

Through the Lens of Quantum Theory: A Mother/Daughter Dialogue About Creativity in Art and Psychoanalysis

Rachel Shapiro, artist, and Leanne Domash, psychoanalyst

Introduction

LD: First, let's introduce ourselves. I'm Leanne Domash, psychologist and psychoanalyst, and the mother of Rachel Paula Shapiro, artist. I am very interested in the creative process and in the intersection of various fields as an inspiration and breeding ground for creative ideas. This article will hopefully be an enlightening mix of art, quantum theory and psychoanalysis. I'm so excited that we can dialogue about how creativity manifests itself in our life and work.

RPS: I'm Rachel Paula Shapiro, artist and teacher, and I share similar interests. I am fascinated by the symbolic life surrounding us and the language of the psyche. This conversation touches on themes that are relevant to each of us in a unique and intersected way.

LD: In a way, we are also introducing ourselves to each other, as adult colleagues. Although I've assisted you some in your growing jewelry business, this is the first time we have formally discussed our work together. I hope this dialogue helps create the birth of this new collegial relationship as well as deepen us as mother and daughter.

RPS: Absolutely. This forum also helps me formulate ideas that are sometimes abstract and elusive. I appreciate the space to focus and discuss these issues that are so important to me.

How do new ideas come into being?

LD: One of the most intriguing questions for me is: how does creativity happen? How do new ideas come into being? As therapists, we want new insights about our work and our patients. As an artist, how do new ideas come to you?

RPS: Sometimes it's as if the idea is already there and that it comes into being when my senses open up and I am able to notice it.

LD: This makes me think of our IFPE 2010 conference **Psychoanalysis: Not the Same Old Song and Dance** where I was inspired by Ken Silvestro's discussion of quantum theory as a paradigm for psychoanalysis (Silvestro, 2010). This led me to begin to explore these ideas further in relation to art and psychoanalysis.

The Quantum World

As background, based on both Silvestro and Al-Kahali (2003), I'll discuss several key concepts in the quantum world before we begin our dialogue.

According to quantum theory, the universe is comprised of waves of energy. These waves are like energy clouds of sorts, without a beginning or an end. They contain possibilities that begin to exist in the real world only when they are measured, a process called decoherence. This is when possibilities pop into being.

Analogously, in the case of your creativity, Rachel, you are the measurer. You notice the idea or image and then you gradually bring it into being as you develop it.

Silvestro and others have made the analogy of the quantum world to the unconscious realm and the Newtonian or material world to the conscious. The quantum universe is nonlogical, acausal, counter-intuitive and bizarre. Silvestro likens it to Alice's Wonderland. I liken it to unconscious dream life.

It is by reaching this unconscious realm that meaningful work occurs, both for the patient/therapist dyad in psychotherapy and for the artist and her creative product. Using the analogy of quantum theory, we can explore the implicit self from a new perspective and better understand our elusive, emotional and "illogical" unconscious.

An example of the illogical nature of the quantum world is that a quantum particle can be in two or more places or states at the same time, a concept called superposition. For a quantum object a single position of a particle within a waveform is impossible. Since they are only potential particles, many potential particles simultaneously exist within the wavefunction and simultaneously don't exist. Potentialities can exist in many places at the same time.

As Silvestro explains, pointing to the location of a quantum particle in a waveform is similar to attempting to grasp the elusive rabbit in Alice's Wonderland. One quickly discovers the rabbit exists in many places at the same time. By analogy, this captures the elusive, shifting, multi textured, and multi determined quality of working with unconscious material.

Perhaps an analogy in the physical world is that in dialoguing together, you and I are each in two states at the same time. You are both an artist and a daughter and I, psychoanalyst and mother.

Silvestro writes that the unconscious cannot be directly known but as soon as an unconscious waveform interacts with a Newtonian measuring device (in this discussion, the "measuring device" is the artist or the psychoanalyst), the unconscious content becomes a conscious physical or psychic object. In our therapeutic language, this is when the unconscious becomes conscious. Ideally, in our work, the psychic object that pops out may be a memory or association that leads to a new perspective or reflection; this can help the patient move in productive directions.

