

Mind & Life Podcast Transcript Tania Singer – The Power of Two

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Opening Quote – Tania Singer (<u>00:00:54</u>): The amount of polarization and the amount of divides are tremendous. And so I think that the field needs to become more translational to really bring what we have developed in the lab and is working into the society at large, so that we can really counteract that because it is undermining our democracies, it is undermining our humanity. We have a loneliness epidemic already in young people. And I think we have a responsibility to do something about it, which is not just staying in your lab, but translating these approaches to really support society and democracy right now.

Intro – Wendy Hasenkamp (<u>00:01:36</u>): Welcome to Mind & Life. I'm Wendy Hasenkamp. Today I'm speaking with social neuroscientist Tania Singer. Tania is a world leader in studying empathy and compassion, and her pioneering work shines a light on the interpersonal aspects of the brain and contemplative practice. We cover a lot of ground in this conversation, but I also feel like we barely scratch the surface of Tania's work.

(<u>00:02:04</u>) We start with her landmark studies exploring how empathy works in the brain, and then get into the wonderful story of her collaboration with Buddhist monk Matthieu Ricard (also a guest on the show), and the powerful insights that emerged for both of them through that research. Tania describes the critical difference between empathy and compassion and how empathy for others' suffering can easily lead to burnout, whereas compassion can help us build resilience.

(00:02:32) We discuss her frankly incredible longitudinal research project that separated different aspects of meditation, enabling her to study the specific effects of training in attention, emotion, and perspective taking. Her results show that what you practice really matters—for our brains, and bodies, and behavior. We also talk about her use of contemplative dyads across many different settings—that is, practicing in a structured way with another person—and how this style of practice can form a kind of social glue, strengthening interpersonal bonds and creating psychological safety.

(<u>00:03:13</u>) The impact of Tania's work in contemplative science is honestly hard to overstate. Her decades of research have really moved the needle in our understanding and value of compassion, and more broadly, the social side of human experience. As always, check the show notes for lots more on Tania's work, including a link to a wonderful essay she wrote for our Insights project on contemplative dyads. Okay, I hope you enjoy this one as much as I did. I'm so happy to share with you Tania Singer.

Wendy Hasenkamp (<u>00:03:46</u>): It is such a pleasure to welcome Tania Singer to the show today. Hey Tania, welcome and thanks so much for being here.

Tania Singer (<u>00:03:53</u>): Hi, Wendy. It's wonderful to be with you.

Wendy Hasenkamp (<u>00:03:57</u>): I'm really excited to get into the broad scope of your work. I feel like you've done so many different things over the years, ranging from social neuroscience and biomarkers and psychology and behavior, but I feel like a lot of it really centers on understanding the interpersonal side of human life. So I'm just wondering for a little bit of background if you could share some of how you got interested in those topics.

Tania Singer (00:04:26): Yeah. I guess I am, from my heart, what I am now, a social neuroscientist—and the focus is on social. I think I was fascinated my whole lifelong about how social interactions, how social brains, how the social works. I studied psychology and I started as a developmental psychologist and cognitive psychologist, but then I made a shift when I went from Germany to London and then I entered this very emerging field of social neuroscience. When I entered it, it was just emerging, it was just the first papers, which were called 'The emergence of social neuroscience' around 2000.

(00:05:09) And why I was attracted to this new field, or even co-creating it somehow with the first empathy studies I did there, I guess it's rooted very long time back in my infancy, because I was born as a monozygotic identical twin. So I was born as a 'we,' I was born with a person in the belly already together, non-verbally interacting in one way or the other. We had a twin language. Before my parents could understand us, we understood each other in a very probably primitive way, but still.

(<u>00:05:45</u>) And I guess when I became a psychologist, I was always a bit frustrated that the focus was so much on just cognition, the individual. Of course there was social psychology, there was environmental psychology, cultural psychology. So there were things out there, but for sure in neuroscience it was very, very much the beginning of imaging and noninvasive neuroscience. And so the focus was all on cognition and language and primary motor abilities, and not about us, and the we, and the social.

(<u>00:06:21</u>) And so I really was like, "There's something missing. We need to fill this gap." And so this is how I became a social neuroscientist and started looking for ways how you can do scanning and brain imaging work on topics like social emotion, like empathy, compassion, cooperation, and things which at that time had not been typically investigated in neuroscience.

Wendy Hasenkamp (<u>00:06:51</u>): Yeah, I love that. And just thinking about your whole life experience as a twin and how that's impacted the way that you view all this. Maybe we can start a little bit with your early work. You did some landmark studies on understanding empathy in the brain, and then also thinking about some really interesting interactions with Matthieu Ricard, the famous meditator who helped your investigations into compassion as well. So I'd love to hear some of those stories.

Tania Singer (00:07:17): So the first story you kind of refer to is actually the first empathy study we did within the scanner environment. So you have to imagine I was a postdoc in London at the Wellcome Department of Imaging Neuroscience—an incredible, good research institution, which really had kind of pioneered noninvasive brain imaging using fMRI (functional magnetic resonance imaging, like noninvasive brain scans).

(<u>00:07:46</u>) And so here I was working with Chris Frith, the first investigator in the world I would say who had investigated what we call 'theory of mind.' Theory of mind is, how do you understand thoughts or

intention, beliefs of others? And he was the pioneer in asking this question the first time in neuroscience, not just psychology where this research was already out there, developmental psychology and when does this capacity to really understand that other people might have other thoughts, beliefs, and so on, when does it emerge in development? When does it emerge in evolution, do great apes have that? So this research was out, but nobody had ever done any testing in the brain. You know, do we have some modules or some specific networks which are only tuned to process beliefs about other people? And so in a way, that was the beginning of a very important string in social neuroscience. Meaning, how does the other person get into our brain? How do I understand your thoughts if I'm not you? How do I get there? How does our brain solve this problem?

(00:08:59) Now, for me, being a very emotional person, and as a twin always somehow in emotional resonance with my twin, and I'm sensing a lot what other people feel, I'm very hyper-empathic, you could say. I'm sensing in the womb what's happening, and so on. So I was much more interested in how do we get to understand feelings of the other? How do I know that you're suffering or happy? And why do I feel it so strongly when others are happy and suffering, but I'm not in your body, I'm not in your emotions?

(<u>00:09:31</u>) And that was the question I posed, but it was not so easy because the scanner environment is super non-social. You can't move, you are only alone in this brain scanner, and then there's some video stimulus shown to you, there's some language and then you have to tap on a keypad, yes/no. So how do you measure empathy in that environment?

(00:09:54) So this took quite a while, and we came up with the pain empathy paradigm. And I remember first I needed to figure out how pain in the brain is actually processed. And the interesting thing is that when you do imaging neuroscience, to have reliable data, for example in emotions, you need to show some fear evoking stimulus at least 21 times in a row.

Wendy Hasenkamp (00:10:21): Right, so you have some repetition...

