

WHAT IS THE MIND?

Science of Transformation

How can we understand transformation in a scientific way? We could start by understanding the mind. The "mind" can be defined as an embodied and relational process that regulates the flow of energy and information. So how would you regulate the mind? By developing the ability to see mental activity with more clarity and then modify it with more effectiveness. Dr. Daniel Siegel calls this ability "Mindsight" and says there's something about being able to see and influence your internal world that creates more health. In this interview, Dr. Siegel will describe how mindfulness techniques are one way to monitor and modify our internal states and create integration, thus facilitating transformation into better states of health. This recording was produced by the Institute of Noetic Sciences, which features the largest web library on conscious change. For more information, visit <http://www.noetic.org/library/audio-teleseminars/>.

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"A core aspect of the mind can be defined as an embodied and relational process that regulates the flow of energy and information."

From an interview with Dan Siegel MD by Tami Simon (Sounds True)

also available to listen to at <http://www.soundstrue.com/podcast/?p=1211>

DAN SIEGEL:

"...the actual journey started as I was training as researcher in a field called attachment, which is looking at parent/child relationships and how the child's mind develops in the setting of relationships with parents and caregivers. And yet **the field of developmental psychology didn't really have a definition of mind.** They certainly could say things like, *the mind is your thoughts and feeling and stuff.* So I was puzzled by that and then I reflected that **even my own field in psychiatry did not have a definition of mind and it was the decade of the brain and everyone was interested in exploring how the mind related to this thing called the brain.** And so **I started a study group back in 1992 to look at that question: what is the brain, what is the mind, and how are they related to each other.** Well, the funny thing was these different disciplines that came: anthropologists, geneticists, people studying complex systems, neurosurgeons, neuroscientists, and of course developmental psychologists, clinical psychologists, and all those folks, they actually had no common way of beginning the dialogue. Because **no one could agree on what the mind was.**

A neuroscientist would say, "Well, the mind is just the activity of the brain." Which was a thing that a lot of neuroscientists still say. Or **an anthropologist would say, "The mind is kind of what connects us across cultures and across the generations as people communicate with each other."** A developmental psychology might say, **"The mind is this thing that stays with you as you develop across these stages of life. And you have these different levels and phases and stuff."** But no one could find a commonality, and the group was about to literally dissolve. And as the facilitator of the group—I'd invited these forty scientists into the room and it was just the beginning. **I had to come up with something that maybe we could have as a beginning working definition of what the core aspect of what the mind was that we could share, at least as a starting point.**

So back in 1992, this is what came up to me when I was reading all these different fields and trying to keep the group together: **I said this, "A core aspect of the mind can be defined as an embodied and relational process that regulates the flow of energy and information."** And amazingly, and this is kind of a shocker if you are ever in a university setting, which I was at the time, *100 percent of the scientists in the room, forty scientists, agreed on this definition as a starting place, not an ending place, but as a place to begin a discussion.* So this idea that the mind, a core aspect of it, is as a **regulatory process that governs the flow of something** and that something is very specific—it is energy, in the physics terms of energy, like you need energy to have a thought, you need energy to turn on a light bulb or move your arm, literal energy. And **information is experience where we symbolize things as representing something other than they are.** For example, the word rock is information for the stone in your hand. It is not the stone itself.

So this flow of energy and information describes a mental experience. But the regulation of it is a very important aspect of the mind that for some reason people hadn't used as a definition.

From there the group went on to live for four years and we described in great detail the way an anthropologist could use that definition to explore how the brain is shaped by cultural experiences, and later on we actually started a big research center that still exists now called The Center for Culture, Brain, and Development, that I help run. **And you can also look at things like mindfulness and see how the practice of focusing your awareness in a certain way harnesses the regulatory circuits of the brain so that you can determine how energy and information flow in a more powerful way than just plain everyday awareness.** So now I help run a research center at UCLA called **The Mindful Awareness Research Center.** So that definition of mind was an entrée to invite all the different scientific disciplines who actively pursue research paradigms and the practice of psychotherapy to help people understand the mind because when you get this definition, suddenly when you call it a regulatory process, you can teach people the two foundations of regulation are monitoring something like driving a car—you've got to watch where you are going—and then modifying that. You have to move the steering wheel or put down the breaks or press down the accelerator. So monitoring and modifying as a therapist are the two things you can use to build up in a client, patients, to help them actually strengthen their mind and move it toward health, which we can talk about next....

Tami Simon: Well I mean, yes, it is almost like getting a word in the dictionary. You've done something amazing here. But what I don't understand is what the implications are of that definition for me, as a person, let alone if I was a therapist or a researcher. So could you help me? You mentioned monitoring and modifying but I need to get more understanding of this.

Dan Siegel: more of a handle on it? Yes. Well, you are not alone in that, and let me just say because it may not come up that since that time, since 1992, which is now seventeen years ago, that I have been using the definition, it has been striking to find that the field of mental health, **over 95 percent of over 80,000 therapists I have asked have never been given a definition of mind.** And amazingly it turns out that **even in scientific fields that study that mind, like cognitive neuroscience, they actually say we shouldn't define the mind because it is a mystery and we don't know what it is.** And even philosophers who have published works with the word mind in the title, who are mind philosophers, they told me directly that defining the mind is an error.

That it is a philosophical error because the mind is indefinable.

So as a practitioner trying to help people move their lives toward health, I find those moments understandable but very frustrating because people come to me in my office to make their minds stronger, to help their minds get out of the chaos and rigidity that plague them, to reduce suffering. Those are all mental experiences. So without having a definition of mind it would be hard to know how to help a person's mind heal.

So here is how it is useful in a practical basis, and in this new book (I have *Mindsight* coming out) I kind of try to make this available to the general public, not just professionals. In the view of the mind as a regulatory process, what it gives is an empowerment to you, Tami, to say, okay, this mind doesn't have to be a total mystery.

