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## **Complexity Choir**

### *The Eight Domains of Self-Integration*

**By Daniel Siegel**

What is a healthy mind? Is it simply the absence of symptoms and dysfunctions, or is there something more to a life well lived? How can we embrace the diversity of behavior, temperament, values, and orientation across a wide range of cultures and still come up with a coherent definition of health? Just as some scientists are reluctant to define the mind, some people say that we shouldn't define mental health at all, because it is authoritarian to do so—we shouldn't tell others how to be healthy. But how do we account for the universal striving for happiness? How do we understand the cross-culturally recognizable ease of well-being? Positive psychology has offered an important corrective to the disease model by identifying the characteristics of happy people, such as gratitude, compassion, open-mindedness, and curiosity, but is there some unnamed quality that underlies all of these individual strengths?

Over the last twenty years, I've come to believe that integration is the key mechanism beneath both the absence of illness and the presence of well-being. Integration—the linkage of differentiated elements of a system—illuminates a direct pathway toward health. It's the way we avoid a life of dull, boring rigidity on the one hand, or explosive chaos on the other. We can learn to detect when integration is absent or insufficient and develop effective strategies to promote differentiation and then linkage. The key to this transformation is cultivating the capacity for mindsight.

In new interventions based on the approach of interpersonal neurobiology, mindsight has helped many people shift the flow of energy and information in their lives toward integration. But why is integration such a powerful tool for transformation? My search for an answer to this question has led to some surprising and practical realizations.

### **The Complexity Choir**

These days, before I define mental well-being in my lectures, I often ask for volunteers to sing in a "complexity choir." Experienced singers usually break the ice and come bounding up to the front of the room, while others, initially more reticent, slowly find their way to join in. Whether my audience is parents or teachers, therapists or scientists, I know that the best way to help them grasp the power of integration is through immersion in direct experience.

My first request is that the newly assembled choir members all sing the same note at the same time, simply humming along in unison. Someone comes up with a mid-range pitch and they quickly settle into a uniform sound. After about half a minute, I hold up my hand to stop them and then make another request. This time I ask them to cover their ears so they can't hear one another, and then, at my signal, launch individually into whatever song with whatever words they'd like to sing. The audience usually laughs when the singers begin, but they quickly get restive, so I hold up my hand again.

Finally I ask the singers to choose a song most of them are likely to know and then to sing it together, harmonizing freely as the spirit moves them. This may be the ultimate pickup ensemble, but it's remarkable to hear what happens as a group of teachers or psychotherapists sail into "Oh! Susanna" or "Amazing Grace" or "Row-Row-Row Your Boat." (And it's fascinating to me that more than half the time, the group chooses "Amazing Grace"—which apparently is one of the most harmoniously balanced songs in the Western tradition.) Once the melody is established, individual voices begin to emerge, weaving their harmonies above and below, playing off one another, moving intuitively toward a crescendo before the final notes. Faces light up in choir and audience alike; we are all swept into the flow of the singers' energy and aliveness. At these times, people have said—and I've experienced this as well—there is a palpable sense of vitality that fills the room.

At that moment we are experiencing integration at its acoustic best. Each member of the choir has his or her unique voice, while at the same time they are linked together in a complex and harmonious whole. One is never quite certain where the choir will take the song, but the surprises simply highlight the pleasure of a familiar, shared melody. This balance between differentiated voices on the one hand and their linkage on the other is the embodiment of integration.

And what about the first two exercises? As you surely could predict, the single-note humming is unchanging, rigid—and after a while, dull and boring. The initial excitement and risk of volunteering gives way to the monotony of the task. The singers may be linked, but they cannot express their uniqueness, their individuality. **When differentiation is blocked, integration cannot occur. Without the movement toward integration, the entire system moves away from complexity—away from harmony—and into rigidity.**

On the other hand, when the singers close their ears and sing whatever they want, what emerges is cacophony, a chaotic outpouring of sound that often creates a sense of anxiety and distress in the listeners. Now there is no linkage—only differentiation. When integration is blocked in this way, we also move away from complexity, away from harmony. But this time we move toward chaos, not rigidity.

As the singers settle into their seats again, I sum up the point of the exercise: It is the middle way between chaos and rigidity—the flow of independent voices linked together in harmony—that maximizes both complexity and vitality. This is the essence of integration.

## In Search of Integration

When I first began to explore the idea of integration, it intuitively felt right that integration would be important to our individual and relational well-being. But I knew of no scientific explanation for why this might be the case.