This can be experienced as an "aha" moment when clarity is suddenly achieved, a process I have written about elsewhere (Domash, 2010). For this to occur, both patient and therapist need to be receptive and open, to be comfortable with paradox and ambiguity. Similarly, the artist creates a physical work of meaning and passion which too seems to pop out of her unconscious as she embraces surprise and ambiguity.

As artists or as psychoanalysts, we have to tolerate the indeterminate nature of our process and our knowledge. Similarly quantum theory stresses the indeterminacy of knowledge of the quantum world which is only a world of possibilities, not of realities. Therefore we can never know with precision what will happen or where a particular "particle" will emerge from the infinite length of the waveform. Similarly, therapy is an unpredictable process. It is an environment of possibilities; insights come and guide the patient but do not follow a set pattern.

Uncannily, quantum particles are known to pop in and out of existence. Bohm (1983) describes this "in and out movement" from waveform to Newtonian reality as a dynamic between the implicate and explicate orders, much like an unconscious thought can become conscious and then recede back into unconsciousness.

RPS: Sometimes in therapy I have come across “blind spots” where after the session I actually forgot what I had spoken about. When trying to recall the content of what had surfaced, I am only able to remember the context, but not what was actually said. My therapist is able to then guide me and bring light to this dark area. This is an example of material surfacing from the unconscious that is difficult to face, and when out of the therapy space, recedes back into unconsciousness. This in and out movement also occurs when remembering dreams, the memory is present and then often vanishes and recedes.

LD: Another concept is called entanglement: once two quantum particles intersect, they remain connected and will behave in the same manner no matter how far apart they are in space and time. This is because, according to one interpretation by quantum physicists, they remain as part of a unified waveform which can extend indefinitely and stretch throughout space. The unified waveform contains the shared information about their quantum states so when one potential particle changes in any way, the other potential particle simultaneously changes as well.

To help us understand nonlocal reality-- this connection regardless of time or space due to an earlier entanglement-- the following example is sometimes given. Picture two dice that, when thrown, always register doubles, that is two threes, two sixes, and so on, no matter how far apart they are. One die could be on earth and the other on Pluto.

As I understand it, this is because in the quantum world the waveform for each die entangled and then separated but stayed connected. Then each waveform, with all the potentials simultaneously present, was measured. These measurements cause the waveform potentials to decohere to particles in our reality, Newtonian reality. (When measured, potentialities come out of the waveform and appear as real objects.) In our case, the two die in the example appear in the real world. Therefore, when one die is thrown and results in a number, the other die, wherever it may be in Newtonian reality, will suddenly display the same number due to the one time entanglement at the quantum level. Because of the original entanglement, when one particle changes in some way, the other will as well.

This strange concept of entanglement has been related to Jung’s concept of synchronicity (1972). Synchronicity is the co-incidence of a psychic state in the observer and an objective, external event. In other words, synchronicities are

highly meaningful, symbolic, acausal connections made between one's interior subjectivity and the events of everyday reality. It is the psychological connection between the inner state and outer event that makes it synchronistic. These are experienced as extra-ordinary co-occurrences. (Hopcke, 2009; Silvestro, 2010).

I have written about how we and our patients have to be alert for synchronicities, that is when an outside event seems to "hit" us as uncannily coincidental and gives power to the moment. I termed this "psychoanalytic luck" (Domash, 2009). Moments of synchronicity can alert us to exceptional and meaningful opportunities and reveal an underlying pattern or framework, otherwise unknown or hidden from us. These moments can be thought of as an unconscious entanglement suddenly erupting into conscious reality. These are connections that we can productively and creatively use.

Ironically (or not, considering quantum theory), the same day as I attended the presentation on quantum theory, Rachel sent me a poem she wrote titled "Footprint" which both by its content and timing illustrates these ideas. This poem "hit" me as important and as a possible avenue to begin exploring these important themes.

Creativity pops into the Newtonian world

RPS:

Footprint

Last winter
I began to find
peculiar silences imprinted everywhere.
Silence, in dust gathered,
silence, after a closed book,
around an empty glass of water,
after a switched off light.