At least part of seeing it as a regulatory process allows you to regulate the "I need to see something directly and then I need to shape that thing." So rather than being a passive passenger along the journey of the mind, you know, doing whatever it is going to do,

I actually have the opportunity to strengthen my ability to look at the inner sea. This notion that we have an inner subjective life. And when you do that...any mindfulness practice that at least hasn't named in the mind in this way but at least can be seen through this lens. **A mindfulness practice allows you through tai chi or chi gung or centering prayer or mindfulness meditation, all these wonderful ancient teachings that are also present throughout the world and the east and the west but also in modern times, these practices help you stabilize the lens that lets you actually look at energy and information flow.**

Tami Simon: Okay, so let's just pause for one second. Why is seeing the first step in regulation?

Dan Siegel: Okay, well let's say you are in a car, right. You get in the car and you want to go somewhere through time, that is the flow of you in this case through physical space. But it is also a movement across time, right? So how are you going to do it?

Tami Simon: I am going to think about where I am going and then...I would probably like not be be blindfolded to be successful at this.

Dan Siegel: That is a good choice.

Tami Simon: And yeah, I would think about where I am going and then I would probably turn on the radio. Might listen to you on a recording. Space out and somehow arrive at where I am.

Dan Siegel: Okay, so let's look at the spacing out. What did you actually do while part of your mind was listening to Tami and Dan talking on the Sounds True recording? What were you doing in the spacing out?

Tami Simon: I mean, some part of me was looking at the road. I don't really know what...this is even harder than defining the mind.

Dan Siegel: [laughs]

Tami Simon: *What are people doing when they are driving in their car? I really don't know what I was doing exactly.*

Dan Siegel: Right. Okay, but let's imagine what it was like, even though you don't remember what it was like explicitly. So what did you actually do to go from one place to another?

Tami Simon: *Well, there are all kinds of thing. Obviously I turned the car on, I hit the accelerator, I turned right, I made all kinds of movements with my hands and feet, etc.*

Dan Siegel: And what were those movements doing?

Tami Simon: *Those movements were making the car go. Hitting the accelerator, moving the wheel, that kind of thing.*

Dan Siegel: Absolutely. So they were making the car go and influencing the path of the car.

Tami Simon: *Yes. I mean, I am not smart enough to understand your work, Dan, but I do drive to and from work every day.*

Dan Siegel: That's for sure. But let's talk about the car. So one thing you are doing is you are shaping the direction of the movement of the car.

Tami Simon: *Correct.*

Dan Siegel: Let's just call that shaping or modifying or modulating or you know whatever English word we want to use, but you've got to influence the thing as the direction of the thing. Right? But if we put a blindfold on you, as you are listening to this incredible tape of Tami and Dan in your car, if you had a blindfold on, you couldn't see or monitor or observe or take in or whatever word you want to use—it doesn't matter—but if you couldn't see where you were going, what would happen?

Tami Simon: *I do believe blind people shouldn't drive—the people who issue drivers' licenses. I am with them on this.*

Dan Siegel: Blind people should be able to do almost everything, and that would be a hard one. Because why? They can turn the steering wheel and press the breaks and hit the accelerator.

Tami Simon: *Because they don't know where they are going and might hit another car or tree or something like that.*

Dan Siegel: Exactly. So that is the monitoring part. And many people in fact are blind to the energy information flow inside of themselves, so they move the energy and information flow, but they are not monitoring it. So they are impulsive and reactive and they say things that are unkind. They do things that are destructive. And unless those are done intentionally, which often they are not, you know, you can see this as a kind of mind blindness. Just like putting a blind person in a car. Now the good thing about the mind is, almost everyone can be assisted in

developing the skills to see more deeply into their energy and information flow, to have mindsight, to actually see and shape the inner flow that is our subjective inner world. And that is the idea: that you can drive a car with more balance and equilibrium and more efficacy because you are actually watching where you are going.

Tami Simon: So what you are saying is that by looking inward, by looking at the mind, that is the monitoring function. And then I can modify in some way based on what I see.

Dan Siegel: Exactly. And a lot of people don't have training on how to effectively modify—and it is something very specific—the flow of energy information. And this is something also we learn early in life, but it can also be taught throughout the lifespan.

Tami Simon: So can you say a little bit more about this. In a way you are defining this term mindsight that you've created, by saying that by mindsight I am looking at the flow of energy information. What does that mean? What am I looking at?

Dan Siegel: So mindsight is the idea that you can see and shape the inner world, so that you are not just a passive passenger along the ride of life. You can actually become an active author of your own story. **So mindsight is a word I just invented because when I was working with patients back in the early 90s, and even before that in the 80s, there was no word to describe this phenomena of actually not just having a mind, of course we all have minds, but actually becoming very clear in what is going on so you can actually shape the way your life is going.** And it seemed to me that people who had health had this mindsight ability, and so many people who came with suffering had compromises to their mindsight capacity.

