovered that light pulses from outside a monkey's brain can activate nerve cells very deep inside the brain, and that external control might someday help us treat brain diseases like epilepsy, according to reports. Why do they always think about treating epilepsy, according to reports? Now, full disclosure, my mom started having epileptic seizures when she was carrying me, and I grew up with a mom who has epilepsy. So I'm all about treating epilepsy.

But there's a lot more of us who don't have epilepsy, and if we could use that light to do even cooler stuff to our brains, like let us levitate or be Professor X, wouldn't that be cool too? Okay, sorry. That wasn't part of my cool fact of the day. But I just wanted to let you guys know about this thing called optogenetics, which is when we actually can control specific nerve cells with light. But you kind of have to put thin optic fibers inside the brain, which is a bad thing. Sorry, Elon Musk, Neuralink. Because putting stuff inside your brain causes infections, inflammation, and tissue damage, at least according to MIT, and I tend to believe those guys because they're pretty smart.

However, these researchers now have new light responsive molecules called, get this, SOUL that detects extra dim light. So they can inject SOUL into a monkey brain, and yes, we're all basically monkeys anyway but we shave better. And researchers shined blue light through a hole in the skull, and the SOUL containing nerve cells, which were as deep as almost six millimeters in the brain, became active. And orange lights stopped the activity. Okay, how cool is that? So maybe someday you can actually inject SOUL into your brain, shine the light in your head, and you'll become enlightened. That is a cool fact of the day to end all cool facts of the day.

Now, if that was just too freaky for you, you might just want to check out Superhuman, my brand new book. It is my only book that's ever been on the New York Times list for two weeks back to back, which is a huge honor as an author. Thank you for ordering it because if you're listening to this, the odds are high that you have. And if you're listening to this going, "I really should order it," well, do it now. Because if you're going to spend an hour of your time on this episode of the show, you're going to spend four or five hours reading the book. And you're going to get years of research and knowledge

together. So the ROI for you to just turn off this episode and start reading or listening to the audiobook, which I recorded myself with my shirt off I will have you know. Yes, it's on Instagram. That was because my shirt was too loud. Anyway, you guys should check it out. Superhuman.

Now onto today's guest. Today's guest has I do believe the most perfect English accent of any guest who's ever been on the show. And this is because in studying to become a neuroscientist, medical doctor, leadership coach, bestselling author, and pretty much neuroscientist badass, apparently you also develop this kind of an accent. I'm talking about Dr. Tara Swart. She's a senior lecturer at MIT Sloan School of Management where she runs the neuroscience of leadership and implied neuroscience programs and is an executive advisor to some of the world's most respected leaders in media and business. So this is the cutting edge stuff. What do our brains actually do that make us lead? And I'm super interested in this interview today.

Tara, welcome to the show.

Tara: Dave, I think that might be just the coolest but strangest intro that I've ever had.

Dave: All right.

Tara: I mean, I just had so many thoughts going through my brain. Like yeah, who doesn't want more soul in their brain? Obviously instant enlightenment. Yeah, yesterday I spoke at a conference for 1200 women, and I was called a brainer boss babe. But I think you've beat that with your neuroscientist badass.

Dave: A brainy boss babe is pretty good. I'll give you that.

Tara: Yeah.

Dave: It's really fascinating. I went to Wharton, which definitely isn't MIT, and this was a while back, early 2000s. And we were doing a statistical analysis class, and they said, "We need a data source." I said, "Guys, I have my own EEG. Let's do this thing," which they would've called neuro marketing. I said, "We can put EEGs on each other, and we can get data and just see if the data is statistically valid when we look at different logos. How fun would that be?" And they all looked at me like I was crazy and said, "Let's do something boring." I forgot what we did because it was irrelevant. But I do remember that if we had done that, we probably could've did some expensive consulting firm and all become ka-billionaires, which is why you go to Wharton anyway, right?

So you actually went out and you do that kind of stuff. You actually measured people's brains during leadership, right?

Tara: I do. I use various sorts of gadgets to do actual measurement. But I still say that your own brain, and I am talking about mine when I say this, but anyone's brain is still the most sophisticated tool for understanding and measuring someone else's brain. And to me, that's actually true leadership. If you use all of your integrated brain power to

understand people, to motivate them, to get stuff done, then that to me... Until we are implanting stuff into our brains, until we become that human AI hybrid that I think we will, up until that point our brain is this amazing sophisticated piece of machinery that we can get a lot more out of than we have done so far and use that for leadership. I like to add in the gadgets, but I don't believe that we necessarily need to.

Dave: So we don't need the gadgets, but as a researcher, you're using them to measure it. But it's more about instrumenting what's already there, not augmenting it.

Tara: Well, it's actually definitely both. So I think sometimes giving people the hard data, either from a bigger research study or from their own brain, can just raise their awareness of some moralities that they may not be that conscious of, and then using that information either the hard data or the mess of cognition, self-understanding, the raised awareness. You use that to augment the power of the brain, 100%.

Dave: Okay. So using the training and the knowledge, but you're not talking about someone giving a talk on stage, monitoring their brain waves of their audience to see if it's getting in?