The quiet that resided
in the folds of my sheets,
the blankets piled up
to get through winter,
the caves they formed around me.
The quiet that lurked in the morning

in those caves
is the silence that I speak of.

In this soundless state
I found myself
seated at my worn wooden desk
in a diagonal beam of light,
coffee cold
and a canvas before me.

LD: It seems as if this poem is about your emergent creativity and how it arose from stillness.

RPS: Yes, it is. This poem speaks about creating from a place of sad silence. Last year, recently separated, I found myself with more time to myself than I had had in years. I actively chose not to fill that time with distracting noise and activities to take me away from my feelings. Sometimes I would just sit in my house. Over time, I began to listen, to myself, to what was around me, and I heard a calling. In the poem the calling comes as a beam of light across my desk, me dazed, and my coffee cold. As I settled into this silence, I began to see more intricacies to my world, and was able to dive into my own self, slowly and gently peeling back the layers. It was in this void, this void that was both a gift and a theft, that I was to create.

It is only now as I write this that I can give thanks for this separation, for the clean and lonely hole it created in my life. It is through that hole, that I began to cultivate my artist.

LD: It sounds like you were able to tolerate the silences and allow something profound to emerge from your unconscious and work with it.

RPS: Absolutely. This emptiness was necessary for me to cultivate the land and wait for the seeds to come. Cleaning the creative space, watering it lovingly, is as important as the actual flowering process.

LD: You also used the beam of light (which behaves like a wave) as the symbol for the “calling” of your creativity, perhaps an unconscious analogy to the quantum waveform in the world of possibilities. Clarissa Pinkola Estes (1992), whose work you introduced me to, uses surges of water as the metaphor for female creativity. She writes, “The creative force flows over the terrain of our

psyches looking for natural hollows, the arroyos, the channels that exist in us. We become its tributaries, its basins; we are its pools, ponds, streams, and sanctuaries. The wild creative force flows into whatever beds we have, those we are born with as well as those we dig with our own hands. We don't have to fill them, we only have to build them." (p. 299)

This is analogous to a forceful emergence of particles from the quantum wave into consciousness. Estes (1992, p. 299) writes that the creative force is not a "matter of wanting to, not a singular act of will; one solely must."

How is this for you? Are artists beings who are called to bring "the quantum into the material world", to continuously reach the unconscious and bring it forth?

RPS: I agree that my creativity comes from a place below and I think that the water images powerfully speak to the ways this energy can flow in a river or a stream, and often I experience it like a great wave. Sometimes it is still water in a basin, and sometimes a dry riverbed. This terrain is always present and I do believe that my work as an artist is a conversation, sometimes aware and sometimes not, with my unconscious psyche. It's when the boundary between the two worlds blur that I am able to create most abundantly and freely. When patterns in randomness become clear, these two realms have connected. I try to feed this unconscious, illogical and intuitive part of myself as part of nourishing my artist.

How do we nurture our creative self?

LD: Estes talks about the importance of caring for our creative life. The "river beneath the river" which nourishes us can get polluted and seal off the creative. As she states it, then the river of life becomes the river of death.

Many myths have this theme of how negative forces can rob us of our life force. One of many examples she gives is one in which two men seal off a well owned by a man and his family so trees and flowers can't grow; another in which a noxious fog spreads over an island so the gods cannot continue to create the story of life. These myths serve as warnings for us to escape, at all costs, negativity in our surroundings.

The above examples are of negativity coming from the outside. The negativity can also come from within in the form of denigrating one's own work and/or succumbing to procrastination, disorganization, or distraction. In women, the

most common symptom of this pollution is a loss of vitality, to be distinguished from a natural ebbing and flowing of the creative process.

What thoughts do you have about our protecting our creative life, whether as therapists or artists? Would you feel comfortable discussing your recent meditation retreat and if you feel it helped deepen your creative life?

