

The Emergent Improvisation Project; An Interview for National Public Radio by Marjorie Sun, with Susan Sgorbati and Gerald Edelman

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Transcription By Marie Blocker

Marjorie Sun: In a studio at Bennington College in Vermont, Susan Sgorbati, a trim woman with dark curly hair, watches a dance rehearsal. Katie Martin is dressed in a halter-top and loose pants. She bends and turns while percussionist Jake Meginsky strikes a gong, cymbals, and other instruments. They are improvising a duet; Sgorbati coaches them.

Susan Sgorbati: Okay, this might be a place to stop.

MS: Sgorbati is head of an ensemble called *The Emergent Improvisational Dance Group*, and for more than twenty years she's been teaching improvisational dance at Bennington. She says there's a lot of misconception about improv dance.

SS: In dance many people think that improvisation is just chaos. It's a group of dancers that go out into a space and basically just start dancing any way they feel like it.

MS: But Sgorbati says improv dancers and musicians at their best, like Katie and Jake, have built up a rich repertoire of movement and music. They develop a keen sense of awareness of each other and the space around them. The dancers closely watch each other's moves as they curve an arm, leap, or spin. They also listen to the rhythm and texture of the music. Together they make split second decisions to create something new, interesting, and complex.

Sgorbati's been curious about how and why this intricate interaction and organization among dancers evolves. Then a couple of years ago Sgorbati stumbled on some intriguing scientific theories about neuroscience. She read a book on the human brain, it's coauthored by Noble Laurite Gerald Edelman and it's called, *A Universe of Consciousness*.

SS: And when I was introduced to this book it was a total revelation to me. And it's because these ideas really related to the dance improvisation work

that I had been observing in my dance studio for the last twenty years. So that was very, very exciting.

MS: Sgorbati, who readily admits she's a novice in science, got a chance to delve into this deeper with Edelman first hand. Her college hosts exchanges with Edelman's *Neuroscience's Institute* in La Jolla, CA. So Sgorbati headed cross-country to the institute for a visit. Edelman is an accomplished violinist and takes a special interest in the arts. One of Edelman's scientific theories that captured her interest is that the human brain is an improvisational system, like her dances.

SS: That was something completely new to me that in the brain there was no central command telling it what to do.

MS: Instead, Edelman says the brain is constantly perceiving patterns and creating new patterns based on information pouring in through our eyes, ears, and other senses. Our cortex alone, the wrinkled structure of the brain, has at least thirty billion nerve cells and a million, billion connections of synapses. Edelman says the number of possibilities for connection patterns is astronomical, by far surpassing the Internet.

Gerald Edelman: The brain is not a digital computer. It is in fact, if anything, a pattern-recognizing device. You might say it this way, that to some degree every perception is an act of creation. And so we start with a kind of metaphor and that's where Susan is coming in, she's making a kind of metaphor for what is actually happening in the brain. They aren't identical but they are similar in certain kinds of patterning.

MS: So when Sgorbati's dancers create a piece, patterns emerge as they decide when and how to curve an arm, spin, or leap. Sgorbati is also inspired artistically by Edelman's hypothesis about memory. Edelman contends certain kinds of memories are not fixed, but are shaped by the context in which they're recalled. Here's how Edelman explains it. Think of a glacier and how it changes with the weather. As a glacier melts and refreezes again and again, different streams are created. Like paths of neurons, various paths or streams may be created, but they all usually lead to a similar memory.

Edelman's theory on memory prompted Sgorbati to create a novel dance in Edelman's honor. Her ensemble performed it at the *Neuroscience's Institute*. In the piece Sgorbati set several rules for the dancers based on memory to

structure the dance. They do a dance, trade roles, and do it again. So dancers repeat each others moves based on their memory of it. They're like Edelman's glacial streams on stage.

SS: So that was a big experiment to see how it would resonate with an audience. So we were very excited when the audiences seemed very engaged, as they have been seeing the work.

MS: Edelman marvels over Sgorbati's dancers and the scientific questions they raise.

GE: Now if you ask me the question of what goes on in Susan's brain and her dancer's brains, it is a most intricate set of movements and sensations. The interesting thing is that if someone said to me what is the most penetrating and unresolved problem of modern neuroscience, I would say motor control, the very thing that Susan indulges in. The how is it we can even wiggle our finger? And what does that have to do with will? What does that have to do with sensation?

MS: Some studies on motor control suggest that rhythm helps the brain process information, plan, and execute movement in synchrony. A neuroscientist at Colorado State University found that a strong beat triggers neurons to interact with each other in well-timed patterns. The study, using brain imaging, also suggests that the brain is exquisitely sensitive to changes in rhythm. At the *Neurosciences Institute* researchers are also investigating how we control our movement.

In the mean time, back at Bennington College, musician Jake Meginsky and dancer Katie Martin polish their improvisational duet. Sgorbati's been inviting scientists to visit dance rehearsals like this to observe the process of artistic creation and to continue a dialogue with scientists.

SS: Of course to have scientists come into my dance studio with something I could have never predicted five or ten years ago. Never! Or that I could have had conversations with them and understood what the ideas were about.

MS: Sgorbati looks at Katie and Jake improvise. Neuroscience has inspired her to create new dances that she hopes speak to our emotions as well as our minds.