Tania Singer (00:10:23): So that you have repetition and you can process the data. So with emotion research, not so easy, right? If you're once in a bad mood, you cannot just step in and step out and step in again and step out. You're just in it. So there was this problem first. So the pain research was basically the genius... let's say domain, because you can apply with some pain electrodes to your hand—like a bee sting type of electrical shock stimuli on your hand, which it feels like a bee sting, but without consequences. But it activates what we call in the brain, the pain network. And this pain network processes all kinds of aspect of pain. Like, where was this shock, was it on your left or right hand? Was it intense or not? Was it burning or more prickling? So you have these different sensorimotor components.

(<u>00:11:13</u>) And then you have an affective component of pain. That's the actual emotional component the 'ow.' You know the ow component, "Ouch, this hurts. Ow! That hurts." This is unpleasant, right? The feeling of unpleasantness, which usually we think this is pain, but pain is much more complex. And so pain has all these different components. And so what we did is to develop a paradigm where for the first time you were not scanned alone, but there was another person in the scanner environment.

(00:11:45) And that was a whole tricky issue to do, because the scanner is like a super sensitive camera. And in the moment where someone moves next to the scanner, you get spikes, you get artifacts in the picture. It's like a photo picture would be blurred. So we had to find a way where the person next to the scanner getting also a painful shock to the hand was sitting very, very quiet and watching through a

video stimuli screen, knowing okay, now the person in the scanner gets a shock, or now it's me getting a shock. So projected on a certain screen, there were flashes either pointing to me being scanned, lying there, and then I would say, "Ooh, in three seconds I'll get a bee sting." Or I would see a flash pointing to my partner who was sitting next to the scanner. I couldn't see their face, but I would know, okay, now my partner is suffering this bee sting, right? But my brain and my body would not get any, what we call nociceptive input. I would not get any pain. I would just know abstractly, oh, now my partner is zapped.

(00:12:56) So you have to imagine at that time, people... like a senior professor said, "Tania, this is crazy. What you are doing is really crazy because you will measure an empty brain. What you are measuring is something which is happening outside of the scanner to another person, which is not even scanned, and nothing comes into your system. So why would you see something in your brain?" So at that time, I was like, "Because I feel it." Right? I feel that my partner is zapped and I feel something. I'm like, "Ooh, ow!" Because I know how it feels for myself too. But you can't imagine the people were not believing that you would see something. They would say, "You will measure empty brains," meaning nothing will be seen.

Wendy Hasenkamp (00:13:44): You wouldn't see any signal. Yeah.

Tania Singer (00:13:46): But what we saw was amazing. It was like the brain was lighting up like a Christmas tree. It was really, really a lot of activation you could see. And the interesting thing is that when you compare that with the pain matrix—imagine I get pain and there is a pain matrix activated in my brain—it's not the whole pain matrix which gets reactivated if my partner is in pain. So if I empathize with the pain of my partner, I only activate the emotional component of pain. So I only reactivate the networks in my brain, which codes for the 'ow,' the emotional aversion of pain.

(<u>00:14:25</u>) And evolutionarily, it makes a lot of sense because imagine [if] I would see my partner being burned on her hand or his hand, and then my hand would burn. Doesn't make a lot of sense evolutionarily. But it makes a lot of sense that I'm feeling for my partner like, "Ow, that hurts," because then I know I need to do something about it. Right?

(<u>00:14:46</u>) Very likely this person will suffer, I will run out, I can do something about it. So it gives me the information about the saliency, the valence, and this is what we call empathy. We feel with the other person, we feel the pain of the other, but the emotional component of this pain.

Wendy Hasenkamp (<u>00:15:07</u>): Thank you. That was a really great explanation. And so I know then you evolved into understanding the difference between empathy and compassion. Can you describe how that happened?

Tania Singer (00:15:19): Yeah, that is the second question. Okay, so that was the beginning, that was the first empathy study in neuroscience, social neuroscience. It got published in Science and a lot of people were like, "Oh my God, our brains are wired to be empathic, and that's amazing." So the second phase was then to understand, but why are we actually not such an empathic civilization? If we are all wired to be resonating and the brain does that almost automatically in milliseconds, so why are we not such a super always empathic society?

(00:15:57) So there was a second phase of studies where it was more about the modulation, the plasticity of these empathic signals. So I started looking at lot of different factors which modulate these empathic brain responses. So for example, I put actors in the scanner, and they were so-called football fans from the rival team of the person scanned... So we looked at in-group, out-group factors. So if you are a football fan and someone is zapped now with pain, which is not your partner anymore, but it is

either someone from your football team or someone from the other team, what you will see is that you have an empathic brain response if it's the person you think is your football fan in-group member. But if the other one, if it's an out-group member, like the rival football team fan (which you think, it is just actors but you thought that this was true), then you have no empathy left. In one second you have empathy, in the next there's no empathy left—and you have schadenfreude. You have reward signals, which actually rejoice of this rival football team [fan] actually receiving pain.

Wendy Hasenkamp (<u>00:17:16</u>): Yeah, this is the great German word, schadenfreude, which we also use in English, meaning the pleasurable feelings that you get when you see someone that you don't like... in pain or having some suffering.

Tania Singer (00:17:26): Exactly. Yeah, so you basically see schadenfreude, like the reward—we also call it shameful joy—because you are rejoicing of the pain or suffering of another because either the other was unfair to you or it was a out-group member or whatever, you have a negative attribution. And so we could show in many, many studies in other labs too, later, what I called then the 'fragility of empathy.' Empathy is coming and going in a way, it's an emotion. It's phasic. It's building up and it's going away again. And it is usually triggered by some outside stimuli, like because you read something, because you see something, video and news, so on.

(<u>00:18:11</u>) So it's phasic, it's an emotion. And it is fragile, as we could see. It can come in one millisecond because you like the person because it's an in-group member, because it's belonging to your identity, it's a family group and kin. But then next second, it can be gone because someone was not fair to you or it's someone from another religion or so on.

(00:18:33) So at the time when we started to understand the difference between empathy and compassion, I was motivated to do the next step and to say, "Can we train empathy? Can we make it more stable? Can we really practice to become a more empathic person?" And at that time, I had not understood the difference between empathy and compassion. I just thought, "Well, if it's so fragile, can we do something to train it so that it becomes stable, for in-group, for out-group members, for everyone?"

(<u>00:19:02</u>) And usually, as you know, when you do plasticity research in neuroscience, meaning is our brain trainable, you go and you look for experts. So cognitive neuroscientists who were interested in motor plasticity, what they did, they looked for violinists or planists who had done thousands of hours of plano training or violin training. And then they look whether the areas in the brain representing the fingers become thicker with experience and with expertise.

(00:19:34) So I had the problem to have to look for experts in empathy. *[laughter]* Who is doing thousands of hours of empathy... suffering, I mean becoming more empathic? So that was a bit of a 'a-hem, where do I start?' So by chance—life is a lot by coincidence or whatever, fate—I was in the Himalayas at the same time where I published this empathy paper, and I was shooting a movie with my twin sister. And we happened to be close to the residence of the Dalai Lama in Dharamsala because we were shooting the overtone singing of the Gyuto monks. And so we happened to stumble into a Mind & Life conference, which was actually on plasticity.