RPS: As I mentioned above, there are ways in which I actively nourish my creativity. I think protecting it is crucial. Julia Cameron, in The Artist's Way, refers to our artist as a child. A child needs to be fed, taken care of, spoiled, loved, and protected in order to blossom. I think we are our worst enemies when it comes to our own art. The self-critical voice in the mind is often so developed, sometimes overpowering. Part of protecting my artist, is quieting and reasoning with that voice of self doubt, of comparison, of negativity. I do this in the same way that I would try to protect a child from violence or anger, from harmful things in life.

I do feel the meditation course signaled an initiation of sorts that had been building in the months prior to it. Before I left for this course I had begun to float so freely in the unconscious realm that I got scared. I had a dream that came true. I also started falling asleep while I was dreaming and having deeper dreams inside my dreams. What really scared me though, is that I started having experiences in reality that felt like "waking dreams." My dreams started feeling more "real" than certain moments or scenes from my waking life. This completely threw me off balance and I didn't know how to navigate this dissolution.

LD: It sounds like you were so in touch with the unconscious realm, or metaphorically the quantum realm, that you were beginning to feel like an Alice in Wonderland. How did the "initiation" of the meditation course affect this?

RPS: I went to a 10 day Vipassana meditation course in absolute silence, where one tries to observe "reality" as it really is, without any distractions. As I observed self during this immersion into the mind, I experienced a certain internal death. Various patterns and ways of living began to dissolve as it became clear that they were outdated. Maybe with this 'death' I will be able to let go of the need for a specific structure in reality in order to feel safe. Maybe developing as a artist means deepening my experience in both the conscious and the unconscious realms. Sometimes getting lost is part of the journey. I could see that the fear that came up in the period before the meditation course

was because I had reached a level of acute awareness that was new to me. Once I became familiar with this level of unconscious awareness, the fear began to retreat.

During the meditation course, my senses on an earthly level also became fine tuned. My visual eye began to focus on light in ways I don't recognize in normal life. Shadows, rays through clouds, reflections bouncing off my glasses, circular light particles, the early morning winter light before the sunrise-- blue grey and misty. I ate an orange at 5 PM with the sun low over the mountains and was able to observe every little bubble particle that made up such a luscious fruit. Holding that same fruit up to the light, I saw a warm tender glow.

LD: Wow, that's an endorsement of the Newtonian world!

Jewelry As Symbolic Expression

LD: You are a jewelry designer as well as a fine artist. From a psychological perspective, could one of the functions of your jewelry be to help us evolve, both to more fully express who we are and also to try out new and future selves. Can jewelry, with its fanciful and playful aspects, help us create a self that is "truer" than the real self, maybe the self we want to become.

I have been reading the work of Doniger (2005), a Hindu scholar, who discusses the use of "masquerade" and "pretend" in finding an identity. She writes in "The Woman Who Pretended to Be Who She Was" that a masquerade can help one find out who one really is. The mask reveals rather than conceals the self beneath the mask.

In this sense, the mask may be more authentic than the real self, the surface "deeper" than the depth. There can be a dialectic between the idea that the meaning is hidden beneath the surface and the idea that the meaning is on the surface, or still a third position, that meaning is in the space between the two.

She also discusses how symbolic jewelry was, especially rings, in ancient Hindu myths. One of the many possible symbols for the ring is of identity and the loss of it. A signet ring was one's particular seal or stamp, similar to credit cards of today. Credit card theft is termed identity theft. In some of these ancient myths the ring was also actually used to establish identity, usually of a male child by identifying his father. For example, the woman takes the ring of her lover

while he is sleeping and then returns years later to prove he is the father of her child.

Can you say something about jewelry as a symbolic expression?

RPS: Jewelry is functional art. It is meant to be worn, touched, and it ages with time. A special piece of jewelry can also become an extension of the body and a symbol reflecting one's life experience. If the jewel is timeless enough to be passed down in a family, it holds in it memory and story and through the identification with that memory, a shared family identity.