And so back in the 80s when this became apparent in my own training as a physician, where a lot of my teachers (lacked?) mindsight, and I ultimately dropped out of medical school before I thought about this stuff and came back. Came back in 1980 (?). **I was really wondering how do we know we have a mind. Not just have one, but how do we know we have one? So that is what mindsight was born from, was this term trying to embed the idea that you can see your own mind and actually see the mind of others.**

Now since that time, the early 80s, so much science has come up both within the psychological realm and the neuroscience realm, that we can talk about these things called mindsight maps, where you can actually map out who you are. You have like a me map in your...literally in your brain with a corollary of your subjective experience of insight. And then you have a you map, where I can have a map of your mind, Tami, and actually know, or have a sense, of what is going on inside of you. And the correlative of that, in my brain, actually has certain brains of neural firing that we can now actually monitor in brain studies. **And then there is even a “we” map *where there is a sense of relationship subjectively that I can feel between you and me.*** And also in the brain, we can find patterns that develop that map this sense of we. So at least in those three ways **mindsight gives you a sense of yourself, a sense of the other, and a sense of our relatedness.** And you know, unfortunately, if people have damage to certain parts of the brain—this is what I found in my clinical practice—they lost the mindsight abilities they used to have. And if we could cultivate the development of those parts of the brain you could actually get—even in people

as old as ninety-two that I have worked with—you could actually get people who've not had much exercise of these mindsight circuits to grow them to the point where this ninety-two year old patient's wife called me up and said after therapy, "did you give my husband a brain transplant?" Because he had become so different. Because when you have mindsight, you have kindness and empathy and insight and equanimity and basically what the Greeks mentioned as a sense of connection and meaning and life, a deep sense of well-being. Whereas when you lack mindsight, you are often just like a cork bobbing up and down on this mental sea and thrown around by whatever goes on and your life is filled with suffering and chaos and rigidity.

So there are all sorts of ways of understanding that we can get into next, but in terms of your question about the mind and mindsight, it is basically...and I must say I am surprised at the resistance from different disciplines of science and philosophy and even so far as some areas of psychotherapy, that they don't want to define the mind and so I have to just say to you, Tami, and to anyone listening to this: **there are a number of very, very bright individuals who say defining the mind is a real mistake.**

And even though you see lots of fields describe the mind and even describe mental health...like positive psychology does a beautiful job of bringing us to focus on health rather than illness—but their descriptions of health don't involve a definition of health. And so when we move to that area of our discussion I hope we'll really explore the fundamental mechanism beneath them because it will help make more sense of why does seeing the mind help. **Because when you can track energy and information flow in your inner world and the world of another person, and in the relational world we have not just with other people but with the whole planet and beyond that, those three dimensions, *you can actually move your life from suffering which involves chaos and rigidity* in ways we will describe soon, *to what you can see is the fundamental mechanism of a healthy mind, which is a process called integration.* And *integration is literally defined as the linkage of separate and differentiated parts.* And that is a whole different part of our discussion.**

But to stick with the mind part, **this is the beauty and power of defining the mind as regulatory because when it is embodied you can actually get to know your body, not just the skull part of your brain, but your whole extended nervous system.** And I actually use the brain to refer to that extended nervous system. But also relationally, because the mind is a process that is both embodied and it is relational. So you never think in single skull or single body terms. **We are all interconnected in this deep, profound way. Although when we just look on the surface we think we have these separate selves when in fact energy and information flow doesn't recognize the limitation of a body as a boundary.** It flows throughout all our interconnectedness and then you see that fitting with the contemplative and spiritual view of the oneness of everything. **And so this is basically a scientific perspective on that deeper truth that we are all interconnected when you look at energy and information flow being both embodied and relational.**

Tami Simon: So what I am not 100 percent following is what does it mean to look at the flow of energy and information? What kinds of things am I seeing?

Dan Siegel: Okay, well can I do a little experiential for you so you may...

Tami Simon: Of course.

Dan Siegel: Rather than explain it, it is better to experience it. So let yourself...put both feet on the floor and I am going to say a few words and then I am going to pause. And I am going to say a few other words. And just sense whatever arises in your awareness. Ready?

Tami Simon: Ready to go.

Dan Siegel: Okay. No.....No.....No.....No.....No.....No.....No.....No.....

Yes.....Yes.....Yes.....Yes.....Yes.....Yes.....Yes.....Yes.....

Now you might just want to take a deep breath. And did you notice a difference between the experience of no and the experience of yes?

Tami Simon: I did.

Dan Siegel: And what did you experience?

Tami Simon: Well, at first when you said "no" I thought it was "know." And nothing really happened. I was just in empty space for a little while, but then I started hearing it as "no" and all kinds of aggression. I saw all kinds of aggressive...me in aggressive postures. Of different kinds.

Dan Siegel: So visual images of you in aggressive postures?

Tami Simon: Yeah, I was punching things and saying curse words at people and things like that.

Dan Siegel: Oh my gosh. Okay.

Tami Simon: Yeah, I am a very aggressive person, Dan. We can talk about that later [laughs], but anyway that was the "no" and then the "yes" was very sweet. I saw images of making out and being in nature and all kinds of positive melty kinds of images.

Dan Siegel: Wow. And the feeling inside your body was?

Tami Simon: One of quite a bit of pleasure.

Dan Siegel: Ah hah. Great. So there you see a very simple demonstration, almost as simple as we can get, of a relational process that is you and I are in communication now. And I am just giving you a word, obviously there is a tone involved in the word too, and depending on how your own mind interprets the information of that word "no"—"know" or "no"—and you could see even in that the way your mind is framing the meaning of the information shapes how energy and informational flow in your experience and the energy—you could feel the difference from vast emptiness and not much happening to these aggressive images and this feeling of tightness and

being energized in an aggressive way.

And then when there was a pause and a shift, the only shift was now the information and energy flowing from me to you, **so there is the relational part, the sharing of energy and information flow is one way of defining a relationship.** And **then as it happens you had a total shift in the information,** now it is "yes," that you experience images—making out, all these wonderful energized feelings, this pleasurable sense—extremely different from the emptiness of "know" or the aggression of "no." So that just gives you a feeling, and this is a refined perceptual ability, to actually track energy and information flow between you and me or between you and anyone—that is the relational piece—and then even in your body.

So you could actually, if we were spending more time on this—sense what your muscles were doing, focus your intention on your intestines, on your lungs, on your heart.