Tara: No, no. I'm much more about using larger scale rigorous studies to understand sort of norms and then apply that to individual people. So I'll either be coaching a senior leader, and they'll be an issue. And I'll go to the rigorous research to try to find a solution for it. Or I'll be keeping an eye on all the latest sort of sophisticated scanning technology research, and I'll put that information out there for things that I think are general interest and importance to lead us. But when I say leader, I literally mean that we're all leading our own life, leading our family, leading our communities, and also obviously our teams and our businesses and whatever we're doing in society. So I really do think it applies to everyone.

Dave: What is the most unlikely thing that you discovered using neuroscience for leadership? The thing that you're like, "I can't believe that that's real."

Tara: Oh my god. That's a brilliant question. I would say the latest thing I'm really interested in is the three-way transmission of information between the limbic part of the brain, which is the intuitive part of the brain, the gut neurons, and the gut microbiome. So we've known for quite a while now that there's a neural connection between the gut and the brain. But if you aren't in this third element that the gut bacteria separately signaling to the gut neurons and to the brain itself through cytokine transmission, which is chemical messages that are sent through the blood. Then it just opens up this amazing area of understanding that if you physically look after the bacteria in your gut through what you eat, through supplementation, through reduction of stress, alcohol, antibiotic use, you can actually gain greater clarity into your own intuition, which is the wisdom and experience that you've laid down in your neurons over your whole lifetime. But obviously you can't remember everything you've experienced in your life. So I'm very big on the brain-body connection. But that to me was pretty mind blowing, and the fact that it's the quality and diversity of the bacteria in your gut, which I never even really thought was actually part of me. And there is a debate about that. Is it part of you? Are

certain cravings and addictions caused by these gut bacteria trying to get what they need to survive?

Dave: I've come to believe that each bacteria has its own little bacterial consciousness. Do you think that's true?

Tara: Yeah. I'm getting there with my research as well. So basically these bacteria, like any living thing, they want to survive. They're able to transform themselves if necessary into parasites or viruses for their own survival. And they're using us as avatars to get whatever nutrition or resource they need to be able to survive, to multiply, the transform. And so I think the way that that really helps leaders is from the sort of, the most pathological angle is if you got an addiction or a terrible craving, understanding that it could be the bacteria in your gut that's causing that, not you. And I think that level of separation helps people to step back and think, "Am I going to let a bacteria tell me that I should drink more alcohol is good for me tonight?"

Dave: Does that also mean that each cell in your body has its own little dumb cell consciousness?

Tara: I mean, I know that you're very interested in mitochondria, for example, in terms of energy.

Dave: Yeah. Or it could just be like a liver cell or a neuron. It also is a little cell that's alive and would live by itself in a petri dish.

Tara: Yeah, and they do paracrine signaling, which is that they signal to the cells next to them, and we know that cells have the capacity from stem cell to become something totally different. So a liver cell could've become a neuron. Once they're matured, at the moment, we don't see that much ability to transform. But they definitely signal to the cells next to them, and things like stress massively effect what signaling these cells are doing to each other. And we know that things like stress and alcohol can cause damage to certain types of cells more than others. So liver and brain, for example. Yeah, I mean, it's a growing field that... I mean, if you'd ask me this question a couple of years ago, I would've said epigenetics. But now I-

Dave: Oh yeah.

Tara: Yeah, yeah. Now-

Dave: All my work is based on epigenetics.

Tara: Exactly. And that's gone from being quite an emerging field to quite a lot more established. I think the next step is this psycho neuro endocrinology field, which includes the gut microbiome.

Dave: I just read some large thick textbook on that that made me really happy on my Kindle because it was thin. Your book though, *The Source*, is really interesting because you're

sort of a walking contradiction in that you're a huge fan of stoicism, but you're also a neuroscientist and you talk about leadership. What's the deal with stoicism in what you do for a living? Talk to me about that.

Tara: Well, I mean, a lot of what I do for a living is help leaders to build mental resilience. So the build their resilience to stress. And I've got some like your fun fact. So I got some fun facts around stress. So the latest one I've heard is that 75% of people in the modern world are deficient in magnesium, and we know that magnesium gets leached from your system when your cortisol levels are high. So levels of the stress hormone. So I've done a few big conferences recently, and I say, "Raise your hand if you ever get that twitchy eyelid." And it's absolutely at least 75% of people in the room raise their hand. So it'd be interesting to know with your listeners how many identify with that. So the twitchy eyelid is a classic sign of magnesium deficiency.

Dave: I forgot about twitchy eyelids. I've been taking magnesium for 20 years, but it used to bother the heck out of me. Of course it would make sense. But okay, thank you for that. All right. Cool.

Tara: Do you not get them anymore at all?

Dave: No, I don't get them anymore.

Tara: You're taking enough magnesium. How do you take your magnesium? Orally or transdermally?

Dave: I take it orally usually unless I'm doing a float tank or something. In I think it was Headstrong, my book, I figured out there's a diurnal or circadian spike in the middle of the day. So now I take my magnesium in the morning. So I have energy during the day, and I take it at night for sleep. So I do about 1.6 grams a day in mixed -ate forms, anything that ends in -ate, I'll take.

