Creativity, Resilience, and Chaos Theory

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Creativity and resilience have interested me for decades, especially the dynamic interface between them. I wrote a book about this dynamic, *When Walls Become Doorways: Creativity and the Transforming Illness* (Zausner, 2007a), demonstrating the many ways that visual artists use creativity as resilience in the face of serious illness. The artists’ creative responses not only alter their work but also transform their lives. Not even incapacitations, such as vision problems, cancer, arthritis, or quadriplegia will stop these individuals. In response, the artists change their work and also become stronger. Yet while writing this article, it occurred to me that resilience by itself, even without the production of art, is a creative act.

Resilience is our capacity to bounce back from adversity when life changes in ways that we could not have predicted and would not have chosen (Zausner, 2007a). It is the development of strength during a time of hardship, the capacity to thrive despite major stressors that pose serious threats. Although current difficulties may appear similar to previous stressful events, every occurrence in life is fundamentally unique, as is every resilient response, making human resilience a creative act.

**Resilience and chaos theory**

There are different forms of resilience. One type is the resilience of a bouncing ball that rebounds from the pavement in increasingly shorter arcs and then eventually rolls away. This kind of resilience can be modeled mathematically as a two body interaction in Newtonian physics (Gleick, 1987; Kellert, 1993) between the ball and the pavement. It is also an example of entropy found in the second law of thermodynamics, which says that systems will deteriorate through a loss of energy and information (Gleick, 1987). Although entropy is considered to be a universal law, it can have local exceptions (Shannon & Weaver, 1971) and human resilience is one of them.

Unlike the simplicity of a bouncing ball, human resilience is a very complex phenomenon with many interacting factors. As such, it can be modeled metaphorically by chaos theory, a part of the science of nonlinear dynamics, which addresses the interactions of multiple factors. In chaos theory, human beings can be seen as dissipative structures (Zausner, 1996), which are dynamic open systems that maintain themselves through a constant interchange with their environment (Kellert, 1993; Ruelle, 1991). They do this by both incorporating and then discharging energy and information. Not all dissipative structures are human. Some, like the Great Red
Spot on the planet Jupiter are storms that have maintained themselves for centuries by taking energy in from the surrounding atmospheric turbulence and discharging energy back into the planet’s atmosphere (Briggs & Peat, 1989).

**Resilience, complexity, and the reversal of entropy**

While humans are shorter lived than this astronomical occurrence, they too are chaotic systems that take in energy and information and discharge it into their surroundings. This energy intake can be in the form of food that is digested and eliminated as waste or it can be in the form of information that once assimilated, may fundamentally alter a life. This alteration can bring the person to a higher level of complexity enhancing the ability to respond with actions that contain more information than the stimulus that inspired the change. Responding with increased complexity and more information lowers the amount of entropy in a system and as such is negentropic and a local reversal of the second law of thermodynamics.

Resilience in response to stress can generate this type of complexity. Resilient behavior is negentropic because it responds to the energy brought into a system through seriously threatening events by strengthening the person’s capacity to survive and to thrive. Instead of deteriorating and losing information like entropic systems, resilient people gain energy by becoming stronger in the face of adversity. They also become more complex through integrating the information about stressful experiences as well as their response to them, thus increasing their capacity for resilience both consciously and unconsciously.

**Resilience as creativity**

Human resilience is always a creative act. Resilience is creative because it is a unique response generated for a unique situation. Chaotic systems never repeat themselves exactly (Prigogine & Stengers, 1984) and human beings as dissipative structures are constantly living through new moments in time. Even when the current stressor may appear similar to previous stressful situations, no two moments in time are exactly alike and neither are any two responses. The Greek philosopher Heraclitus (187) wrote that you cannot step into the same river twice and as rivers flow, changing from moment to moment, so does time flow, reshaping our lives. Resilience is a fundamental part of the human capacity for everyday creativity (Richards, 2007). It is a creative resourcefulness that we use in daily activities such as gardening, cooking, or finding a new way to work when traffic blocks our usual route. Resilience not only keeps us going but it keeps us growing stronger and more complex.

**Artists, creativity, and resilience**

Although creating art is a constant struggle that requires ongoing resilience (Zausner, 2007b), artists also use creativity as a tool for resilience in multiple ways. They will turn to creativity in response to physical pain, as compensation for lost motor ability, or to fulfill their emotional needs. Frida Kahlo (Mexican, 1907-1954) was an eighteen year old pre-med student when a traffic accident left her severely injured (Herrera, 1993, 1983). Forced to recuperate in bed for months, Kahlo used painting as fulfillment and it became her method of resilience in response to physical impairments. “As the accident changed my path” she said, “many things prevented me from fulfilling the desires which everyone considers normal, and to me nothing seemed more normal than to paint what had not been fulfilled” (cited in Herrera, 1983, p. 75).

Henri de Toulouse-Lautrec (French, 1864-1901), who was born with pycnodysostosis, a genetic disorder that produces brittle bones, impaired walking, and dwarfism (Gelb et al, 1995; Maroteaux & Lamy, 1965), started to draw when he was age three to four (Néret, 1994; Huisman & Dortu, 1964). Art became Lautrec’s method of resilience by creating a world of movement for a child, who could not walk without pain. Although Lautrec loved horses, he was unable to ride and in compensatory resilience Lautrec created artworks of running horses. Later in life Lautrec weakened his capacity for resilience through severe and continued substance abuse (Zausner, in press). Like Lautrec, Maud Lewis (Canadian, 1903-1970) also lived with pain that started in childhood. Lewis had severe juvenile rheumatoid arthritis that continued into adulthood. Despite extremely affected hands from the illness, Lewis propped up her right hand with her left so that she could continue to paint. Using art as a distraction from her discomfort, it became both an analgesic and her method of resilience. As Lewis said, “As long as I’ve got a brush in front of me, I’m all right” (cited in Woolaver, 1995, p. 29).

Norman Rockwell (American, 1894-1978) used art as resilience in response to his emotional problems. Born in New York City, he witnessed urban violence and grew up having a mother who was mentally ill (Claridge, 2001). Even after moving to Vermont, his life continued to be stressful with ongoing depressions, a mentally ill wife, and a subsequent divorce. Rockwell not only addressed these emotional problems with his...
therapist Erik Erickson, but also sought resilience through his art. He painted the world not the way it was, but the way he wanted it to be. There is an enormous strength in the portrayal of yearning and Rockwell’s desired world of small town happiness, political freedom, and good natured humor was congruent with the desires of millions of Americans. People responded to his work in large numbers, its message also providing hope and resilience for them as it did for the artist.

Resilience through viewing art

Viewing art can be a conduit for resilience in multiple ways. It can be a direct social message as in a Norman Rockwell image, an empathic response to the portrayal of pain as in the work of Frida Kahlo, or it can be experienced in the perception of beauty, as in the series of Water Lilies paintings by Monet, who used creativity as resilience in the face of eye problems and cataracts (Zausner, 2007a). We can say metaphorically that resilience is contagious, coming from the artist into the work of art and then to the viewing audience. Both making and looking at art stimulate a resilience that is within us all the time. Resilience is a dormant capacity, an unconscious power that can be brought into conscious awareness through our own creativity and through the creative works of others that alter our environment and our lives.

References:


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