All this is part of something called **interoception**, where you have **perception of the interior of your body.** *And then you can also examine the sensations of your mental activities: thoughts, feelings, imagery, stuff like that.*

And there are all sorts of ways of then starting to refine our perceptual ability of what layer of sensation energy and information flow is happening.

So you can have the first 5 senses, of course, hearing, sight, touch, taste, smell. **You have a bodily 6th sense**, where you can actually take in these sensations from your bodily organs, your muscles. And then a 7th sense, where you have what we can call mental activities of thoughts and feelings that are not in the physical world, they are not in the bodily world, but they are certainly absolutely real and a part of our mental activity world. And then there is even perhaps an 8th relational sense of our connectedness to each other. So maybe there are a whole bunch of other senses too, but at a minimum we have eight senses. **And tracking energy and information flow is about refining our perceptual ability to sense these eight senses and in a way review them.** You know, whenever you have any experience, you know, what do my five senses bring in? Sixth sense, seventh sense, eighth sense? **And it really then invites people to become much more grounded in the subjective inner world of their lives.** When you build into this perceptual ability the capacity then, if you find yourself stuck in life in ways that...you know, if you look at our diagnostic and statistical manuals of psychiatric disorders, or if I just reflect on the patterns across individuals I have seen over these thirty years of seeing patients, they amazingly fall into these **patterns of either chaos or rigidity or some combination that is basically the basis of suffering.**

So I can suffer a little bit with a cough, and let it go by saying, you know, I don't need to expect I won't be coughing. I've got this bronchitis and it is going to happen and I am sorry the editor has to edit out all the coughing, but I let that go and instead of beating up on myself for having this bronchitis I sense my frustration with it, I feel the pain of the coughing and the helplessness that the cough emerges whenever it seems to want to emerge, and then I let that go because I can track it and rather than being caught in the rigidity of beating myself up or the chaos of feeling this is crazy, I let it go. And with kindness and compassion toward myself and hopefully toward others then emerges from myself, then I can move into a

different kind of space of experience, where I just accept things as they are, which is obviously an ancient teaching in mindfulness practice, to have this curiosity, openness, acceptance, which is in many ways the basis of love. You know, this state I talk about in The Mindful Brain of, you know, this foundation for a mindful way of being. [C O A L = curiosity, openness, acceptance, love]

So what that brings us to is basically why does anyone need to sense energy and information flow, why is that helpful? Does it just increase awareness of the rigidity that it plaguing your life or the fact that we are all really helpless and chaotic? Or is there something more to it?

Tami Simon: This is the modifying part of it.

Dan Siegel: Exactly. If we just monitored, you'd say woop dee doo. Now you have more to write about in your journal. But what about actually transforming your life? You know, reality has at least two sides to it. Maybe a bunch more, but as a scientist myself, as a practitioner myself, a person who is in relation to others—my partner, my children, my friends, my colleagues—in all these ways I want to be present in all these different ways and be able to not just know myself but create a more positive way of being. And so that is where the modifying comes in. And that is where you can ask the question, if for some reason the entire...over five hundred page of the diagnostic and statistical manual of psychiatric disorders, **if you close your eyes and just poke your finger on any symptom of any syndrome, you can find basically if it is an example of chaos or rigidity or both, which is what I have done in looking at that book.**

And it is my experience over the years of treating people. **Well, why would that be the case? And what does that tell us about how we need to modify energy and information flow in our lives? What creates chaos? What creates rigidity or the combination of the two?** And so that search years ago basically led to the following realization that now has in many ways totally changed how I do psychotherapy and for all my students that I have in my regular seminars. Now there are over a hundred thousand therapists that I have taught around the planet.

You know, **what I teach them is the idea that you could define--we've defined a core aspect of the mind—but you can also define a healthy mind now as being one that is not stuck in chaos, rigidity or both, but actually is coming into a place of flexibility and adaptability or a sense of coherence, which subjectively feels like harmony.**

When people talk about the harmony and ease of well-being? That is what we are talking about. And when you look deeply at the science of that, what emerges is this amazing thing from mathematics, and they don't use the term integration, which I am about to use, but they mean it totally. When you look at complex systems that are capable of chaotic behavior, which certainly our lives are, and they are open to influences outside themselves, that defines what is called in formal scientific terms "a complex system."

And it turns out that **when complex system moves across time, it has something called a self-organizing process that tends to move it toward what is called maximizing complexity. So for average folk like you and me, that doesn't have any intuitive qualities to it, but when you think about a choir, it does.** So if you **imagine a choir**, Tami, where you **have everybody sing the note the exact same way**, it has this kind of dullness and rigidity to it. There is **no**

differentiation. They are totally **linked, the singers, but not differentiated.**

Then you have them close their ears, where they **belt out a song as loudly as they can but they'd hear each other sing.** And **the song is random.** They pick whatever they feel like. There is **total differentiation and zero linkage.** *It is cacophony. It is chaos.*

Then you have them open their ears, get together, and say to them, **sing whatever you want.** And amazingly, they will pick a song that they sing in harmony, where there will be intervals that each of the individual singers is expressing his or her identity, yet they are linking together in this familiar common song. *And everyone has their inner singer and listener alike.* And there is a feeling of incredible vitality, of fluidity and flexibility, and people get the chills and often amazingly *over half of the time, the choir, just doing this on their own, choose "Amazing Grace,"* which one of the most harmonious songs in western music. And they will pick this. And you get the feeling subjectively of that.

So what I wanted to point out was that **in terms of integration, this differentiation of parts that then become linked, the linkage of specialized parts of a system, that is what allows you to move in a harmonious path.** In complexity terms **you maximize complexity, but we can drop that term** because it doesn't make intuitive sense **and just use the word harmony.**

So when a complex system is linking differentiated parts, it becomes harmonious and adaptive. So what the interpersonal neurobiology view of health is is basically **integration.** It is that simple. And it is that profound. Because *when you have learned to monitor energy and information flow, you can then take the pulse of where your life has rigidity in it, like when you have repeated habits that you feel imprisoned by or thoughts that keep on going over and over in your head, that is an example of rigidity.*

Or you keep on getting romantic partners that are bad for you because they hate you. But you want to be with someone who hates you, that is an example of a rigid pattern.