Tara: Yes.

Dave: Like threonates or citrate or malate, et cetera, et cetera.

Tara: Yeah.

Dave: How do you do it?

Tara: I'm the same. If I'm not traveling too much because of the liquid issue, then I'll try to take the spray or the lotion or the gel because it's best absorbed transdermally. If that's just not convenient or I'm traveling, then I'll take a capsule or a tablet. And I take the bio activated magnesium. It's just more available for your body, and I usually prefer to take it at night. But this morning, I actually took it in the morning. I'm under a lot of pressure at the moment traveling a lot. So I am taking it twice a day at the moment as well, especially because I feel that taking it orally isn't as good as taking it through your skin.

Yeah, I also do flotation time, and sometimes I'll just have a bath at home with magnesium flakes.

Dave: Okay. It's pretty easy to get Epsom salts, which are a source of magnesium. So it's not that hard to do that.

Tara: No. It's just that taking the time to have a bath because then you got to be in it for 15 minutes to absorb it all.

Dave: Right. When you're looking at building resilience, one of the things that leaders, especially of larger companies, have to deal with is there's always a line of people who want to talk to you. Oh, I'll just have a half hour bath, and then I'll lay back. I'll meditate for two hours. It's like how could you do all of that in one minute because that was all you had.

Tara: I know. Actually, it reminded me. I have someone in my network who I don't coach him but he gives me lots of coaching clients, and I took him to a flotation tank. It was an hour. At the end of it, he said to me, "I never take one hour for myself." And he's actually the person that reintroduced me to stoicism. So I was just so blown away by the parallels between what modern neuroscience says about building resilience and what these stoics were saying so long ago. I mean, they must have had time machines or something because they're saying exactly the same thing that I'm saying.

Dave: What does modern science say about stoicism?

Tara: Well, what it says about resilience, which relates to stoicism is that our ability to endure and bounce back from adversity is a capability that can be built into our brain. And there are certain factors that help to really incorporate that into our tool kit. Because of things like the natural loss aversion of the brain, we have to override that with a different form of thinking. So basically going back to stoicism, if every time you encounter something that's not how you wanted it to be or it's difficult or you're suffering, the ability to endure that, we have that capability in our brain. But psychologically, we often think this is too much or I don't want to do it or it's unfair or why should this be happening to me. But actually every time you endure adversity, you build your resilience to future adversity. You build your own idea that you have the tools within you to come out better, stronger, learn something. And I just think the parallels are pretty amazing. But from the modern neuroscience point of view, it's literally about building a pathway in your brain that helps you to reframe the way that you view enduring adversity.

Dave: When you look at say addiction though, most addiction... At least a lot of people that have been on the show like Joe Polish, and I would say most addiction is tied to trauma, which is one of those times when you've endured something that was a little too much for you and it left a mark. And you're working on dealing with that through all the behaviors of addicts. How do you have stoicism and this, "Oh, you should endure lots of annoying things, so you can get better at handling them," versus, "Oh, I accidentally traumatized myself in the process."

Tara: That is a tricky one, especially when it involves childhood trauma. We know that there's a sort of fine balance between enduring a certain amount of trauma that inoculates you against future stress. It actually makes you more resilient. Versus such horrendous trauma that you are damaged to the point of falling into an addiction later in your life or for the rest of your life. So having been a psychiatrist and a former guinea pig, I totally... I mean, there are things that people have endured that no one should have to endure, but it is difficult to see how you can be stoic when something just... Well, I think when someone really vulnerable like a child or a really elderly person or an animal is treated cruelly, that that's kind of beyond what we're talking about and can be really difficult to deal with. It can still be helped with the right psychotherapy and the right environment and some sort of understanding that the trauma has created something that there might be some ability through neuroplasticity to undo some of the effects of.

But let's say we're talking about a minor or moderate amount of trauma at some stage of your life.

Dave: Something that you probably can handle.

Tara: Yeah, exactly. So then there's more of a fork in the road about whether that leads you towards a vice or a virtue. So from Freudian psychology, it was sort of like a different stages of your development if something bad happens to you, then this is what's going to be wrong with you for the rest of your life. I'm more in the school of Erickson's psychology, which is that at different stages of your development, things can happen and it can either make you more resilient or it can make you more vulnerable. So a lot of the people that I work with, senior leaders, have had a childhood disruption between the ages of five and nine, and that's actually led to them being more successful perhaps than they would have been.

Dave: That's so common.

Tara: Yeah.

Dave: Now you talked about Ericksonian psychology, which is awesome. And I've been wanting to ask someone about the Ericksonian stages of adult development. Are you familiar with those?

Tara: Not off the top of my head. But-

Dave: I was hoping I could just go there with you because I don't remember them off the top of my head either. But it's just the idea that as we're kids, everyone knows there's these stages you go through and there's things you do when you're six and things you do when you're nine and 12, et cetera, et cetera. But that as adults, there's stuff you go through in your 20s, in your 30s, and your 40s, and your 50s that Erickson mapped out pretty nicely. And I'm finding as I'm at least a third or maybe... Actually, I just had my birthday, which was my 26th birthday. So I'm maybe a quarter of the way towards figuring out all of those stages of adult development. But I'm starting to find that as I get older, there's a thing called wisdom. You're like, "Oh, there's these patterns that adults

do too. They're just spaced out more than kids." Do you think that's true? Do you see a leader who's in their 50s or 60s is a fundamentally different type of leader than someone who's in their 20s or 30s?