Wendy Hasenkamp (00:20:23): Oh my goodness. [laughter]

Tania Singer (<u>00:20:24</u>): And I was like... I didn't know about Mind & Life so far and I wasn't aware that it was meeting there when we were there. So I was struck like from lightning, I was, "What? All these

colleagues I know, they are all in Dharamshala in the hills of the Himalayas, talking about plasticity with His Holiness, who is the incarnation of compassion, and I was working on empathy!" So I was like, "Oh my God, that is so crazy." And when I came back, I contacted Richie Davidson and the Mind & Life Institute and I proposed to them and said, "Can I do and propose a conference on the brain circuitry for empathy and compassion?" Because it was just emerging at that time, there wasn't so much research on it in neuroscience. It was just the first papers coming out.

(00:21:08) So Matthieu Ricard, who is the translator of the Dalai Lama for French, and he is a long-term Buddhist practitioner, and he is also a bestselling author, a photographer, and he was a researcher in his former life. He's a French biochemist. So he got aware of my Science paper, of the empathy paper. And independently of me reaching out at the same time to Mind & Life, he contacted me in London—he would be in London, whether he could meet me. He would like to meet me and talk about the empathy study.

Wendy Hasenkamp (00:21:39): Wow.

Tania Singer (00:21:40): So I invited him into the London Brain Imaging Center. I know that this was the first time a Buddhist monk in robes would basically enter the functional imaging lab at the Wellcome Department in Neuroscience. *[laughter]* They were all looking like, "What is Tania bringing here into a neuroscience meeting?" At that time, there was no real contemplative science, right? It's just very early, early days. And I remember how, we became friends immediately and he was immediately fascinated by the work. And so he became a guinea pig. And so when I moved from London to Zurich, because I became an assistant professor there, I wrote a grant and we started investigating with real-time fMRI, which is a technique which allows you to really look at the brain images while someone is scanned, not just reconstructing them months after a scan is done. But with real-time fMRI, I could have Matthieu Ricard, the monk, in the scanner doing different types of meditation, right? I had found my expert, my compassion empathy expert.

Wendy Hasenkamp (00:22:48): Yes!

Tania Singer (<u>00:22:48</u>): And so I put him into the scanner, for two days he was with us. And I just asked him to do the most incredible things you would never dare to ask any naive subject. I said, could you go 30% into disgust, 60% in love, 30% in compassion, 90% into anger, and so on. So that was really fascinating because we could see how these networks came on and off and it was really fascinating.

(00:23:21) And this is where I understood the difference between empathy and compassion. Because what happened is that I asked him the second day, can you now just imagine the suffering? He had seen a video the night before in a hotel room. It was about real big suffering of children in an orphanage in Romania, I think, and it was just horrible. It was like almost autistically walking... They had hunger, they were so thin. It was just heartbreaking pictures of children suffering.

(00:23:53) And he imagined these pictures while he was in the scanner. And I was asking him to go into these different compassion meditations. At that time I thought it's the same—empathy, compassion. So I thought I would see an expert in action empathizing with this absolute suffering of these children. And so I expected to see the empathy for pain network I had seen hundreds of times in my earlier empathy experiment with pain. And I didn't see anything lighting up like that. But instead, when he entered into compassion, , all these meditations, he showed a network and this network is known to be associated to rewards, to positive feelings of warmth, of love.

(00:24:38) And I was like, "Okay, what is he doing? Is he not suffering with these children? Is he thinking about his dessert?" because we were before lunch. And I was like, "He's probably just tired." So I told him, "Matthieu, I think we have to get you out of the scanner. I'm not really sure what you're doing, but you're not really suffering, right?" And then he was like, "Yeah, you did not ask me to suffer with these children. You said I should enter into compassion." And I was like, "Yeah, but what are you then doing? I don't understand."

(00:25:11) So we got him out and we had a long discussion about what he's actually feeling if he goes into compassion. And he said, "Look, this is not suffering with someone. It is getting into this state of unconditional love and the motivation to really wish the other well and to really have this caring motivation of concern." And that was mind-blowing for me. I was like, "Wow, that's totally different than empathy as we define it and observe it." So I asked him to go back into the scanner and said, "Could you now, just for me to be sure you have a normal brain, could you go back and just do empathy as a normal brain would do it?"

Wendy Hasenkamp (<u>00:25:52</u>): What you meant by empathy.

Tania Singer (00:25:53): Exactly. It's like you just empathize, you just go into resonance, you just feel the suffering of these children, you just go with it. First he said, "Why should I do that?" I'm like, "For science." He didn't understand the kind of ethical reason. And then it was extreme, we could see the pain matrix lighting up again.

Wendy Hasenkamp (<u>00:26:14</u>): The same that you had seen in your other participants.

Tania Singer (00:26:16): Exactly. And it was very, very strong and clear. And so I knew, okay, he can do empathy. And then the really interesting thing came up—well, the discovery in a way for both of us—because then I said, "Okay, now I know you can do empathy if it's instructed correctly, and we have no loss in translation anymore. We know what we're speaking of now. You want to go out now?" And he's like, "No. I'm burning out here. It is absolutely unbearable. I need to do some blocks if possible, of lovingkindness and compassion, also for my own sake. I'm burning out here."

Wendy Hasenkamp (00:26:55): It was so unpleasant for him.

Tania Singer (00:26:56): Yeah. He said, "Literally, I was burning out of empathic distress." What Batson called empathic distress is when it becomes so unbearable, the pain of the other to you that it becomes your own pain, your own distress. So then we ask him to go into lovingkindness, compassion. And then we saw this other network coming up again—this is what we now call the affiliation and care network. It's evolutionarily a very old network as well, which supports altruism and unconditional love of father, mother to their child, for example, this concern, this love, this altruistic motivation.

(00:27:32): So that was really amazing. And when he came out, he was like, "Oh my God, I never ever had this distinction." I mean, when you first do empathy, it becomes so much more relevant to actually train compassion, because you first feel how empathy is good, but if it's too strong, it can lead you into empathic distress. If you lose this healthy self-other distinction, you can enter into this personal distress and then you are lost, you're not of help for anybody. And then if you change into compassion, a totally different system—and we could see that in the brain—a totally different system was lighting up.

Wendy Hasenkamp (<u>00:28:13</u>): Can I also ask just one question about that, the different networks? So the network that was active when he was doing the compassion, you mentioned that there was some

aspects of reward in there. That's different though, than the schadenfreude type of experience or network that you had seen in your other work, of out-group?

Tania Singer (00:28:31): Yeah. The problem is a little bit that with imaging, you cannot really distinguish whether the positive feeling in this network is dopamine-driven reward, like this kind of high arousal, yeah, I want more, grasping learning signal, or whether this is more opioid- and oxytocin-related reward, which is more calming, soothing, caring, affiliative. They are both in the same network. So if you see nucleus accumbens lighting up or medial orbitofrontal and so on, you know that you are likely in a network which has to do with positive emotions. And we can only really know if you also ask the person. Right?

Wendy Hasenkamp (00:29:09): Exactly, yeah.