Integration is mentioned, almost as an aside, in numerous disciplines, from the study of emotion and social functions to research into the brain itself. Yet none of these fields seems to give integration a central role, nor do they clarify why integration would be a good thing in life. Take for example the various scientific fields that study emotion. You might be surprised that there is no universal definition of emotion, even among emotion researchers. When I was reviewing the science of emotion for my first book, I discovered formulations like these: Emotion is a fundamental part of the person across the lifespan. Emotion connects body to brain. Emotion links one person to another. Each of these perspectives described an integrative process—yet integration itself was not discussed directly. Perhaps it was being an outsider to emotion research that helped me to see the common feature underlying their quite distinct definitions of what emotion is, what it does, and how it manifests itself in our lives across time.

What role could integration and emotion play in our definition of the mind as an embodied and relational process? Why do people use terms such as *emotional well-being* or *emotionally healthy* or *emotionally close* to label mentally healthy states? And what about such expressions as *emotional breakdown* or *emotionally upset*?

As a psychotherapist, I'd worked closely with many people in states of distress, states that to me seemed to be characterized as either rigidity or chaos—or both. Individuals might be stuck in depression or paralyzed by fear. They'd find themselves swept into manic rages or flooded with traumatic memories. Sometimes they'd fluctuate between these extremes, stuck in a whirlwind of energy and information, terrified by minds out of control.

But why rigidity or chaos? Why would dysfunction fall into these two categories, or some combination of the two? And why did these patterns keep recurring?

There was something about these states that seemed the antithesis of the harmony of a more integrated flow. Could these emotional shifts in our lives reflect changes in our states of integration? Perhaps the term *emotion* itself might be defined as "a shift in our state of integration." If so, emotion researchers—whatever their approach—might be able to agree that impairments to emotional well-being are movements of the mind away from integration. And perhaps—looking even deeper—integration might be the principle underlying health at all levels of our experience, from the microcosm of our inner world to our interpersonal relationships and life in our communities.

## **A Healthy Mind: Complexity and Self-Organization**

Diving again into the scientific literature, I finally came across an unlikely discipline that could be relevant to our exploration of the mind: a branch of mathematics that focuses on complex systems. Here was a plausible scientific foundation for the benefits of integration—a reason integration is a good thing in our lives.

In brief, complexity theory examines systems that are capable of becoming chaotic and are open to receiving input from outside themselves. Thinking in systems terms requires that we focus on the relationships among the elements that interact to compose the "system." One classic example of a complex system is a cloud—a collection of water molecules capable of random distribution (it can be chaotic), and which receives light and energy such as wind and heat from outside itself (it is open). Complexity theory explores the natural movements of this open and chaos-susceptible system across time—explaining, for example, why clouds emerge, change shape, and dissipate. It seemed to me that human lives also meet these criteria—we are open systems capable of chaotic behavior—so I read on.

A complex system is said to regulate its own emergence. This means that the system itself has certain properties that determine how it unfolds over time. This self-organizational process, the way the system shapes its own unfolding, is built from the mathematics of complex systems. There is no programmer, no program, no outside force governing how the system will flow across time. Self-organization emerges from the interactions among the basic elements that comprise the system. Again, if self-organization applies to clouds, it likely applies to other open systems capable of chaos. We are certainly capable—sometimes too much so—of becoming chaotic. And we are quite open to influences outside of ourselves—from people we meet, experiences we have in the world, books we read. If these ideas were relevant and true, then perhaps this was an argument for the idea that we too are capable of self-organization. It seemed to me that our triangle of well-being, the system of mind, brain, and relationships, might be more fully understood in these terms, and we might apply the principles of complexity and integration to creating health across each of these three aspects of our lives.

## **The River of Integration**

A system that moves toward complexity is the most stable and adaptive. Reading this for the first time in the literature on the mathematics of complex systems, I thought, What a clear definition of well-being! I jumped up and pulled off my shelf the 886-page psychiatrists' bible, the *Diagnostic and Statistical Manual of Mental Disorders*. I decided to open it at random to any page. There it was: Wherever I put my finger, on whatever symptom of whatever dysfunction, there was an example of chaos, rigidity, or both. Could it be that mental health was indeed a function of integration? When our minds move away from integration, away from harmony, are we then prone to live in chaos and/or rigidity?

I began to try out this hypothesis on my colleagues and students, and even though some of them found it rather new and strange, it seemed to fit their experience as clinicians. Then I started to apply it to my own work with patients, exploring ways to promote integration as a framework for helping them move from illness to wellness. Just like that, fresh approaches to treatment began to emerge, some of them startlingly effective. This notion of the central role of integration was and remains an amazing organizing perspective that has enabled me and now my colleagues to promote well-being in powerful new ways.