Or on the other extreme chaos, where you interact with people and suddenly you burst into this emotional chaotic storm that floods you and you don't have any kind of balance in your life. And you are *saying things to loved ones that you don't want to say. Or you are beating up in yourself in these, what I call "low-road outbursts."* You know, all those chaotic ways our life creates suffering for us. **Those are all examples of impaired integration.** And we could go through in detail what that looks like, and in my book *Mindsight* I do. But for our discussion here one to one, it is basically any opportunity you can see to feel rigidity in your life. It is an opportunity to look deeply at what is not differentiated in your relationships, what is not differentiated in your nervous system.

Tami Simon: I am not following you there. Because I was following you until that point...I can look inside and I can see all kinds of examples of...

Dan Siegel: Rigidity and chaos?

Tami Simon: I can, actually, Dan. But when I ask the question what is not differentiated, I got confused. I don't

know what you mean.

Dan Siegel: Okay. Maybe I can give you an example of something so it doesn't have to get personal, but you tell me what you want to do.

Tami Simon: *Well, something that is accessible for people I think is the key.*

Dan Siegel: okay, so, let me give you an example. So many to choose from.

Tami Simon: *Well, I will give a kind of general example. I can start feeling very chaotic when I feel overwhelmed by decisions at work and I don't know the right answer, and everything inside me kind of goes into panic and a sense of chaos.*

Dan Siegel: Okay, good. So now we'd have to talk a lot about the details and here is where this can get very personal.

You'd want to look at what the experience of thinking about those details of your work decisions are, and we'd ask the question: in your own history—and this is where memory and narrative comes in—what is the meaning for you of being in a position of making decisions? So we would explore your past and explore what it was like when you were raised as a kid, what your relationships with your peers were like, what the role of being a leader is—like you are at Sounds True—what that has meant in terms of the notion of right or wrong. And see how aspects of your sense of self are specializing, like "I am the one who has to have the right answer in school" or "I am the one who has to have the right answer at home because my mother is an alcoholic and she can't mother my siblings so I have to be in this position" or "my siblings may be hurt" or "my father is going to leave my mother." All sorts of things that we don't have to get into now.

But the idea of being in a leader position differentiates, that is it specializes this aspect of being the one who knows. And it takes you away from embracing another aspect of yourself, which is the unknower, the one who has freedom to relax into relying on other people's perspectives or developing this capacity for saying, "You know, I am not certain and I need to let go of being in this position where I am the one who makes all the decisions." This would obviously take more time than we have now but as you would do that you would look for different aspects of a self that were differentiated. And in that differentiation here is the main issue: you might say, well, I am well differentiated, but how do you link to other aspects of yourself that allow you to actually now know. And allow a decision to organically arise not placing you in a position of being the one who has to make all the clear insights of knowing. Now, in doing that then you say, "then there is a part of me that can let others be involved or part of me let's other parts of myself accept this not-knowing place," and then there you would link a very active part of your mind that wants to be in control to one that realizes life is full of uncertainty and unpredictability. How do you embrace that?

So as an example of that, you would go through what I call these **8 domains of integration**. You would search **memory**, you'd search **narrative**—what your sense of self is as a narrator—you would look at *parts of your nervous system in terms of what is called vertical integration*. You can literally see if you are allowing from your intestine, and I

am not saying this poetically...I mean *literally there are neural networks around your intestine and your heart that bring up non-logic-based wisdom*, and how do you embrace that? *We call that vertical integration*. Then there is something called **horizontal integration** where *you would actually look at the way the right hemisphere processes information extremely different from the left*. So just in terms of your issue about control, the *left hemisphere is what is called the digital processor*. It *likes to know if it is one or zero, is it yes or no, up or down, right or wrong?* It is *later in developing*. It is *linear*. A goes to B goes to C. *It is linguistic*. So words are really important for left hemisphere's expression and reception of information. *It is very logical, so it has this thing called syllogistic reasoning, looking for cause and effect relationships*.

So when a decision at work, for you, there is going to be a very left hemisphere dominance to want to linearly, in a logical way, using language, have a way to predict the sequences that are unfolding.

And you and I are just getting to know each other, so this is presumptuous for me to say this is the case, but this is more like an example. Versus the **right hemisphere**, which instead of developing later *develops earlier; instead of being linear it is holistic*. *Instead of being logical it is visio-spatial*. *And instead of being linguistic, it is nonverbal*. And it has these other *amazing dominances in autobiographical memory, in stress response reduction, and having an integrated map of the whole body is only in the right hemisphere*. **So the experience of monitoring your inner world can learn to refine its perceptual ability to know when there is a left-dominant specialized thing going on, versus a right dominant mode that specialized in its functions, and the idea is to allow bilaterally each area to be differentiated--but then to become linked when you face something like a decision at work. To ask your right hemisphere, for example, for the wisdom of these nonverbal intuitive processes that have a more right dominant mode.**

So these are just, you know, incredibly initial descriptions of the horizontal mode, the vertical mode, there is a whole field of **memory integration, narrative integration**, we talked a little about **state integration**—different states you get into. There is something called **temporal integration**, which is embracing these existential issues of life that having a sense of time in our brain really creates this drive for certainty and permanence and even for immortality, and yet as we know nothing is certain, nothing is permanent, and life is obviously defined by mortality. And so those are areas of temporal integration.