Tania Singer (00:29:10): It needs to be also always correlated with subjective reports. Which we did also with Matthieu, but also later, we did a lot of studies with naive people, white students from Zurich to replicate these data, but in naive students, not with long-term expert Buddhist monks. So we started doing the first training study: can you take any student and train them into empathy and then train them into compassion, and do we find the same networks again?

(00:29:38) And there we always ask, how much positive feelings did you feel? And how much negative feelings did you feel? So we asked them to also describe the quality of their feelings. And we could see that after compassion training, after this activation of care system through lovingkindness and compassion, positive feelings got stronger. And qualitatively, they were reported more like warmth, love, concern, not like high arousal, yeah. It is more like calming, soothing, warm feelings.

(<u>00:30:14</u>) And when you go into empathy and you train empathy, and you are exposed to these negative pictures, you see negative affect going up. So it was very clear that we could replicate that this network, which we call now the compassion-related network, is associated to feelings of positive affect, warmth, concern, love. And that the other network, which is this alarm pain network, is associated to increased negative affect.

(00:30:43) - musical interlude -

Wendy Hasenkamp (<u>00:30:43</u>): I love this story because I think it really highlights so many things that are critical in contemplative science. One of which is the absolute need for, like you said, that subjective report of the person in the scanner—what are they actually experiencing? And not just looking at their brain and making some assumptions, which is a huge problem in neuroscience. And then also the incredible benefit that can come from conversations between these experts in contemplative traditions and scientists. It sounds like both of you came away with really new understandings of an area that you were both expert in, in your own ways. I love how that bridge really developed things.

(<u>00:31:54</u>) And then that work became so foundational for the field at large. I think it really spurred a lot of conversations and understanding about the difference between empathy and compassion. And you continue to do so much work in that. So maybe just for the listeners, to just say succinctly, how do you think about it now, the difference between empathy and compassion? And then empathy, is it still required for compassion or how do they kind of play together?

Tania Singer (<u>00:32:21</u>): So this discovery obviously led to decades of research. And also the next stage of that research in my life was to start developing secular training programs to investigate basically

plasticity of empathy, compassion, perspective taking. So can we train the social brain with different mental contemplative exercises, but in a secular way, and do research out of it?

(<u>00:32:47</u>) So the ReSource Project, at that time, it was one of the longest in the domain of contemplative science, because we went over the typical eight-week MBSR or eight-week MBCT or self-compassion, to nine months. And so in one module, we tried to really teach people how to distinguish the difference between empathy, when they basically start moving into empathic distress, so that they can also distinguish between healthy empathy and empathic distress.

(<u>00:33:22</u>) Because that has been... You know, when you discover things, then the press comes and messes everything up. Sorry, but... *[laughter]* It became constantly like, "Tania says empathy is bad and compassion is good." And then I was cited like that, for example, in Bloom's book, Against Empathy. The title is Against Empathy. So, all these people [thought I was] against empathy. And my studies with Matthieu were cited for the purpose of 'compassion is better.'

(00:33:48) So I always say "No, it's not true. Empathy and compassion are two different things." Empathy has a very important function. So if you would not have any empathic resonance, you would likely be a psychopath. You would not know that someone is suffering. You would not know the intensity someone is suffering. Empathy can also be related to joy, empathic joy. It is a social glue. If you empathize with the joy of the other, it's a glue, it's a social cohesion glue. So empathy has a huge amount of functions, evolutionary functions, social functions. And so it is really important that we have empathy.

(00:34:26) The thing is that empathy is more fragile. It can, but it doesn't have to, move into empathic distress. And what happens in empathic distress is that, say you have so much empathy, perhaps because you love so much the person, it's your baby and it's crying and you feel so helpless. Then you become, as a mother, so distressed that you start getting really stressed or even perhaps crying. But that, can you imagine, doesn't help your baby, which just cries. If the mother starts crying, and then they loop and spiral upwards and nobody's helped, right? Because it's all about the mother's distress now, and she needs to regulate her own distress and so on.

(00:35:05) So that's when healthy empathy moves into empathic distress, or what is also called personal distress. It becomes personal in the sense that... The definition we have suggested for empathy, also to avoid equating empathy with emotion contagion is: emotion contagion, I catch your emotion, your stress, but I'm not aware that you are the source of my stress.

Wendy Hasenkamp (<u>00:35:30</u>): Ah, okay.

Tania Singer (<u>00:35:30</u>): You are stressed, I'm contaged by your emotion, but I'm not even aware that you were the cause of it. I'm just stressed, and the whole room then perhaps, right? Emotion contagion doesn't have a self-other distinction.

(<u>00:35:44</u>) Empathy is also feeling with. You are stressed, I feel the stress of you. But I am aware that you are the source of this stress. I'm aware that I'm vicariously feeling your pain or stress, but it's not mine. So I have a healthy self-other distinction in empathy, which in emotion contagion is not there.

(<u>00:36:05</u>) So for example, babies and animals have emotion contagion even before a sense of self emerges. And in some animals, they may never have a sense of self. So only when the self-other

distinction really emerges in childhood, you can develop empathy, which is very early, like two years of age or even earlier. But that's very important.

(00:36:28) And in empathic distress, this healthy self-other distinction vanishes again. Meaning I'm not aware anymore that I'm just suffering with you, but it's not my feeling. It becomes my trauma. Or it activates my trauma, my distress or so on. And then it becomes my emotion and I'm so identified with it that I have to regulate it. I have to take care of it. I'm getting distressed. And this empathic distress can lead to burnout if you have that all the time.

(00:36:56) So what we try now to teach people in these training modules we develop is how to recognize healthy empathy, how to regulate healthy empathy so that it doesn't go into empathic distress, and if they are too much in empathic distress, how to move through self-compassion first (if you are already totally distressed, you first have to take care of your own distress) and then you can move out again and go into compassion. So we are teaching people how to go from empathy into compassion, how to switch from one system into the other system, and how the difference is in feeling.

(00:37:34) And it's just amazing. I mean, one thing is that we know about the different brain circuitry and so on. Once you do these exercises with the people, I've done it with thousands of people in retreats now, you see it in their face and their posture and everything. I can tell you from outside whether they are in empathy or in compassion. It's a totally different posture. It's a different type of resilience, of openness, of heart, in compassion. It's a different facial expression. It's really just a different system altogether.

Wendy Hasenkamp (00:38:04): And how would you define compassion now?

Tania Singer (00:38:07): Compassion, as Paul Gilbert also stresses always, it is a motivation and not an emotion. So it's not coming and going and it's not feeling with, it's feeling for. So it is actually a motivation. It's in the care system. So it's an altruistic motivation, you want the welfare of the other. You don't necessarily have to feel with the other or even feel love for the other. I mean, it's nice if a feeling of love emerges out of this motivation. But compassion is much more a motivation and intention that you wish the welfare of the other, that you want to do something for the welfare of the other, that you wish the other well. It's an intention and a motivation.