I am wearing a ring right now that illustrates this symbology. Before I was born, you gifted your mother with a trip to Israel. The trip was meant to help my grandmother reclaim aspects of her emotional and spiritual identity after her husband, my grandfather, had passed away. In Israel, my grandmother bought a gift of a raw ruby for you. You then had that stone made into a ring and wore it for many years. Now that ring sits on my hand and connects me with my matrilineal line and is a symbol for reciprocity between generations. The story it holds is invaluable to me, and it is the only artifact I have that my grandmother held in her hands.

LD: Powerful. I didn't realize until now how important this ring is to you and how it is a thread through the generations of our family, establishing a strong sense of female identity and the value of sharing resources. I wish my mother could know this and could have known you. I'm reminded again of my sadness that you two never met, yet the ring does link us all.

Let's go from talking about symbolic expression to self expression. Can you say more about how your jewelry might speak to this?

RPS: I think jewelry has the power to set a mood for the wearer and express different sides of personality. For example the movement in a pair of slinky earrings can be wispy and feather-like evocative of the feminine or of the forest. The wearer might choose these earrings to express that energy on a given day. On another day, she might choose a pair of heavy hoop earrings that express a tougher, more urban aspect of self.

However, when I create, the small sculptures come to being without thought about what their essences will reflect. My own emotional flow and experience come into play when I am doing art. It is more when I wear the jewelry or see it

glowing on another person that the language it speaks becomes clear. It is to say, the wearer gives the object life and voice.

LD: The pieces of jewelry are expressions from the implicit world that can assist us in shaping ourselves psychologically.

Doniger writes that many myths have as their message the fact that you cannot escape your fate. However, myths provide “loopholes” as well. For example, as you travel through life, you may not become a completely different person but you can learn and evolve; you can find valuable aspects of yourself with the help of others and in that way experience a transformation.

Jewelry may help us find some of these “loopholes”, that is, it can help us to continue to discover ourselves and evolve.

Dreamwork

LD: In psychoanalysis one of our main goals is to reach the implicit or unconscious self to access and potentially change early dysfunctional patterns that are repetitive and self destructive. One key method of reaching this implicit self is through dreamwork. The psychoanalytic literature has described many possible functions of dreams. Some intriguing new research from neuroscience suggests that dreams can change the brain both by helping us form new memories as well as reworking old memories. In this process, dreams can help us solve problems (Stickgold, 2005). On a neuronal level, this happens because our usual censors are turned off during dreaming so neurons are freer to roam about and make new connections (Limb and Baum, 2008; Beeman, et al, 2004). Relating to the quantum field, dreams are examples of images from the unconscious decohering and becoming manifest. Bion said it well: dreams are alpha functions by which he means the dreamer takes amorphous feelings and turns them into meaningful symbols (Bion, 1962).

Does dreaming help you come up with new ideas? Can you give us an example?

RPS: I have definitely dreamt ideas for jewelry and images have come to me in dreams that inspire my collage work. When creative energy is flowing in my life, my dreams are vibrant and alive, which adds a symbolic and inspiring tone to my life. I don't always strive to create actual dream images, but rather, to operate in a space where the active dream world allows me to enter deeper into myself.

There have also been instances where I have dreamed about a piece of work and have literally tried to copy the dream.

LD: Can you tell us a dream that helped you solve a creative problem?

RPS: Yes I can. I had been working on a large collage of a volcano. The entire collage was completed except I needed to finish the lava. I didn't know how I wanted to do this. I got frustrated, even proposed the idea to myself that it was an inactive volcano. Then I had a dream where I was observing a real view of this volcano erupting from a floating room inside myself. There were intense flashes of orange, yellow, and purple glowing behind the image and yes, there was lava flowing. But instead of what I was thinking and imaging lava to be in the conscious realm, in the dream world the lava consisted of black silhouettes of people, animals, objects all fleeing the mouth of the volcano. They were black paper cut out silhouettes on the horizon. I understood this eruption as an illusion to my past memory, to the people and events that have shaped my life and a purging that is happening right now for me.