And then there is a whole field of **interpersonal integration**, which is how our relatedness allows people to be differentiated from each other but also to be linked. *And in relationships that don't work well you see them suffering with chaos or rigidity and often, incredibly often, if not almost always, in my experience of doing couples therapy for decades now, you find that when you see couple that is suffering chaos or rigidity in their lives and they are about to blow apart, you can go across the prior domains of integration that I have just mentioned—everything from vertical integration to narrative and beyond—and look at the ways the couple is not allowing each individual to have this sovereignty and linking. And amazingly when you then review the other areas of integration that maybe impaired, you can then focus on interpersonal integration and transform relationships that were before about to explode and now they do form barely surviving to actually thriving.*

Tami Simon: *So this idea that I can look inside and find when I am feeling either rigid or chaotic--I am fully with you there—and I think people can do that and that makes sense. And then they experience that and they are looking for differentiation meaning they are looking for some part of them that is not integrated, that is not fluid, that*

seems to be sort of sticking out in the choir taking over.

Dan Siegel: Exactly. And you can do it...**in this model there are these eight domains of integration, and when you learn them, then it is kind of like learning to play the piano.** You can see the keys in front of you. But you don't know what to do with your perception. **In learning these eight domains of integration, you learn what does vertical integration mean, so you learn how to literally check in with your body.** And **in horizontal integration** you learn *how to check in with your right mode versus your left mode* and then you can say, gosh, I really obliterated my right mode from being a part of my life, so I am like half a brained person.

I learned it in my home or I learned it in school, you know, **we have very left dominant schools and a lot of us never have the opportunity to differentiate a right mode of being in the world.** And people often feel very rigid and empty. They will say, "My life is meaningless." And often you will find impaired right mode differentiation.

Now for you, Tami, or for listeners hearing this for the first time, you might be going, I don't know what he is talking about. So I want to suggest to you is that just like you look at a piano and say I see the keys but I don't know how to make music, this is a way of making music with your mind by seeing more deeply literally into the circuitry of the brain and the subjective side that correlates with it. So that in reality at least we have these two dimensions.

If there is one plane of reality as we go into these experiences we have, stretching away from this one place but still a part of it, is neural firing patterns and at the same time subjective experience of, let's say, a thought or a feeling or a memory. And we can drive the brain with a thought. Like, if I ask you right now to think of some architectural image in your head, Tami.

Tami Simon: Okay.

Dan Siegel: What did you think of?

Tami Simon: Chartres cathedral.

Dan Siegel: Now you are thinking of the cathedral, now in a way we could say that your mind made your brain do that. Now your mind being relational, I say, okay Tami, think of an architectural image, and you do. And then you are driving your brain to fire in certain ways. At other times the brain kind of drives the mind. Now your brain is primed for architectural images and you might think about the Eiffel Tower or you might think about the Golden Gate Bridge. You might think of all sorts of things. And **there is this play back and forth of the mind/ brain mutually influencing each other.**

Well, in hindsight what you can do is become very aware of these two sides of one reality that is the neural firing side and the subjective mental side. And you don't have to be a slave to either side. You can actually move both those experiences of reality—they are both real and what are called primed; they are not reducible to each other. And you can then play with the experience of reality in a way that you move it toward linking differentiated parts.

In this case, *if you found that your right mode, for example, was underdeveloped, there are specific ways to snag the brain. You stimulate neuronal activation and growth and you really harness this thing called neural plasticity. You can actually use the mind to not only get the brain to activate in certain ways, but when you get the brain to activate in very specific patterns; you can actually change the structural connections called synapses.* The synaptic connections in the brain can be activated with the mind and therefore their structural connectivity to each other changed. So you can actually use your mind to shift the architecture of the brain, and in this case we are defining it not in some willy nilly way. **We are saying you can intentionally create more integrative neural connections in your brain that will create well-being in your life, in your mental life, in your relational life, and even in your physiological life.** So the proposal of health is not just about the health of our relationships and our mental experience.

There are studies now that suggest that when you promote integration in these ways, you actually increase your immune function, you improve your blood pressure, and physiologically you are healthier. So we are using health in the deeper sense of health, even extending it into the planet. You can look at global warming and all the horrible things happening now on our planet as impairments to integration. And you see people stuck in so many ways, rigidity, just happening all over the place. And integration then helps us understand on a global level, how to create a healthier planet.

Tami Simon: So you had this very pithy, one sentence definition of the mind. Do you have something like that for your definition of well-being, of health?

Dan Siegel: Yeah, well, I mean it doesn't really appeal to people because this is such a new concept for most people. But **health is integration.**

Tami Simon: Integrating all parts of the brain.

Dan Siegel: All parts of the brain. So **I think of a triangle of well-being.** You have the **brain** as one point on the triangle. You have **integration of the brain**, as we said, linking left and right as differentiated parts, vertically—up and down, there are memory systems you can examine that can be integrated, so in the brain for sure.

In the **mind** it would be things like creating meaning, you know, when you are riding along this subjective side of reality, so often people who are suffering from either rigidity or chaos, they have this meaning that is imprisoning them. Say from a trauma. *So trauma work in psychotherapy is so often an integrative process.* And so when I am asked to give keynote addresses for the different trauma kinds of therapy, I just bring this paradigm along. And whether it is an EMDR approach or a somatic experiencing approach or an approach of cognitive behavior therapy or group therapy or family therapy or psychoanalytic therapy, you know, I see these wonderful ways of helping reduce suffering as windows of opportunity to actually promote integration.

And you know, in the fifteen text books that I have edited for the interpersonal neurobiology series with Norton, you know, integration is either there directly or indirectly in all of these text books which have thousands and thousands of scientific references. So as the founding editor of the series, it is really exciting to now be in a place at this moment where we can say, look, there is a professional approach to integration in the mind and in the brain

toward health.