Tara: I absolutely think there are those stages, and just in real summary, so not in every single detail. Early adulthood is about love. Mid-adulthood, 40-64, which is I think you fall into, is about care and maturity. From 65-death is about wisdom.

Dave: The maturity, no, that can't be me.

Tara: No, no. I don't think you're there yet. You're not there yet. I think it's useful for us as adults to look at those stages and kind of see if it resonates with us, if that's something that we're going through. I would definitely use information like that with the leaders that I'm working with. I mean, retirement ages is changing around the world. But most of the people I'm working with are not 65 plus. They're in the 40-64 category. And it does start to become about leaving a legacy and doing something more than just making money. So yeah, I think there are definite themes there. And I think that if people look at Erickson's stages through adult development, you're right because the rest is about learning maybe why you are the way that you are because of what's happened in the past. But the work that I do is very much about, "Okay. Let's see what we've got here. What can you become?" It's about neuroplasticity. So I think it's a great idea to look at those stages.

Dave: So you've become a leader in your field. Did you have a disruption between five and 10 years old that drove you to become preeminent in your field?

Tara: I would say that I did have a disruption at those ages. Funny, I've never thought of it about myself even though I've identified it in so many other people. Yeah, so I would say that I went through some challenges that were pretty traumatic or had some consequences. And actually, what Erickson says is that a disruption at that age leads to either industry or inferiority, and industry is working hard. So yeah, I definitely worked really hard at high school and university. I was at university for nine years. I did med school and a PhD, and then I was a junior doctor for seven years. And then I totally changed career and set up my own business. So I would say that I definitely worked hard.

Dave: Did you work hard because of inferiority? So many people I've done work with who are successful, they're so successful because they're kind of overcoming or counteracting that feeling of inferiority. Did you get both? Is that why you did it, or did you just do it for the love of the field?

Tara: I mean, I'm so lucky that I found a field that I absolutely love and having done my PhD in neuroscience over 25 years ago when it wasn't a sexy subject at all, I'm really pleased now that it was. But I genuinely was attracted to the neuro part of all medicine. I think being the first child of first generation immigrant parents from an Indian heritage to the UK had placed a lot of expectation on me. I think that drive for perfection that I used to really struggle with was definitely to do with proving my value in the world as a woman

as well. I'd say that I'm pretty much over that now. I think once you get faculty at MIT, you're kind of like, "Yeah, I think I've probably done okay."

Dave: Yeah. If someone wants to say bad things about you, you can just sort of laugh at them and just be like, "All of my engineering friends are going to hurt you." And they're afraid. I totally get it.

Tara: All those thugs at MIT, they'll just come and like beat you up.

Dave: If they can use their slide rules, it's a problem. Now, I interviewed Stephen Porges, the father of Polyvagal Theory, not so long ago on this show. One of my favorite interviews. And he talked about how he had some sounds that he would use that would usually make people more parasympathetic, and he could use them in a room full of people in most countries. And people would have profound emotional experiences. But when he went to London to do it, they had to stop after two minutes because people were just having breakdowns. And he said, "Well, it's because in London, if you're a native Londoner from multiple generations, you have World War I and II trauma that's become a part of the culture, part of your lineage. If you're not a native Londoner, you got kicked out of your country." So you have the trauma of leaving your people and coming to a new place and reestablishing yourself. He just found that the percentage of people who had to deal with that from one side or the other in London was the highest he'd seen almost anywhere, even though he likes London. I love London. I was just there last month actually. But that it's definitely true that there are people in Lond who are working to overcome either of those two things, either displacement or the trauma of potentially your city or your country falling.

Do you think there's any validity to that?

Tara: As soon as you started speaking about it, I was thinking it's never stereotyped as a very repressed society. But I'm a little bit surprised. I think it makes sense, but I'm a little bit surprised to hear that it's the only place that has that combination because I think you could argue there's something similar in the US and certainly in my work in South Africa of transgenerational trauma.

Dave: He just might not have done one of those in South Africa. I mean, there's a lot of places in the world that are pretty trashed. He just found that the percentage of it was high enough when he does one of his events, he has a whole bunch of therapists type people in the room to help people who are... You hear some sound files, and all of a sudden you're like, "I have no idea what's going on, but I'm feeling weird." He just said it was an overwhelming number of people where they couldn't handle it versus normally it's kind of you can predict, "Oh, it's going to be a third of the people are going to need someone to hold their hand and to tell them it's all good. Just keep breathing. You'll be fine." So it was an interesting thing.

Tara: That makes me feel a bit sad because obviously it's my hometown. But I have to say that when I was writing the book, which is obviously the year before this year and the year before that, I felt like, "Oh my goodness. With what's going on in the world, this ability

to understand how your brain works, draw on your end resources, relate to people in a different way is more needed than ever."