I think this dream was advising me to not think of lava so literally in regards to my painting. I photocopied photographs, reduced them, darkened them and cut out the silhouettes of my family members and placed them on the horizon of my collage. However, it was impossible to achieve the grandeur of the image experienced in the dream. I was unsatisfied with the real image of the lava I had created in the collage, and after many hours of work, ripped it off layer by layer. This destruction was an echo of my own internal active eruption. Now the piece is finished, and it depicts the smoke settling post explosion. This collage was part of a group exhibition at Gallery Maxó in March 2011 in Barcelona.

LD: Wow, the collage is electric and is such a good example of the force of the quantum popping into existence. Knowing your journey with the images makes it even more meaningful.

I am intrigued by this concept--the way that dreams can help us solve problems. I sometimes dream about patients, especially when I am puzzled by them. Reflecting on the dream can help me understand the treatment more deeply and may even suggest a direction I need to take, or be careful not to take, with the patient.

The following is an example, reported elsewhere (Domash, 2010), of a chilling image from a dream and my subsequent emotional insight about a patient. This insight may have prevented an enactment.

I awoke from a dream in which all I remembered was the chilling and dreadful image of a seductive mermaid in the water but with the face of Joan Crawford (whom I associate with cruelty from the biography *Mommie Dearest*). On awakening I felt clammy and anxious. I thought of my patient who the day before had been discussing her mother as a seductive, yet periodically cruel woman. Although she had been discussing this a great deal in these first few months of therapy, I had been unable to feel it. Whether I was mirroring her detachment or it was my own defensiveness, or possibly both, I don't know. However, when I woke up from the dream, I was very shaken and felt a sense of dread about the image. I felt I then knew on a very visceral level what the patient felt.

I began to think of what this could mean for the treatment, that is, how we could potentially get involved in an enactment where either she or I could become the seductive mermaid and have a sadomasochistic interaction. Instead, forewarned by the dream image, I could move forward with more awareness of

both her unconscious and mine. Of course, my feeling of detachment in the treatment was already the beginning of this enactment and/or a defense against it.

This unconscious insight (the image of the mermaid) helped me understand the patient from “the inside out” (Bromberg, 1998) and be more free of the possibility of unconsciously acting this out.

RPS: Very interesting, so your dream also helped you develop true empathy for the patient.

LD: Yes, I felt more alive with her and understood more deeply her experience of her mother.

Collage

LD: You do collage which is literally creating a new composite from existing pieces, perhaps something like we do in dreams. At times you may be representing artistically what exists now; at other times, you may be grappling with what could be, or an imagined reality you may want to create, something beyond what exists now? Can you comment?

RPS: I love collage as a medium because it is so open. Almost anything can be used and incorporated into a collage. This freedom allows me to descend into internal terrain and create images that are sometimes evocative of my irrational dreamscape. This world has particular color palettes that I identify with this descent.

I recall talking to you (my mother) about a dream I had where there was an underwater basketball game going on, and in a fit of rage one player threw the basketball to the surface of the water and hit a swimmer who was doing her laps in an enormous pool. While analyzing this rage, you pointed out to me that in the subconscious, emotions are raw; they exist without judgement. It is when the ball breaks the surface that we tag opinions and criticisms onto emotions. Some of my work in collage is a meditation on a particular raw emotion. During this process I try to create from this raw place that is alive only “under water.” This is a collage exploring raw rage.



LD: So the viewer of your work can experience this too and get a sense of his/her own unconscious for a moment without all of the usual censors operating. You give us an opportunity to go deep below the surface to know ourselves more deeply. As therapists, of course, we are trying to help patients contact their deep emotions. It is only in this way that change is possible.

Synchronicity

LD: As mentioned, an intriguing concept in quantum theory is entanglement, that is when two quanta meet and touch, they are eternally connected. This is analogous to Jung's concept of synchronicity (1972), when a psychic element meets an element in the real world evoking strong meaning for the person. This can be viewed as an expression in the real world of an entanglement that existed in the unconscious before the real event occurred.

I encourage my patients to welcome synchronicity, to notice and seize these moments as they may lead to new opportunities. That uncanny feeling of "aha" when a synchronistic event occurs can alert us to something meaningful to pursue, perhaps a "forgotten" but important path.