When you move into the relational side of the **triangle**, so *this triangle has brain*—the extended nervous system throughout the whole body, **mind** as we defined it—the regulation of energy and information, relationships—this third point in the triangle or how we **share energy and information flow**. You can talk about you know, your relationship with your partner, your relationship with your family, your relationship with your community, your relationship in schools, in societies, in even relationships in the whole planet of ourselves, other sentient beings—there's lots of ways of describing relationships.

But **when you look at integration at the heart of this triangle**, you can see where when you don't allow let's say respect for other religions—and you say I have religion A and I want to kill people in religion B—that's a good example of impaired **integration**. Why? 'Cause you're not allowing differentiation. Of people with different belief systems. But if you have a bunch of religions running around the world that never communicate with each other, that's an *impairment of integration too because there's no linkage*.

So, integration, even on this global level—of thinking about all the world's cultures, even if you think about our relationship—or lack of it in a healthy way—to the planet, you know, we're not honoring the differentiated needs of you know, of plants, of animals, of all the species that are disappearing. It's a profoundly sad example of impaired integration. And so, this is how when you define health as integration its not just some Californian—you know, when you're from California you have to be sort of careful—just giving some gushy, you know, thing like let's all hold hands and smile. It's a deep, scientific framework. For examining systems of your nervous system, your mind, your relationships, so that you then move these systems in a scientifically grounded way toward harmonious functioning. That's the whole conceptual basis of it.

And I know it's new, and I know a lot of people go wow, that's too weird, or you know, when I try to translate this, you know, for mindfulness practitioners and the mindful brain, it was like a new way of thinking about integration was what mindfulness does, or you know, in this new book *Mindsight*, you know, it's like, people go well, wow, I mean, we haven't even defined the mind and now you're even defining a healthy mind, that's too much, you know, it's too much too fast. For me, you know, since I've been practicing this way for decades, you know, it works so well and so efficiently, for not just me, it's not just my belief in it, but all the students I've taught, that it's a new kind of shift in how I think about the mind and health, and I think because we're in such desperate situations now throughout the planet, I think we need a new way to bring health into our individual and collective lives.

And **the 9th domain of integration after these first eight is something I call "transpirational integration,"** and it's a word I just made up meaning to breathe across these other domains of integration.

But what I found in my psychotherapy practice was that when people really worked hard at developing their **monitoring and modifying skills**, with **mindsight**, when they could then do that **across these eight domains of integration**, which is kind of basically what I do in therapy. What would happen, unintentionally, was that people would start wanting to devote their lives to the benefit of others. And not just others like their romantic partners or

people in their family—but to causes and connections to people they might not even see directly, you know, that these were ways of realizing that these bodies that we live in, that are alive for a hundred or so years are just a part of the story. That energy and information flow, yes, use the mechanism of the body to flow, and we have these minds that dance through the flow, and our bodies, and they all dance together—but really, **when you get this breathing across, through all these domains of integration, this integration of integration in a way starts to happen.**

And **this sense of a bodily-defined self begins to dissolve.** And *it's not that you're losing a self, it's more like you're expanding a self, and then people start to realize that we are all interconnected, and we're not just interconnected now, here on the planet—which is true—which people come to realize—we're connected to people that are going to be alive, hopefully two hundred, three hundred years from now. And so what we do matters, because we're part of one ongoing continuum. And that we let go of a limited sense of self, and we start to realize that you and I are really we. And that we are a part of this ongoing flow. That we're just riding upon.*

And you let go of the worries about a small self, you can approach death in a very different way. You approach a sense of meaning in a very different way. And you realize, truly, that this differentiated life you call a bodily self, is in fact linked to a much larger whole. And integration, then, linking that differentiated self with a much larger whole, becomes a part of what transpirational integration is all about, that domain. And people start to have different sense of meaning. It's literally what the Greeks called "Eudemonia." You feel meaning and connection, and equanimity, cause it's not about you know, can I gather up these toys, or get this much fun going, this hedonic way of having well-being. But Eudemonia really gives you this deep, deep sense of equanimity, meaning, and connection. And that's what integration has the promise to offer.

Tami Simon: Now Dan, you and Jack Kornfield have been teaching together, a program, with crowds of therapists and now an online event with Sounds True, "Mindfulness and the Brain."

Dan Siegel: And we're both looking forward to it, yeah.

Tami Simon: How does the practice of mindfulness, and you sort of hinted at this, but just more explicitly, how does the practice of mindfulness promote integration in the ways you've been talking about, integration?

Dan Siegel: Yeah, well it's a great question. And first of all, teaching with Jack is a real honor, and it's really a wonderful not only relationship but an opportunity to explore a modern, scientific conceptualization of interpersonal neurobiology, with the ancient wisdom of Buddhist practice. So that's been really, really fascinating, exciting to be a part of.

You know, in terms of mindfulness practice, I've mentioned, you know, seven of the eight forms of integration that precede the ninth one, transpirational integration. And that's something that I called long before I knew there was something called mindfulness meditation, which is a weird story unto itself. But the integration of consciousness...So in the formulation of a domain of integration. It's where you **differentiate the experience of awareness from the separate specialized mental experience of an activity of mind.**

[The Wheel Metaphor]

So I like to think of this as a **wheel of awareness**, so it's like, if there's a **central hub** where you have **awareness**, anything on the **rim of this wheel** would be **something you can be aware of**. So there would be a sector of the **1st 5 senses, of the outside world**, the **6th sense of the body**. **7th sense: mental activity (includes thoughts, images, emotions)**. And the **8th sense of our relational connectivity to a larger whole**.

So, from the hub, we have awareness, the rim, we have that which we're aware of—and you can send out folks to focus attention, if you choose to, on a specific specter. Or you can have what's called open monitoring. So in mindful awareness practice, I know this is condensing, you know, everything I talk about on the Sounds True recording of *The Mindful Brain*.