Dave: Oh, it's super important. The other thing I wanted to ask you, so your book is called *The Source: The Secrets of The Universe, The Science, Or The Brain*. Do people ever accuse you of having a giant ego for disclosing the secrets of the universe in your book?

Tara: No, you're the first person that's done that today. Thank you.

Dave: I didn't do it. I was just wondering if other people did.

Tara: Now you've made me realize that probably everyone thinks that, but no one's said anything.

Dave: No. It just makes me want to read the book more. I mean, I did read the book, but you know what I'm saying. It's a big claim, but okay, you spent 25 years studying. You've actually worked on this stuff. But it is a big thing. All right, I'm going to disclose this stuff because there's other books like *Baba Gita*, the Bible, stuff like that that are written about the same sorts of things. Why did you say the secrets of the universe are in here?

Tara: Well, I've actually referred to those books and philosophies that you've mentioned. So I've kind of said that throughout time, in all different cultures, including stoicism, which we've spoken about a bit, there have been some beliefs that there have been some sort of understanding of human suffering or triumph over adversity that have kind of relied on blind faith just because they've been around for so long and they've been handed down more stories than scientific facts. So I know that it's a big claim, but what I was kind of trying to say was that all of that stuff you can now put that together with the results of modern science. And it comes back to how you start and you said to me like, "You're like a walking conflict." And I did feel like that for a long time, but when I felt able to... I personally drew on both my cultural heritage and my medical and scientific background to get through a sort of midlife crisis of my own. That's when I thought actually this stuff really goes together. It's not two totally separate things like I'd kept it in my childhood, and that's what made me want to write the book because I thought everyone needs to know this.

Dave: I was attracted to your book and to interviewing you because you have I'm just going to say hard to impeach credentials. Yeah, MIT, MD, PhD. You can say I don't know what I'm talking about, but the people who know actually say I do. So there. But in your book, you're talking about visualization, the law of attraction, manifestation, oh and neuroscience, which is pretty unusual. In fact, it's a little bit of a professional risk to go there, isn't it? Did you think about that when you're writing the book?

Tara: Yeah, I did. I did think about that, and what's been amazing... But I felt compelled to write that. So I couldn't not do it even though I knew it was a risk. And what's happened since the book has come out is that it's just become something... The impact that it's had on me personally, the messages that I've got from people, and actually the strongest message that I'm getting is, "Thank goodness that somebody with your

credentials has written about this." Yeah. So it's turned out better than I could imagined, but absolutely it has crossed my mind and still does that that was a risk.

Dave: But you built your resilience through stoicism and your other practices. So if people criticized the book or me, they can go pound sand. What's the UK way of go pound sand?

Tara: I've never heard that before, so not really sure. I did a lot of work on grounding myself before the book came out. And to prepare myself both for the criticism and potential criticism, of which there really hasn't been much at all, and the potential reaction because I get so many messages from people now that I don't know saying how it's changed their life. And that's quite a thing to take on, to be honest.

Dave: Oh yeah.

Tara: Yeah.

Dave: People stop me in airports saying similar things, and it is a huge thing to take on. And so I'm guessing most people listening don't quite know what that's like unless you've changed a friend's life or something like that. What happened the first time someone walked up to you saying, "I read your book, and it totally changed my life." What did that do to you?

Tara: So I have obviously been a medical doctor, so I've had the enormous privilege of knowing that I have saved many people's lives. The first time after I became coach that a client introduced me to someone and said, "She changed my life," I was a little taken aback. So I would say that it's slowly built up over time because then after that, I would ask my friends and family to try things, and they would say that it had... For example, to make an action board, which is like a vision board but you actually do things to create the real world outcomes that you want. And I would get great feedback from them. There are people I know, so that again wasn't too astounding.

But I would say that the messages that I've had from people, the photos of their vision boards, the photos of places that they've gone to that were on their vision board, the engagement rings, the weddings, the pregnancies, the starting a freelance business. When I get those messages from a stranger that says, "I read your book," or, "I listened to you on a podcast, and then I did this. And now this is happened," I just continually say to my husband, "Can you believe this? I can't believe this." And then it got to the point where I was saying, "I can't believe this," so much that I thought, "Well, I need to believe it." For some reason it was okay when it was people that I knew, but it was just so overwhelming when it was complete strangers.

One of my really close friends, he's the husband of another close friend of mine. I was discussing with him, and he said, "You need to change your narrative from I can't believe it to I'm so grateful." And that has been just a massive game changer for me. So when I get these messages now, which I get on a daily basis on Instagram mostly, I look at them and I think, "I'm so grateful that this person who's reached out to me and that me

writing that book has had this effect on them." Because I don't consider myself a writer. I find writing really difficult. I love speaking. Hopefully you can tell that. But the writing was hard work, and it took me away from my family every weekend for a year. And actually, it's drawn us much closer together, and it's been really a wonderful, exciting journey for us. But it was really hard work, and I didn't know what the outcome would be like. So I'm still just it takes my breath away when I get these messages. But I've turned that into an opportunity to be grateful and say that's having an even more compounded effect on me.