Does synchronicity play a role in your art? Can you give us an example?

RPS: Synchronicity plays a huge role in my life. When I am aligned with my creativity, the more synchronicity and magical things happen in my daily life. My senses are more open and fine tuned so I notice these things more. Perhaps they are always actually there, just like the ideas floating around, present only when we capture them. These events and this way of interacting with the world in turn inspires my art. I recently made a collage on top of a city grid of the gothic neighborhood in Barcelona. This collage was inspired by various synchronistic events that occurred along this street during the month of December.

LD: To answer the question at the start of our dialogue, “ How do new ideas come into being?” it seems that creativity happens when we allow ourselves to notice it, when we can “measure” our unconscious. Many things can facilitate this: meditation, dreaming, psychotherapy. I’d say a general attitude of welcoming surprise, of letting oneself be “struck”.

The Entrance of the Unconscious into the Physical World

LD: Let’s bring these ideas into the very physical world by presenting one of your collages which suggest some of these themes as we bring our dialogue to conclusion. We are going to ask you to be both artist and commentator on your own artistic work!

LD: As you reflect on your work, what would you say are some of the feelings and ideas you are conveying?

RPS: In this collage a young girl is scribbling on a chalk board. She just woke up and is desperately painting a dream she just had. She is in a trance, a creative spell, a hypnagogic state wherein everything else falls away. There is fear in her eyes. She is scared the creative spell will end and the inspiration will slip away. Her time is limited. She fears she will be judged. She fears the sensations; she is out of sorts.

The bottom part of the image is the surreal, subconscious world. Trees from the subconscious are growing up towards waking life, connecting the two arenas. The collage illustrates a moment where the subconscious or dreamworld overlaps with the Newtonian world and is expressed through art. This young girl represents a primal necessity to release the quantum energy into the real world, to express her dreams with a mass of scribbles on the wall. The

river running horizontally separates the two realms; the creative life bridges the two.



In the girl's hand, growing from the chalk is a gear from a clock. It is with this gear and a piece of chalk, the artist's instruments, that she navigates through her psyche. She is able to turn the hands of time back and access the past dream world and lost memories. This is new territory for her, and she is young. She is intrigued but navigates cautiously.

LD: Despite her fear, it seems she is capable of traveling between the two worlds. Like the quantum popping in and out of existence.

Psychoanalyst/Mother, Artist/Daughter

LD: A toast! As mother and daughter, may we be an example of "metaphorical entanglement", forever psychically connected regardless of time and space.

By this I mean a deep meaningful connection that is inspiring. The term entanglement should not be confused with the negative concept of enmeshment. Enmeshment suggests a crippling, overdependent connection whereas entanglement evokes freedom and individuation while never losing a primal sense of being related and part of the other.

In this dialogue I hope we have succeeded in our experiment in superposition, that we have been able to exist as artist/daughter and psychoanalyst/mother at the same time! I am so grateful to have this special opportunity.

RPS: Bringing these worlds into being, artist and psychoanalyst as the “measurers”, I too hope that we have been able to connect both the quantum world with the conscious world, and then back again, the Newtonian world with the unconscious realm. And, I hope we have shown how creativity helps us navigate the space between the two.

Glossary

waveform: an energy cloud, of sorts, without a beginning or end that inherently ‘contains’ the possibility of transforming into a Newtonian particle (Silvestro, 2010).

quantum particle: a possibility in the wave function

superposition: a quantum particle or possibility can be in two or more places or states at the same time

entanglement : once two quantum particles intersect, they remain connected and will behave in the same manner no matter how far apart they are in space and time. We are using the term “entanglement” in a psychological sense to mean connected in a meaningful, growth promoting manner. This is to be distinguished from the psychological term “enmeshment” which connotes a crippling, suffocating connection that impedes individuation and freedom.

decoherence: when the quantum particle is measured, it comes into the real world as a material object and is no longer just a possibility. Then it loses the capability of superposition.

synchronicity: a meaningful, acausal, connection between a psychic object, event or element, and its manifestation in everyday reality

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