I am an acronym lover, always looking for ways to make clusters of related items stick in my mind—and to make them easier to teach. One day in a seminar, I asked my students for suggestions about how we could remember the flow of an integrated system. "Oh Dan, that's easy," a young woman replied. "Just remember Saks Fifth Avenue: Stable, Flexible, and Adaptive." I thought for a moment and then pointed to my clothes. There was the evidence that this mnemonic probably would not work for me.

I also wanted to capture the sense of vitality and energy that emerges from the complexity choir at its harmonious best. Later that day, an acronym came to me: safe, as in Stable, Adaptive, Flexible, and Energized. And then a few weeks later, after reading more into the mathematics of something called "coherence," I realized that coherence was a fifth essential characteristic of integration, which fit beautifully with my own area of research, which had found that "coherent narratives"—the way we make sense of our lives and free ourselves from the prisons of the past—are an important predictor of relational health.

Now the qualities of an integrated flow spelled a universally memorable word: faces, for Flexible, Adapt-ive, Coherent, Energized, and Stable. We can say that any healthy complex system has a faces flow. In other words, when the self-organizational movement of the system is maximizing complexity, it attains a harmonious flow that is at once flexible, adaptive, coherent, energized, and stable. This is the feeling you get from our amazing and graceful complexity choir.

I like to imagine the faces flow as a river. The central channel of the river is the ever-changing flow of integration and harmony. One boundary of this flow is chaos. The other boundary is rigidity. These are the two banks of the river of integration.

Sometimes we move toward the bank of rigidity—we feel stuck. Other days we lean toward chaos—life feels unpredictable and out of control. But in general, when we are well and at ease, we move along this winding path of harmony, the integrated flow of a flexible system. We sense the familiar but are not trapped by it. We live at the threshold of the unknown and have the courage to move into new and uncharted waters. This is living a life as it unfolds, moment by moment, in a flowing journey between rigidity and chaos. This is the faces flow. An old, dear and now-departed friend, the poet, philosopher, and all around wonderfully wise John O'Donohue, captured the essence of this emergent flow when he said that he'd love to live like a river, carried by the surprise of his own unfolding.

## **The Eight Domains of Integration**

In my practice of psychotherapy, eight domains of integration have emerged as keys to personal transformation and well-being. These domains do not necessarily develop in a linear fashion, and you'll see that they sometimes emerge in combination. How we experience a "sense of self"—a feeling of who we are over time and of the patterns of energy and information that unfold in our inner lives—will be directly shaped by the degree of integration in these domains. Here is a brief map of the domains.

### ***The Integration of Consciousness***

How we focus our attention is the key to promoting integrative changes in the brain. With the integration of consciousness, we actually build the skills to stabilize attention so that we can harness the power of awareness to create choice and change. This is why the integration of consciousness is the foundation for the other domains. Creating what I'll call a "hub of awareness" enables us to acknowledge troubling states without being taken over by them, and to see things as they are, rather than being constrained by our expectations of how they "should be." It also opens us to the full range of our perceptions—to information from the external world, from our bodily states, from relationships, and from the mind itself.

### ***Horizontal Integration***

For millions of years, our left brain and right brain have had separate but complementary functions. The right side develops early and is the realm of imagery, holistic thinking, nonverbal language, autobiographical memory, and a host of other processes. Our left brain develops later in life and is responsible for logic, spoken and written language, linearity, lists, and literal thinking. If the linkage between the sides is blocked, one side may dominate, and we can lose the creativity, richness, and complexity that results from both sides working together. Harnessing the power of neuroplasticity to integrate the brain can give us a newly coherent sense of our life story and deeper insights into the nonverbal world of ourselves and others.

### ***Vertical Integration***

Our nervous system is vertically distributed, ascending from the body proper through the brainstem and limbic areas and finally arriving at the cortex. From head to toe and back again, vertical integration links these differentiated areas into a functional whole. Vertical integration can be impaired in response to trauma or in adaptation to living in an emotional desert. In this cut-off state, we ignore what our senses and bodily sensations are telling us and live a life of flattened feelings and perceptions. Bringing our sensations into awareness enables intuition to blossom and sometimes can offer lifesaving information.