Dave: I really like how you took away the can't word because you are believing it but you tell yourself you can't create a little conflict in there. In terms of gratitude, I do the same thing. If someone tells me, "Thank you for telling me," because how else would I know. It is overwhelming when it first starts, at least it was for me.

Now you talked about visualization, about vision boards. Talk to me about the neuroscience of visualization, let's say. What's actually going on in there?

Tara: Okay. So because we're bombarded with so much information through all of our senses but massively through the visual sense on a daily basis, the brain has a natural filtering process. So things that aren't regarded as crucial to our survival, they kind of get filtered get. A little bit like you're not aware of the clothes on your body all day. And then the information that is filtered that we pay attention to is then tagged in order of importance. So those processes in neuroscience is called selective, filtering selective attention and value tagging. And the tagging has a logical and an emotional element. So there would be some things that is based on facts and data that this is important to my survival. And then there will be some things that are just important to you because of nostalgia or family or whatever other reasons.

So visualization and vision boards, I put them in a similar category for these processes, are ways of priming your brain to notice and grasp opportunities that might otherwise have passed you by. Because when we're trying to hold down the day job, put food on the table, pay the bills, have some kind of work/life balance, aren't necessarily thinking about what does my ideal life look like or what would I really like to be doing or where would I like to be living in five year's time. So taking time to step back and visualize how you'd like your life to look actually physically creating this on a vision board that you then act upon, just brings to the front of your mind, it raises from non-conscious to conscious what it is that you really want. So you're much more likely to notice something that's related to that as you're rushing around your daily life.

Let me ask you something, Dave. You obviously didn't reveal what you're last birthday was, but I'm going to take a guess that you played Tetras on your Game Boy when you were younger.

Dave: I appreciate that you think I'm as young as you think. I played Pong.

Tara: Okay. I'm totally wrong. Obviously that resilient aging stuff works. That's amazing.

Dave: For people who are listening who don't know what Pong is, it's the first video game you could buy at your house.

Tara: That's so funny. I'm in the age group that doesn't know what Pong is. So there's obviously a big difference.

Dave: So you just said I was old or wise, one of the two.

Tara: You're definitely wise, and you look amazing, okay?

Dave: Ah, thank you.

Tara: So basically people who did play Tetras, they will definitely remember that when you close your eyes at night to go to sleep after playing Tetras intensely, you could see the little bricks falling in front of your eyes. And I think it has-

Dave: That happened to me in college when we got Tetras, yeah.

Tara: Yeah. And that's actually become a psychological phenomenon called the Tetras Effect. So how that gets applied in real life is that in the hypnagogic state of falling asleep, so going from waking to being asleep, we're highly suggestible. So I actually keep my vision board right next to my bed where I can see it. So I see it first thing every morning, and I see it last thing at night. You don't have to do that. I think it's very practical to make it the screen saver on your phone or have it... Some people don't want it out in public, so then it could be inside of a wardrobe door or something like that. But the more you look at it, the more you visualize everything on it coming true, and you notice things in the real world that can help you to make it come true. And you try to make progress. Again, it's those milestones every single day. It's just so much more likely that those things will come into your life than if you are too busy to ever think about what you really want. Or if you just fantasize about how different you'd like your life to be but you sit on the couch and you don't really do anything.

Dave: From a neuroscience perspective though, just sort of saying just because you're filtering for these things because you see them all the time, does that make them manifest?

Tara: It makes you more likely to notice them for sure.

Dave: So they were happening all the time, you just didn't notice because you didn't program your filters to pay attention to them.

Tara: It's possible that you were missing things that were available for you to notice and opportunities that were there for you to take. But I think the act of stepping back, creating this vision, it's a whole different thing. Like there are research studies that show that women who floss their teeth have much better health and lower stress levels than women that don't. It's not because they floss their teeth, although that is good for you. But it's because they are taking the time and the effort to look after themselves to such

a level that it's likely that they're doing a lot of other things to improve their health and their longevity and reduce their stress levels.

So I think the next stage, which relates back to something that you said earlier, which was you talk about these ancient philosophies, laws of attraction, vision boards, and neuroscience, is that the phrase that really I think encapsulates all of that sort of new age thinking is the way that you think determines your life. Now the reason that that has received criticism for being pseudoscience is that it's always been based on quantum physics. And I've always secretly thought for years before I wrote the book that if the way that you think can determine your life, that philosophy should be based on cognitive science like psychology and neuroscience. And again, that was one of the reasons that I felt the I was in a good position to write that book that bases that on neuroscience.

So the manifestation part, so there's visualization and then there's manifestation. The manifestation part depends more upon what I call brain agility, which is a combination of mastering your emotions, understanding your brain/body connection, accessing your intuition, and we've already talked about how part of that is looking after the health of your gut. Making good decisions because you are essentially the sum of every decision that you've made in your life. Staying motivated and resilient to reach your goals, and then using your fully integrated brain power to create the real world outcomes that you want. So we talked about hard work. I consider hard work to be building up all those pathways and capabilities in your brain, and then really putting out there what it is that you want to achieve. And doing everything you can to make that happen. That's manifesting. It's not magic. It's working hard. It's taking a risk. It's pushing yourself out of your comfort zone. But using your brain power to make your chances of success as high as possible.

