FINDING IDENTITY, SECURITY, AND MEANING IN A PRESSURED ENVIRONMENT: THE TORNADO MODEL

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Abstract. *Using chaos theory, the authors introduce a model for addressing the environmental context of clients who feel pressure both from the dominant culture which surrounds them and from their families or culture of origin. The conflicting pressures and resulting chaos are compared to a tornado, and the authors explain how the "tornado model" is applied in therapy to help clients understand the impact of impinging forces in their lives and work toward recovery and personal growth through finding inner peace (the eye of the storm) and making use of surrounding energy through exploring personal identity, security, and meaning.*

Key words: *Chaos theory, complex systems theory, external stressors, identity, meaning, security.*

INTRODUCTION

The person-in-environment perspective implies that social workers strive to understand the relationship of the individual to a variety of systems and have a mandate to intervene at the micro, mezzo, and macro levels as necessary. Consequently, as a conceptual framework, social work has embraced Bertalanffy's (1968) general systems theory, which was applied more specifically to social work by Bronfenbrenner's (1979) ecological systems theory and by family systems theory (see Ackerman, 1984; Mikesell, Lusterman, & McDaniel, 1995; Titelman, 1998).

In recent years, systems theory has been challenged. Hudson (2000) complained that, as a meta-theory, it is oversimplified. As an example, he cited the work of Drover and Schragge (1977) who asserted that "even in a simple situation with only 20 key systems, over a million possible relationships are created" (Hudson, 2000, p. 217). And he encouraged social workers to consider chaos theory (Bütz, 1997; Robertson & Combs, 1995) as a framework for understanding and treating complex adaptive systems (Hudson, 2000).

The major tenet of chaos theory is that the nature of systems' interaction does not fit a model of smooth, continuous, and predictable change. Scholars view chaos theory as a framework for understanding the way a system evolves and how it is influenced by various and startling conditions (Goerner, 1994). Defining chaos theory in psycho-

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logical terms, Bütz (1997) explained that "a system's [or person's] movement through chaos happens as a result of the tension or stress a system experiences in moving from one attractor toward another attractor" (p. 12). The development of a system is viewed as a continuum beginning with instability, which leads to a bifurcation—a series of splits in the road, or choices. Bifurcation leads to a state of change and disorganization—chaos. The system adapts to the chaos by opening boundaries to incorporate energy and by searching for new information.

Inherent in chaos theory is the possibility or probability that a small, seemingly insignificant event will expand across time and have a large effect on the evolution of the system. This is referred to as "the butterfly effect" and is compared to the scientific phenomenon that "a variable metaphorically as tiny as a butterfly flapping its wings in a weather system over San Francisco may cause a thunderstorm over Denver several days later" (Bütz, 1997, p. 7).

Chaos theory, also known as complex systems theory, shifted scientific focus from reductionism toward holistic diversity in describing the structures and mechanisms of system development and the processes of change. This theory provides a way of understanding systems that are both inherently stable and unstable (Butz, 1997) and the way in which order is formed out of randomness (Duke, 1994). It allows for spontaneous change and self-organization (Kossmann & Bullrich, 1997) and for creativity in effective problem solving (Richards, 1996).

The purpose of this article is to apply chaos theory in introducing a metaphor for understanding and addressing the environmental context of clients who feel pressure both from the dominant culture which surrounds them and from their families or culture of origin.

APPLYING CHAOS THEORY: THE TORNADO MODEL

The conflicting pressures and resulting chaos in clients' environments are compared by the authors to a tornado. The tornado typifies conflicting, impinging forces with extreme energy. Metaphorically speaking, that pressure can be (a) lived with, coped with, and tolerated; (b) fought against, opposed, challenged; or (c) transcended. In order to appreciate the metaphor, one first must understand the fundamentals of tornado formation.

What is a Tornado?

In the formation of a tornado, a layer of cool, dry air called the cap stabilizes near the upper end of the storm cloud. Next, a rising layer of warm, moist air builds up just beneath the cap. Rising from beneath, a third layer of warm, dry air traps the moist layer of air creating a sandwich effect. Immense pressure builds as the warm layers of air continue to rise upward, pushing against the dense top layer of cool air. A tornado is formed when there is a disturbance that weakens the density of the cap. When this occurs, the weak spot in the cap may then give way to the pressures of the rising air from below (Allaby, 1997; Verkaik & Verkaik, 1997).