[So if you ask, who is the observer, it would be the hub awareness is the observer]

[regarding mindfulness] Or, in the book *The Mindful Brain*, or the things Jack and I talk about. My reading is as a newcomer at this field, cause I should just tell you, I have no formal training until recently. In mindfulness as a practice, and I'm embarrassed to say, I really didn't know it was a whole huge field that is thousands of years old. Let alone the science of it that's many decades old now, with Jon Kabat Zinn's wonderful work and Richie Davidson—

So, I'm a newcomer to the field. So being a newcomer, and being an attachment researcher, studying attunement between a parent and a child. *When I finally did my first practice just a couple years ago, at the encouragement of Jon Kabat Zinn, you know, my experience of it was a deep way of becoming attuned to yourself without grasping onto judgments of really, just melting into this presence of an observing self with an experiencing self*. Where attunement could happen, where you're open to what's actually going on, that's attunement. And then in the course of that, something called resonance happens, where the observing self and the experiencing self influence each other—and this is what happens between parent and child, so clearly I was using the same, you know, filtering of conceptualization. You know, you can't help doing it—but that was my experience of mindful awareness.

Now, in children, when they have presence, attunement, and resonance with a parent, it promotes the growth of the integrative fibers of the child's brain. Literally. And what my thought was, when I first experienced this personally myself, was that mindful awareness might be a form of indoor attunement. Where you're not having pre-conceived ideas, or what are called top-down restraints or imprisonment. And you freely allow, what's actually happening to be present in the hub of your awareness, rather than constraining it by expectations.

So in *The Mindful Brain* recording and book what I try to do is explore the neuroscience of that. And what the proposal was, way back a long time ago, a few years ago, was that you could predict that mindful awareness would harness the integrative circuitry of the brain. And we are not doing brain anatomy here, but in those recordings and in the book I do. Basically there are fibers that link differentiated areas and there are those that don't. So there are very specific areas, especially behind your forehead, I call them the middle and prefrontal area, and they help you resonate with other people. So what the hypothesis was was that those would be activated in mindful awareness

practices and at that moment we didn't have the studies, but very soon after that studies started coming out, before they were published, that people talked to me about because they heard me give a lecture, and it turns out now we have a number of studies that show it is exactly these integrative fibers that are activated during the practice of mindful awareness meditation, let's say. And also that get stimulated to grow when you a long-term practitioner. So it is how mindful aware state becomes an awareness trait. And the neurocorrelative of that is these integrative fibers are strengthened in their connectivity.

So it was a preexisting hypothesis about an ancient practice that now has modern neuroscience research confirming it, and the idea there is, okay, that is probably mindful awareness, as a practice, MDSR or mindfulness based stress reduction, actually results in a virtually identical set of outcomes of regulating you body, of attuning to others, of having emotional balance, of being flexible, of reducing fear, of having empathy and insights and even morality. Those eight functions are functions that emerge from the middle prefrontal area. I am talking about this integrative neural area.

Those are exactly the functions that mindful awareness practices have been shown in research to cultivate. And in my field, attachment, we showed independently of the brain or mindfulness, that those are functions that develop in a securely attached child.

There is a ninth one, intuition, that also *comes from these integrative fibers* that is **promoted in mindfulness practice,** but hasn't been studied in attachment.

So the overarching hypothesis there is these three fields—1) **attachment research** with secure attachment leading to healthy functioning; 2) **mindful awareness practice,** which is *an internal form of attunement,* you could propose (attachment is an interpersonal form of attunement). **Both of those activate and ride upon and stimulate the growth of integrative fibers in the brain.** And when I was presenting this once in Alaska, this tribal elder came to me and said, "That list of middle prefrontal integrative functioning, our elders have been teaching us that that is the basis of wisdom for about five thousand years." You know, this is up in Alaska for the Inuit tribes. And I went, "Oh my gosh." So **I think what this science is doing is just illuminating what wise individuals have known for literally thousands of years, which is that there is an integrative way of living that allows us to live in harmony within ourselves and with other people and with the planet.**

Tami Simon: Dan, thank you. I mean, you know so much about so many different things and I feel like we've barely scratched the surface to be honest. I would love to go into more detail about all of these different ways of integration, modes of integration.

Dan Siegel: Well, Tami, anytime you want to do more scratching into the earth, let's do it.

Tami Simon: Okay. Very good.

<http://www.soundstrue.com/podcast/?p=1211>

More quotes from Dan Siegel:

"Relaxation is good, but it doesn't provide the physiological changes you see in mindfulness practice," says Daniel J. Siegel, MD, associate clinical professor of psychiatry at the UCLA School of Medicine and author of The Mindful Brain. Even better, says Siegel, there's no need to log hours on the meditation cushion. "The brain responds to repetition with more gusto than it does to duration," he says. . . "Just as people practice daily dental hygiene by brushing their teeth, mindfulness meditation is a form of brain hygiene—it cleans out and strengthens the synaptic connections in the brain."

"The adult brain has turned out to have a surprising ability to extensively reconfigure its connections through mental exercises. Most of us have parts of our brains that are relatively neglected, says Daniel Siegel, an associate clinical professor of psychiatry at UCLA Medical School, and we can restore them by techniques such as focusing on nonverbal cues when we're conversing with other people, being more aware of what we're thinking, and easing up on the multitasking. "When you do several things at once you tend to do them on autopilot, and fail to engage the parts of the brain that form strong neural connections," explains Siegel."

From: Brain Boosters Medicine may allow us to challenge our genetic inheritance and repair insults to the brain, whether as Alzheimer's sufferers or moody, forgetful people and hazy thinkers. By David H. Freedman NEWSWEEK Published Jun 27, 2009 *From the magazine issue dated Jul 13, 2009* <http://www.newsweek.com/id/204303>