Dave: Now you've moved it from the quantum real, which is like the most overused new age marketing term ever, into the thinking cognitive science realm. But do you actually think it's quantum, or are you just did that for marketing, or do you think it's actually all about thoughts?

Tara: Oh, I think it's actually all about thoughts. I mean, as you know, I went to medical school when I was 18. I did a PhD in neuroscience. I was a psychiatrist for seven years. I've been an executive coach for 12 years. It's all about the thoughts. And it's all about the power of your brain, particularly the untapped potential of your brain.

Dave: So we're super aligned on the untapped potential of the brain. There's so much cool stuff going on in there. I spent last weekend out with Jack Canfield. You talk about the law of attraction in your book. He's one of the many people behind the secret, and there's the old Napoleon Hill stuff. And I've kind of had an aversion to the whole quantum thing. But you can look at quantum biology, which is a real field. There's probably someone at MIT studying quantum biology, which is how does an enzyme actually work inside a cell, and it turns out there's a quantum tunneling effect that allows them to achieve chemical reactions with less energy than they should take. Like this is real science that's looking at microtubules and cells, not the kind of the

quantum... Oh, before we would have called it angels, now we're just going to call it quantum, and then we can remarket visualization.

I'm starting to believe that there's some quantum level effects that we just seriously don't understand in biology that maybe involved in consciousness. And I've interviewed a few people about that. In fact, I'm about to talk to Dalston Church again who's a cell biologist like Bruce Lipton who's the father of epigenetics and he's one of the first guys to clone a cell. A real scientist who's gone... I'm going to call him super quantum. So I feel like there might be something going on there or are you 100% convinced this is a thought based process and that the quantum stuff is mostly marketing garbage?

Tara: Well, you're introducing an interesting conflict or dilemma here, which is we've already touched upon the fact that some of my personal beliefs throughout my life weren't backed up by science, and that created conflict for me. Some of those beliefs have since the '70s been proved by science. So I do have secretly a lot more of that stuff than I can prove by science at the moment. I have a little phrase in my mind, which has always been, "Science fiction is just science that hasn't been proven yet." I'm a great believer in people watching Black Mirror or movies like the Matrix or Bladerunner to prepare themselves for the future. I think it's interesting how so many physicists and people like Bruce Lipton and myself have gone from being very physiological, biological scientists to entering into that more intangible realm. And it of course depends upon whether you believe that thoughts are imagined from chemical processes or whether it's a two-way thing or you don't believe that at all. So I like to leave a little bit of room for magic that we can't explain everything at the moment. We don't know what's going to be proven to be correct, that we don't believe to be correct at the moment. That's happened many times in neuroscience that the way we thought things worked in the brain turned out to be different to what we thought.

So I think that whole process of evolving and challenging your beliefs and embracing new ideas is really important. So absolutely, I'm open to that for the moment. I think my niche is to be able to represent based on current modern scientific thinking. How some of those things, like the law of attraction, manifestation, visualization could actually help us to have a slightly better life than the one that we have at the moment.

Dave: That was a super good hedge. I like that. And it's actually a rational and a reasonable thing to do. As a clinician, when you were an MD, you actually treated patients. And if a scientifically proven study came out with double blind placebo controlled stuff and you did it in 100 patients, and most of them didn't get better, would you keep doing it?

Tara: No, because one-

Dave: But it's scientifically proven.

Tara: But it's one study and it's 100 people.

Dave: Right. So the clinical observation side of scientifically proven is one of the seven kinds of evidence that's out there. I look at the scientific method is you make an observation.

You then make a hypothesis around it, and then you test it. The levels of evidence to support the tests are multiple and some are stronger than others. And I look at that, the quantum side of things, we've all observed there's some weird stuff going on there. And no one knows what's going on. We're making all sorts of interesting observations, and now we're hypothesizing about it and we're testing it. And those tests are going to tell us over the next couple years, less years than it normally would take because we have better data analysis abilities. But they'll tell us, does visualization work? I think the evidence is actually in on that. But what kind of visualization works in less time and things like that. I'm looking to you to say, "I notice some people visualize this way with a board, it works better than thinking about it and making it up in their mind. If they do it in the morning versus at night, it works better." Or whatever else it is. That's where I hope it's going. Do you think we're going in that direction, or is it going to go somewhere else?

Tara: No, I think we are going in that direction, and in the book, the last four chapters are practical. There's an entire chapter on how to make your action board, where to place it, when to look at it, how to compartmentalize it or not. And at the beginning of the book, there's a chapter on the theory of why it works, some of which we've discussed. Because I've been doing vision or action boards for 10 years, now my friends ask me to help them with this because there are some things about where you place things and whether everything touches each other or there's space between them and things like that that seem to matter.