(00:38:50) And sometimes it comes with feelings of love and warmth and positive, but it doesn't have to. If you train and practice it, you don't always have to fall in love with the other. That's not what it is. You're just going to this other motivation, which is really altruistic, it's really about the other. It's not about you wanting to be liked. It's really about, "May the other be well, may the other not suffer anymore. How can I help? I'm really concerned about your welfare. I am concerned that your suffering be taken away from you."

(<u>00:39:24</u>) It doesn't mean that you have to go into action. Compassion is a motivation, which is a precursor of any action or not. You can have compassion without acting. You can have compassion like Matthieu in the scanner where he wasn't asked to act. So compassion is a motivation, but it is a precursor for action and for prosocial and helping. And that's making it so strong.

(00:39:46) And the other thing, it is very resilient. It really protects you from empathic distress and burnout. It's really resilient because it is soothing you, no? When you are activating the care and soothing system in yourself, you are happy. Like Matthieu, he asked me, "Can I please do some lovingkindness?"

Wendy Hasenkamp (00:40:05): Right, to soothe...

Tania Singer (<u>00:40:06</u>): To soothe himself, because he was so distressed. It was his own therapy. But at the same time, compassion for others is obviously a win-win situation. Because for the other, it's wonderful to receive the love and this strong caring attitude towards this person. But at the same time, you have a clear self-other distinction as well. You are clear there is more distance than in empathy. In empathy, you are more like moving back and forth with the other, like instruments together.

(<u>00:40:37</u>) In compassion, you are more like a warm loving stone in the ocean, not moving. Whatever the other is going through, you're just like this kind of loving, warm-hearted stone, very...

Wendy Hasenkamp (00:40:49): Like a groundedness?

Tania Singer (00:40:51): Yeah, like a groundedness, like something which is really stable. It's a stable motivation. And that is why we are now teaching nurses and all kinds of people in different training modules how to recognize, distinguish these phenomena—emotion contagion, empathy, empathic distress, compassion—how to move from one system to the other, how to regulate empathy if it's becoming too much, how to use self-compassion to come out of this. If you have ended up into distress, how can you use compassion first to yourself so that then you can move to other-related compassion? And then you are off the hook again.

Wendy Hasenkamp (<u>00:41:32</u>): Yeah. Well, it's so needed in our society. I'm thinking back to your earlier comment about after your initial empathy research, why are we not an empathic society? So it sounds like it's more of a compassion deficit necessarily than maybe an empathy deficit.

Tania Singer (<u>00:41:49</u>): Yeah, sometimes probably we have too much empathy. If you're exposed every day to this horrific news and then if you don't know how to regulate it or how to switch in the right moment to compassion if it becomes too much, either you get distant, cynical, you get numb because you have to protect yourself. So I think there is really a lot to do in this domain. Also, I'm starting to work a lot with medical doctors and healthcare system people. Really, they don't know at all about the differences. They have a very gross understanding of something very general called empathy, which is more or less everything which is understanding the other. It's not very refined, right?

Wendy Hasenkamp (<u>00:42:32</u>): Right. Yeah, I think the public sphere doesn't have this distinction that has emerged, really in large part thanks to your work in contemplative science too. So I think it's so important to be able to share that in so many domains. I'm excited to talk about how your work has evolved and is being applied now. So you started to mention the next phase in this really ambitious project that you undertook, which still kind of blows my mind, a very large and long-term longitudinal study, which is called the ReSource Project, and had several different arms and a whole bunch of different outcome measures and many, many participants. So would you be able to give us a glimpse of what that was like?

Tania Singer (00:43:18): Yeah. So in a way, this ReSource Project was more like a lifetime project because I think I started writing the grant in 2008, and we are still publishing on it. We have more than 60 papers out. We had like 300 people going through a nine-month intervention protocol, like a training program. We had more than 90 different measures from brain measures, immune system, behavior, subjective measures, phenomenological measures. I mean, we really had it all. *[laughter]* So it was a huge, huge project and the goal was... many, many different goals, actually. At that time, I think the

focus was very much on mindfulness, but more mindfulness in terms of attention-based cognitive mindfulness, right?

Wendy Hasenkamp (00:44:01): Right. In the field, that was mainly what was focused on.

Tania Singer (<u>00:44:04</u>): Yeah, in the field. So can we increase attention? Can we increase monitoring? Can we decrease inhibition difficulties, regulation and so on? And my feeling was, yeah, but there is also compassion and empathy out there. I was an empathy/compassion researcher. And then due to the Mind & Life dialogues with His Holiness the Dalai Lama and many other Buddhist monks and also other contemplative masters, there was another emphasis a lot on what we would call wisdom or cognitive perspective taking. And we talked about that earlier in the interview. When I joined Chris Frith's lab in early 2000, he was working on this cognitive capacity to take the perspective of another person and also of yourself, this metacognitive capacity. And because I had done so much work on dissecting the social brain and at that point I had understood the difference between networks for empathy, networks for compassion, networks for theory of mind, which were all different brain networks.

(00:45:06) And so I said, okay, if we do a training study, we should be able to devise mental training practices, exercises, which are particularly good at inducing plasticity in these different networks. It is not all the same. I took the metaphor of sports at that time and said, look, when people say, "Tania Singer, can you tell me what meditation does?" I say, "It's like you would ask a sport expert, what does sport do to your body?" You're like, "Yeah, likely sport will do something if you do it regularly to your body." But then obviously every sport expert would say, "Which type of sport?" Or let's say in a fitness club, you have these different machines, which will train either your muscles of the arms, of your legs, and they're very different, right? You would not expect your muscles to get bigger in your arms if you are on a machine every day doing your legs.

(<u>00:46:03</u>) So if you are doing everyday compassion and empathy exercise and care-based exercise, you would expect networks in the brain to become thicker that are responsible for emotions and for empathy and compassion, and not some metacognitive mentalizing networks which are responsible for theory of mind and perspective taking. And the same for attention. The attention networks are other networks in the brain.

(00:46:28) So we started to develop three modules. One was a three-month module just about mindfulness, like classic attention-based Shamatha exercises, which are training present-moment attention, training basically also interoceptive body awareness like breathing meditation or body scan, or things which were very popular and known already in the field because MBSR and MBCT are heavily based on that. So we called that Presence and it was like, you could say, a classic mindfulness module, but without yoga, without any socio-emotional training.

(<u>00:47:05</u>) Then we had a socio-emotional module (Affect), which was basically training the care system. So everything which to do with social-emotional, like empathy, compassion, lovingkindness, gratitude. So we were training this network.

(00:47:19) And then the third module was called Perspective. And that was aiming at training with specific exercises this metacognitive mentalizing perspective taking ability on self and others. And so we classified basically different meditation practices corresponding to the three modules. And for the first time in that phase of contemplative science, we could ask beyond just what is meditation doing, we could ask which type of exercise is doing what?

(00:47:48) And summarizing 60 or more papers, we actually got a huge amount of evidence that it really matters what you practice. It really matters whether you do a three-month heavily care-based compassion, or whether you do an attention-based mindfulness module, or whether you do this cognitive socio-cognitive module, perspective taking.