## ***Memory Integration***

We process and encode our experiences in layers of memory. The first layer, implicit memory, begins in the womb and predominates throughout our early years. From our emotions, perceptions, actions, and bodily sensations, we create mental models that shape our expectations about the way the world works. All of this occurs without effort or intention, and our implicit mental models can continue to shape how we act without our awareness. The puzzle pieces of implicit memory are later assembled into explicit memories—the factual and autobiographical information of which we are aware. The more we can shine the light of mindsight on the free-floating puzzle pieces of the past—the implicit memories—and allow them to become explicit, the more we can free ourselves to live fully in the present and have new choices about how we live our lives.

Sometimes an overwhelming event, called trauma, can cause a person to remain in this unintegrated state, resulting in a tendency toward either rigid states of avoidance or intrusive states of chaos. Focusing mindsight's lens on these layers of memory can be an essential step in the resolution of trauma and the integration of the brain's memory functions.

## ***Narrative Integration***

We make sense of our lives by creating stories that weave our left hemisphere's narrator function with the autobiographical memory storage of our right hemisphere. Research has revealed that the best predictor of the security of our children's attachment to us is our ability to narrate the story of our own childhood in a coherent fashion. By detecting blockages to narrative integration and then doing the necessary work to overcome them, we can free ourselves and ultimately our children from the cross-generational patterns we want to avoid creating.

Research findings and clinical experience with attachment illuminate the varied forms of narratives we have and how strategies to promote integration can move these cohesive but constrictive life stories toward coherence and flexibility. When we are able to "make sense" of our lives in a deep, integrative manner, what emerges is a coherent narrative of our lives.

## ***State Integration***

Each of us experiences distinct states of being that embody our fundamental drives and needs: closeness and solitude, autonomy and independence, caregiving and mastery, among others. These states may also conflict with one another—sometimes painfully and confusingly.

Mindsight permits us to embrace these states as healthy dimensions of a layered life instead of as parts of ourselves that we need to reject or suppress to try to achieve inner stability.

With state integration, we can move beyond past patterns of adaptation and denial to become open to our needs and able to meet them in different ways at different times. Facing some of our many states is an essential first step in differentiating our "multiple selves." The key to integration is then to embrace these distinctions rather than to attempt to deny their existence.

### ***Interpersonal Integration***

This is the "we" of well-being. At best, our resonance circuits enable us to feel the internal world within others, while they in turn weave us into their inner world and carry us with them even when we are not together. Mindsight can help us to see how past adaptations are restricting current relationships and then allows us to open ourselves safely to others. Then we can connect more intimately in relationships while still retaining our own sense of identity and freedom. We can love and be loved without giving up our selves.

Couples lost in confusion and misunderstanding, struggling with rigid patterns of defense or prone to chaotic outbursts of disillusionment, can be taught how to detect their own brainstem-driven states of reactivity and move their nervous systems toward the receptive state necessary for true and lasting connection. Knowing how the past has shaped the present through synaptic changes early in life, couples can then ease the hostility that often surrounds their dysfunctional relationships. People can use mindsight to guide their way back to a life of passion and compassion as they promote integration within and between themselves.

### ***Temporal Integration***

Uncertainty, impermanence, mortality: These are the profound challenges presented to us by the prefrontal cortex, which gives us both our sense of time and our ability, apparently unique among animals, to foresee that death will undo us and those we love. Obsessive-compulsive disorder reveals how our hardwired survival drive seeks control—sometimes to the point of paralyzing and terrorizing us. Temporal integration enables us to live with more ease and to find comforting connections in the face of uncertainty.

Even young people afflicted with anxiety about death and uncertainty—manifested in obsessions or in existential dread—can find a way to integrate these temporal prefrontal issues into their lives and grow stronger because of them.



## **Mindsight and Freedom**

Within each of us is an inherent drive toward health—a push toward integration. But life happens, and we may sometimes find that integration is blocked. This blockage can come from impairments to *linkage*, as in unresolved trauma. Blockage can also arise from impairments to *differentiation*, whether as a fallout from childhood neglect or as a result of various learning disabilities and developmental difficulties. Or both differentiation and linkage may be impaired.

Mindsight is the skill that can lead us back to integration. Michelangelo is supposed to have said that his great task as a sculptor was to liberate the figure from the stone. Just so, our task is to find the impediments to the eight domains of integration and liberate the mind's natural drive to heal—to integrate mind, brain, and relationships in the triangle of well-being.

As these eight domains of integration are created and developed, a new dimension of interconnection, which I have come to describe as "transpiration," or "breathing across," seems to emerge. I have seen this happen time and again in patients who have done the work of mindsight. Their identity expands; they become aware that they are part of a much larger whole. In various research explorations of happiness and wisdom, this sense of interconnection seems to be at the heart of living a life of meaning and purpose. This is the promise of mindsight and integration.

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