Going back to medicine, I'll bring up my brain agility model again. I did not make all of my life or death decisions for a patient based on logic. I made them also based on intuition. Yeah, so I think that yes, there are hundreds of studies, but there are studies that prove one thing one day and the opposite thing the next day. It's the clinical experience of seeing people, hearing your colleagues experiences, and just all of that training, that nine years at university. Sometimes it does come down to what your gut tells you. Because obviously now I feel very responsible for my family's health because they look to me to make that big, important decisions about health. If I struggle with that because it's such a big responsibility for somebody else's life, it's fine if it's yours. I always come back to the do no harm. That is the most basic promise that I took when I became a doctor. And that's what I always go back to. I equally use my understanding of what's going emotionally for people, my logical decision making, what the motivators and de-motivators are. But I've learnt to massively rely on my intuition over the last at least 10 years, which of course is based on logical wisdom and experience that's been picked up in life.

But yeah, I 100% agree with you. There's something bigger out there that we don't know about, and that's a good thing because if what we know now is everything there is, that's a little sad actually.

Dave: I love that you said that. I was going to say, that would suck, but yeah, it is sad. Is intuition something you can train?

Tara: So my line on that as a neuroscientist and a massive believer in neuroplasticity is that you can train intuition in exactly the same physiological process that you would learn a

new language. And I actually think that journaling is the best way to access and notice what your intuition does and doesn't do and how much you listen to it and what happens when you don't listen to it. So for me, reading back over six months of my journal, I could see how I was making my decisions and how I was doubting things but not acting on them. And it just really made it very clear to me in my own handwriting that we already undervalue intuition. We don't listen to that inner voice as much as we should.

So the process of building any sustainable behavior change is raising from non-conscious to conscious that it's something that you need to work on, focusing attention on opportunities to try it out, having a new desired behavior that you wish to try that you deliberately practice and repeat until that becomes the default pathway in your brain and some form of accountability for you to say in six month's time. "Yes, I've learnt Spanish well enough to go on vacation to Latin America," or, "I've access my intuition well enough to know that the next time I have a really big, important decision to make, I can trust that inner voice as much as I trust my logic."

Dave: Very well said. I appreciate that perspective. Now we have time for one more question in this interview. And you've written in your book several times about aging and the perspective on aging and how you can change even the way you age with the way you envision things. How long do you think you're going to live.

Tara: That's interesting because obviously I've heard you speak about this before, and I personally... For me, it's about quality of life rather than how long I'm going to live.

Dave: Of course.

Tara: Given the sort of growing dementia crisis and the mental health crisis, I would say that as long as I've got all my mental faculties and I'm reasonably happy and I've got positive social relationships that the number isn't a thing for me. But I've always been quite philosophical like that. Maybe it's because in Indian culture the elderly are massively revered. So I've never had a fear of aging. And also because we believe in reincarnation. So I don't believe that that's the end anyway.

Dave: So you're an MIT, neuroscientist, MD, and you believe in reincarnation. But you're skeptical of the quantum realms?

Tara: You know what, you're right. I'm a conflict, and I'm okay with that.

Dave: By the way, none of that was criticism. I'm with you there. Reincarnation sure reduces stress whether it's true or not. If you believe that you get game over the next thing if you do it wrong this time, you'll probably sleep better at night.

Tara: Yeah. I honestly do think that's true because that was pretty much an indoctrinated belief from my childhood, and actually I'm like I'm going to keep that one because it makes me feel a lot better about everything.

Dave: I think seriously everyone should just adopt the idea that reincarnation is real, and it doesn't matter if it is or not because your life, if it's the only life you have now, will be better as a result of believing that because you'll be less stressed. And you'll probably take better care of the world whether it's for a future generation or for when you come back and have to walk through the mess you made in your last life.

Tara: Yeah, exactly.

Dave: It doesn't really matter.

Tara: Yeah. I mean, if you live according to karma, you do actually live differently than if you think that's the end. Just for the record, I don't not believe in quantum biology. I just don't think it's the science that should explain things that are to do with the way that you think. I think that cognitive science is the science that should explain that.

Dave: I appreciate that clarification. Yeah, you never said, to be really clear, you never said you didn't believe in quantum biology because it's a real hard science.

Tara: Exactly.

Dave: You're just saying that whether quantum effects are making visualization real versus the brain and the thinking stuff. That you're more on the side of the brain. It's a reasonable place to be, especially when you're open to the other stuff happening as well. And given that you studied it for 25 years, I think you've got a pretty solid reason to say this is where I'm coming from, which is I wanted to interview you.

Tara: But you know what, I also think that because there are so many people in modern society that believe that logic is the main way of thinking and being, that it's reassuring for more people to hear some empirical science as well. If you believe in all of those things, laws of attraction, manifestation, anyway, like I do and you do, you maybe don't need more than that. But if you do need more, then here is more. Here is some modern science. Here is some brain scans. Here is some research studies. And I just want more people to have access to that belief in their brain potential through these simple practical tools. So thank you so much for having me on the show because you've helped me to take that off on my vision board, Dave.

Dave: Oh. Beautiful. Well, thank you so much for a fascinating interview. Your book is called The Source. Your website's taraswart.com. And probably the best way to get in touch with you is Instagram, and you're DrTaraSwart on Instagram, right?

Tara: Yeah, that's right. DrTaraSwart. Yeah.

Dave: Excellent. Have a wonderful day.

Tara: Thank you so much, Dave. It was brilliant.

Dave:

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