(00:48:09) So we could find, for example, these mindfulness modules were great in enhancing working memory, attention, body awareness, present moment awareness, but they didn't do so much on compassion task or on altruistic, cooperation task. The theory of mind task, understanding beliefs of others, this very difficult cognitive task only got enhanced when you went through the three-month perspective taking exercises. Not any other module. Even though the compassion module is also about imagining a lot of other people, or doing dyads with other people, it was interesting that they would not enhance theory of mind. It's a very specific faculty. It's not just because you're training with another person, or you're extending love to the other person that this perspective taking faculty gets better. And we could see that on the brain level. We could see that on the behavioral level. We could see that on the hormonal level. On all kinds of different levels, it really matters what you practice.

(<u>00:49:12</u>) And so that was, I would say, the most fascinating insight that we just need to think more differentiated about this whole mental training field and that we really have to look at what are we doing every day? Which type of exercise are we practicing?

Wendy Hasenkamp (<u>00:49:31</u>): Yeah. That's such a great summary of an incredible amount of work. But I think that's such an important takeaway. And especially at the time I know that you were devising this study, and even to a large extent today, certainly I think in the popular understanding, the term 'meditation' is still a very kind of vague umbrella term. Like you compared it to sports. And as we know, there's so many different kinds of practices. So this is such a beautiful demonstration of just the reality that what you practice is what gets better. And I think it's also really... We can extrapolate that too beyond meditation practices, but just thinking about engaging on social media. If you are engaging in a really volatile or negative discourse all the time, that's what you're practicing. That's what you're training, in fact.

Tania Singer (00:50:28): Exactly. We could show when you're engaged every day in positive gratitude, so that we will talk about the dyads perhaps later, that was a certain practice we introduced for the first time into the ReSource Project where we really did partner-based intersubjective meditation, secular partner-based, where you had another person every day to practice with, either perspective taking or social-emotional, like empathy, gratitude, and so on, depending in which module you were. And I think really what you just said, if you really practice every day this lovingkindness and gratitude and activating your care and affiliative system, you will get all the benefits of practicing that. So meaning, more positive emotions, more altruistic cooperation, more compassion, more tolerance, more social cohesion, all these beautiful, resilience, optimism.

Wendy Hasenkamp (<u>00:51:24</u>): It's like it becomes woven into your default state a little bit. Is that a way to think about it, like a baseline?

Tania Singer (00:51:31): Yeah. It becomes almost like a personality trait, an attitude, a baseline. And it really changes a lot of systems, not only in the hardware of your brain. We could show, I think for the first time that we had structural plasticity changing after three months of a module. And not only that you could actually change brains of 43 years on average—it's not like children, it's people where you think there's just brain atrophy, the brain is getting thinner but not thicker—and we could show that this getting thicker was very specific to the module you had trained. So you had thicker limbic and paralimbic

structures after the compassion module. But in the same brain three months later, you had thicker prefrontal and parietal networks, which subserve the cognitive capacity of mentalizing.

Wendy Hasenkamp (<u>00:52:25</u>): Oh, right, because the people did all the three trainings in different orders.

Tania Singer (00:52:29): Yeah.

Wendy Hasenkamp (00:52:30): Yeah, that's right. Amazing.

Tania Singer (00:52:31): Yeah. So you could basically see within a person how different networks in my brain would become thicker after three months of doing a specific type of practice. And that was quite revolutionary because first, we were all trained that at 25 [years] our brains just get thinner and atrophy, and then eventually you get Alzheimer's or dementia. But to show that on average, 43-year-old up to 55 would grow networks, which are social brain networks, not like hardcore, it's really what we would call soft skills, but it was actually hardware which was changing, the brain's structure. And then it would really matter what you practice. After three months of compassion training, I just had more gray matter in my limbic and emotional networks. Same for attention.

(00:53:24) So I think that is good news, no? We can start late. We can just practice 20-30 minutes a day, not even too long, three months. And then we can already change our brain, behavior, boost our mental health, immune system, and so on and so on.

(00:53:39) - musical interlude -

Wendy Hasenkamp (<u>00:53:39</u>): Well, I want to make sure that we also talk, as you just mentioned, about your work with dyads. So I think this is really fascinating and something that emerged out of this ReSource Project too. So can you describe how that has evolved, and I guess maybe first starting with what is a contemplative dyad and how does that work?

Tania Singer (00:54:29): So that was really also for me, like another of these wow discoveries in my life. Because I was a social neuroscientist, an identical twin in this intersubjective space, but I had always, when I was in retreats, meditated alone. I was sitting there, like in mindfulness, meditating alone or doing exercise or mental practice alone. And then eventually in the time I was developing the ReSource Project, for a private reason I was in Australia. And a friend of mine led a so-called Satori retreat, and I always wanted to see that also for my own curiosity and sake. So I subscribed to that.

(00:55:06) And that was a retreat where I wasn't sitting alone, I was sitting eye to eye with another person from morning 6:00 to evening 8:00, basically asking the other person, tell me who you are. Tell me who you are. Tell me who you are. It's a kind of zen-like practice, which was developed in the '70s with a psychoanalytic American actually in combination with Zen to this format. And I remember how looking into the eyes of this other person while exploring my inner self, who am I, was such a different thing than when I was sitting alone. It was so intimate and strong and personal, but also inspiring. And it helped me concentrate and really stay there because of this space of these eyes looking at me was held like that.

(00:55:55) And I was so deeply touched by this exercise and I thought, why are we actually training things like empathy, compassion, like social cognition or social emotion—which is social, right, by nature, it needs another person to feel compassion or to feel empathy—why are we doing it alone? Or

just imagining some people, which is sometimes really difficult to keep imagery in your head? So why are we not just doing it with another person?

(<u>00:56:24</u>) So I came back and I said to my developmental protocol group, "Hey, we have to include dyads. But we can't do it like in Satori, like this super intense expert retreat. We have to do it as a skill learning approach, science-based, informed by these modules and these different... socio-emotional, socio-cognitive. And we have to do it much shorter, in daily life." So that was another inspiration I had is that, typically I came from retreats, like meditation retreats or other retreats, and then I was so happy and so sensitive, and then I came back to the London tube or Berlin airport. [shrieks] And it was just overwhelming. And very quickly, you forgot about all these factors because you had to kind of close up again, protect yourself.

Wendy Hasenkamp (<u>00:57:18</u>): The re-entry is very difficult, yeah, from an intensive retreat. It's such a shock to come back to the regular world and then soon enough, you kind of revert to the old ways, often.

Tania Singer (<u>00:57:28</u>): To old habits and so on. And so for me, it became more and more a focus of how can we actually train these wonderful, wholesome capacities—empathy, compassion, mindfulness and so on—in the real life of people, during your meetings, before, after your meetings, really in your work life. Because this is where it's the most difficult to be always nice and compassionate and relaxed and whatever, because there is all the structural and stress in the world and constraints. And I think everyone knows that.

(00:58:00) So with the dyads, I was saying, can we take these dyads as 12 or 13-minute mini exercises, outside of a retreat context? We learn it in a retreat context. We teach it in a retreat context so that we learn how to do it. But then can we do it every day in our daily life as a exercise, but with another person?

(00:58:22) And we really wanted to also train something like shared humanity, common humanity. So I also came up with the idea to change partners every week. So the differences between dyadic inquiry approach, which later I discovered that dyads are sometimes also used in other settings, but that was much later—which is called inquiry method, where you take a partner in a retreat and then perhaps revisit basically the experience of this meditation, what did it do to your body? And then the partner is not supposed to interrupt. So it's the same...

Wendy Hasenkamp (00:59:00): Like a mindful listening, yeah.

Tania Singer (<u>00:59:01</u>): Yeah, it's a mindfulness dialogue or contemplative practice, because the listener is never supposed to say anything to interrupt, just like mindfully listen.

(<u>00:59:11</u>) But the big difference from all these approaches where you do a partner exercise in a retreat context, and what we developed for the ReSource Project is that we took this method as a skill learning approach and put it into the daily life over weeks. So like in a sport studio, you do always the same dyad with the same questions. And the questions are not just some random question which are just made up in the moment, but they are science-based. We have always two questions, for example, for activating the care system and the Affect module of ReSource, the socio-emotional. We have always the question in a dyad, tell me a difficult situation and how this feels in your body? So you are learning to accept difficult emotion and to identify them in your body as bodily feelings.

(01:00:00) And then the second question is always the antidote to the first question, it's always yin and yang. It's now tell me a situation where you felt gratitude and how did gratitude feel in your body? Because gratitude is activating this affiliative care system, this resilient positive care system. And then it can also somehow neutralize, let's say, if the difficult emotions were too strong. So you never end a dyad in tumult.

(01:00:29) And so this is how the Affect dyad came out. So summarizing the features of our dyad approach that are unique is that: A, it's a skill learning approach. You do the same dyad over weeks daily, so that really these networks in the brain can really develop. It's a skill learning approach. Then you have two questions which are science-based. They are always yin and yang. They are developing specific faculties. Then you have changing partners every week, and randomly assigned partners so that you develop shared humanity, tolerance, and it's like peace work.

(01:01:06) And then you have coaching sessions. So that became very, very important too. You have teachers, like in MBSR, you have a real teacher training. It's not something like here you go. Because you can imagine how personal it is, and how safe the space has to be you build so that people can really share the most profound vulnerable emotions every day of their life, and really feel safe that the other will not say anything, not do anything, never speak about it. And that needs a lot of rules and do's and don'ts and coaching and building up, and also the safety of teachers accompanying you.

(01:01:44) So when we do these dyad programs, we don't just throw the questions at someone and say, do it. We are really having a whole 8 to 10-week course, or 3 months like in the ReSource Project. And we have teachers accompanying you every week with online coaching sessions or real life coaching session. And that's really important. I always have to stress that because people read my dyad paper, and then they have these two questions, which is seemingly easy. But then if you don't know all the context and how to do it, it can really go wrong.

Wendy Hasenkamp (<u>01:02:16</u>): Right. So if you just tried to implement that without any context holding, yeah, I could see that that would become pretty difficult.

Tania Singer (01:02:23): Yeah. And so we did that in ReSource and we were amazed because people said again, "You are crazy, Tania, are you totally ... Not only that you ask people nine months to do 30 minutes every day and then retreats and all that crazy stuff, and 90 measures. But dyads with someone they don't know, every day per app! And they have to tell private stuff to someone they don't know every day over months? You will have a dropout rate of 70%." I mean that was what I heard all the time and I said, "Let's see." And we had a dropout rate less than 8% after nine months.

Wendy Hasenkamp (<u>01:02:58</u>): Wow. Yeah. And this was done by an app, or on the phone basically is how people would share?

Tania Singer (01:03:04): We had an app that was timing, one minute silence, two and a half minutes, first question, thank you, silence, two and a half minutes. So it's really like a very structured contemplative exercise and the app runs you through. Having said that, after the success of ReSource and all the other projects and the dyad project, I developed next to my work to bring it into society, masterclass and retreats. And there I don't have an app. We are doing it just by phone and we are doing a mouth gong. We are saying, "Gong!" I'm watching the time... Gong! And it works too. So the app is super because we use the app to do science, to measure before, after, event sampling and so on. It helps giving you timing and really also making sure. So for scientific research you need an app, you can't

do it [without]. But if you just implement these programs as I do next to my work, I don't need an app, actually, honestly. You can do low tech. [laughter]

Wendy Hasenkamp (<u>01:04:07</u>): Yeah, that's great. So what are some of the areas that you've been applying this now, outside of the research context? I know you've been really interested in moving it into society.

Tania Singer (01:04:18): Yeah, so in a way, after ReSource was such a success, I started really becoming interested in dyads because I was like, wow, they are really efficient and they are like social glue. People really become like sanghas, like social families, and very quickly. It is amazing what it does to people, and people like it and they really do them every day and they love them and they get almost addicted to them. (I mean not everyone but a lot.)

(01:04:42) So then the COVID pandemic came, and we couldn't do any retreats, in-person stuff anymore. So we did a pandemic study where we tracked thousands of Berliners randomly chosen from the city register, and we tracked their mental health, social cohesion, resilience throughout the lockdowns. And what we observed in the study was, "Oh my god, they're suffering like hell." Especially in the second six-month lockdown, I mean boy, especially youth and women, but everyone. Isolation went up, loneliness went up crazy for young people, and we could see depression went up, anxiety went up. Of course there were also resilient pockets. There's always both, but on average you could see that.

(01:05:30) So in the second phase we said, instead of just continuing seeing how the Berliners suffer more and more, get more and more depressed, lonely and so on, let's do something to help. We have these dyads and we have mindfulness exercises. So what we did for the first time, use our app only online, only 10 weeks, not like nine months again, 10 weeks just online. One group does 12 minutes dyad or 13 minutes dyad. The other group does 13 minutes of mindfulness exercise—classic breathing, body scan, mindfulness.

Wendy Hasenkamp (01:06:02): Individual practice?

Tania Singer (<u>01:06:03</u>): Individual practice and the other were doing an Affect dyad, 12 minutes. Same teacher, same coaching session lengths, every week, same app, just the practice was different. One was the Affect dyad with a partner, the other is solo mindfulness exercise as we know it.

(01:06:18) And so for the first time we could compare, and it was really exciting after 10 weeks just online, because we wanted to know can we scale these programs? Because ReSource, nine months, nobody can do that in schools and in healthcare and so on. And online you can scale. So we were super surprised. It really worked out well. We have I think now 12 papers out of the CovSocial Project. And they really, really showed... First what we could show is that we could replicate mindfulness results in the domain of 10 weeks online mindfulness. But also dyads, this is a common effect, could reduce depression, could reduce anxiety.

(01:06:57) But when you looked at other measures, the dyads were more efficient when it came to the social domain. So they were more efficient to increase compassion when you measure it, not by question, but objectively by task. They were more efficient to increase resilience, optimism, and also computer task-based positivity bias or negativity bias. So meaning, you can measure our faculty to see the world, the glass half full or the glass half empty. You can measure that through a very intelligent computer task where you don't even know that you measure this tendency. And this is called negativity bias. And people with a strong negativity bias tend to see the world in a negative way. And this also

predicts whether you can develop depression later or not. And the dyad because of the gratitude probably, the second question is like focusing on gratitude every day, really increased optimism and the positivity bias. It really made people less negatively biased. And it also increased more compassion and social cohesion and closeness and the feeling of being connected with others.

(01:08:12) And it was also more efficient in actually reducing social stress. And we had seen that in the ReSource Project, but in the ReSource Project we didn't know was it the dyad or was it the combination with all the other meditation which were opening the heart. We didn't know. And now we could for the first time replicate that when you do a Trier Social Stress Test—you stress people socially in the lab, you measure the hormones, the cortisol hormone—only the dyad, but not the mindfulness can reduce the cortisol level response to social stress. And we have now replicated and it's very clear. And this is amazing given that a lot of people say, umbrella term 'mindfulness' is reducing stress. If you look in different measures of stress, it's not true. You can find it on a questionnaire, but when it's about the social stress feeling not adequate, not feeling good enough, feeling judged, feeling all the social judgments we have, the social stress because of the other, only when you do dyads, which is kind of teaching you every day, you train also not to judge the other, not to be judged, to be listened to non-judgmentally. So in a way, you train not to be afraid anymore of the other and of the judgment of the other. So every day, you are making yourself immune against this fear of judgment from the other. And that brings down social stress on the hormonal level to 51%. And only dyadic work can do that—at least after 10 weeks, I don't know [beyond that].

(01:09:49) So we had a lot of these very positive outcomes for the dyad. So we said, "Okay, the next step is we have to bring it into schools, into the healthcare system, and we have to do what I call translational social neuroscience now." It's not social neuroscience in the lab, foundational, but it's like can we do science now in the fields? Can we bring dyad programs to teachers and then measure how they actually run their class? How this changed the system in which they work or their perception of their colleagues? And this is the Edu:Social school project we're just running. So we have hundreds of teachers learning dyads and it's very, very touching. They need it a lot. It was the most difficult population to recruit ever. I never had so much difficulty to recruit. They are just, I mean after the pandemic, school teachers are burning out like flies, totally overwhelmed. I don't know in the US, but at least the meta-analysis show the same in US. But once they are in, once they have said, okay, I take the time for myself to learn, they are totally amazed by the effect of the dyad, and the support it gives them. It's very, very touching.

Wendy Hasenkamp (<u>01:11:03</u>): Oh, that's great.

Tania Singer (01:11:04): We have not looked at the data yet.

Wendy Hasenkamp (<u>01:11:06</u>): I was going to say, I would imagine then you can look at outcomes in the school setting and things like that to look at the systems level.

Tania Singer (<u>01:11:13</u>): Yeah.

Wendy Hasenkamp (<u>01:11:14</u>): It's so inspiring. I love how looking at the scope of your work over the decades has really shifted so much from, or it's always been the intent to kind of bring it more into the interpersonal and social realm. And I feel like it's just been so beautiful to see also the field following that trajectory too, of moving from a focus on the individual, starting now to think more and more about how do these practices change communities, societies, systems, and all the questions that go around that. And it's beautiful to see your work moving in that direction too.

Tania Singer (01:11:53): And I realized when we did meta-analysis on how much has actually been done in system level change in science, like from individual to system level change, we absolutely have no idea of how they actually relate, individual change and systems. And why, I also figured, there are actually not a lot of good task paradigm measures out there to measure system level change, not just by a questionnaire, but some objective marker. There is really poor...

Wendy Hasenkamp (01:12:25): Measures?

Tania Singer (<u>01:12:26</u>): Yeah, measures and science. And it reminds me, when we started doing the ReSource Project, we also had to come up with all the new paradigms actually, because there was no training research in this domain. I mean the first three years of ReSource was to create a paradigm which we could use over longitudinal change to measure empathy, theory of mind, compassion, all these things. Now we have them, we replicate, they are in use.

(01:12:50) But I think now in our field, the next boundary we need to push is to come up with good system measures, which are objective and telling you something so that we can move from the question of how does individual change relate to system change, and really measure and make science out of it. And we are trying that now in the school context. We have good ideas, we will see how that works out. But there is a whole new field basically to be invented. I would love to see something like translational social or contemplative neuroscience to come out as a new field, as a new goal.

Wendy Hasenkamp (<u>01:13:29</u>): Right, yeah! Oh, well, Tania, this has been really so wonderful to chat. And I just love hearing the breadth of your work and it's had so much impact both in the field and in the world. So is there anything you want to share, like any big picture take homes, as we're wrapping up?

Tania Singer (01:13:48): Yeah, I think perhaps one thing I missed to say, it's because of the political situation of the world. It's in a very, very, very bad state at the moment. I mean a very dark state of the world. And the amount of polarization and the amount of hate speech and the divides are tremendous now, also the divides of rich and poor. And so I think that the field of social neuroscience, contemplative science, needs to become more translational, to really bring what we have developed in the lab and is working into the society at large, so that we can really counteract that, because it is undermining our democracies, it is undermining our humanity. We have a loneliness epidemic already in young people. And I think we have a responsibility to do something about it.

(01:14:40) And so dyads is of course just a little, little mini solution, but at least it helps. It's a bit like peace work, because people really learn to listen across boundaries, across ages, across divides, across in-group/out-group, and to really come to a sense of shared humanity and connect, like interdependence. And I think we really, really need to bring that very early into schools again and to really bring people into these vulnerable dialogues again, so that we can avoid getting in this narcissistic trap, which a lot of social media are actually fostering right now, right? It's like I have to be beautiful. I have to be super, I have to be perfect. I have to have millions of followers. I have to be liked by thousands. But if you are ill, it's not your followers who will bring you the chicken soup. If you feel ugly more in puberty, it's not these people who are your friends.

(01:15:39) So I guess there is a lot to do, which is really not just staying in your lab, but really translating these approaches to really support society and democracy right now. And yeah, that's where my heart is really going at the moment.

Wendy Hasenkamp (01:15:57): Oh, well, thank you so much, Tania, for taking the time today and for all of your work and all of the ways that you're showing up.

Tania Singer (<u>01:16:04</u>): And thank you, Wendy, for doing this podcast. You're really presenting this whole field to the big world. So you are big in the business of translating this knowledge to a broad audience. Thank you so much for doing that.

Wendy Hasenkamp (01:16:19): Well, it's a joy. Thank you, Tania.

Tania Singer (<u>01:16:21</u>): Thank you.

Outro – Wendy Hasenkamp (<u>01:16:26</u>): *This episode was edited and produced by me and Phil Walker, and music on the show is from Blue Dot Sessions and Universal. Show notes and resources for this and other episodes can be found at podcast.mindandlife.org. If you enjoyed this episode, please rate and review us on Apple Podcasts, and share it with a friend. And if something in this conversation sparked insight for you, let us know. You can send an email or voice memo to podcast@mindandlife.org.*

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