In response to the built up pressure, currents of warm air shoot upward toward the point of weakness and punch a hole in the cap. Once the cap is punctured, the warm air will continue to rise, spiraling upward as it ascends toward the breach. Due to the differences in density, the layers of cool and warm air remain unable to converge. Instead, they begin to spiral around each other in an upward draft, producing energy from the moisture condensing in the warm air. This energy fuels the currents of spiraling air, and the tornado gains additional power through its velocity, which is driven by different winds at different levels of the atmosphere. Once the tornado has formed, the winds rotate around an axis, also referred to as the vortex, or center of the tornado. It is within the vortex of the tornado, or eye of the storm, that a region of peaceful and still atmosphere occurs (Allaby, 1997; Verkaik & Verkaik, 1997). The tornado provides an apt metaphor for describing the condition of individuals who find themselves sandwiched between conflicting and potentially destructive forces.

COMPARING A TORNADO TO HUMAN BEHAVIOR IN THE SOCIAL ENVIRONMENT

In Table 1 the elements of a tornado are compared to human behavior in the social environment. The terms micro, mezzo, and macro are used to describe the person-in-environment situation. The micro system refers to the individual. The mezzo system refers to small groups, such as the family, that have direct influence on the individual. The macro system is larger organizations, institutions, communities, and cultures (Farley, Smith, & Boyle, 2000, p. 48). Typically these terms are used in a continuum, small to large. In this case, the micro system is conceptualized as sandwiched between the macro and mezzo systems.

Phase I: Inversion. The middle layer of warm, moist air is compared to the micro system. In this comparison, the micro system includes the individual client's biological, psychological, social, emotional, and spiritual components which include inherent strengths and abilities, weaknesses and limitations.

Table 1: The Elements of a Tornado Compared to Human Behavior in the Social Environment

Elements of the Tornado	Human Behavior in the Social Environment
Phase I – Inversion	
Cool, dry air (top layer)	External stressors and influential factors from macro level
Layer of warm, moist air (mid-layer)	Biological, psychological, emotional, social, and spiritual aspects of the individual; micro level
Warm, dry air (bottom layer)	External stressors and influential factors from the mezzo level
Phase II – Disturbance to the Cap	
Passing front of air, or commotion in the upper atmosphere, weakens the cap	New energy creates an upset to the equilibrium of the client's system; increase in turbulence
Currents of warm air shoot upward toward the point of weakness	Client responding/reacting to turbulence; increased awareness and curiosity of systemic influences
Warm air punches a hole in the cap and continues to rise	Client reacting/investigating/transcending boundaries of macro/mezzo/micro forces
Phase III – Tornado	
Warm air increases in intensity and velocity as it spirals upward	Exposure to, and awareness of, influences of macro/mezzo/micro forces resulting in new motivations, goals, challenges, opportunities
Velocity is affected by many different winds at different levels	Energy from the macro, mezzo, and micro systems incite turbulence

The top layer of cool, dry air corresponds metaphorically to the macro system, or the influences of societal and cultural norms and values. It is a force generated by the dominant culture which, at times, can be in opposition to the mezzo system.

The lower layer of a tornado represents the power and presence of the mezzo system in an individual's life. This layer may also produce oppressive and dominating elements, especially for individuals who come from families, cultures, and religious groups that are dogmatic in beliefs, traditions, and values. The mezzo system may prove to be a significant source of stress and pressure even without the conflicting pressure of the macro system.

Sandwiched in the middle layer, the micro system (client) feels pressure from both the macro and mezzo systems. That pressure is compounded by the inability of the two systems to converge because of clashing values and beliefs. In this situation the client

is likely not only to submit to the force of either or both of the competing systems even when they are inhibiting, demoralizing, and debilitating, but also to succumb to the damaging effects of the competition (the tornado).

Reactions to pressure vary from individual to individual. For some clients, the degree to which stress from the macro or mezzo systems impacts their state of equilibrium will be minimal. Also, the degree of conflict, as a result of life stressors and challenges, may dissipate without provoking much disturbance within the micro system. However, for other clients, the stress and pressure may breed situations and feelings of instability, disorganization, or chaos.

Phase II: Disturbance to the cap. The mounting pressures among systemic influences represent opportunities for either empowerment or confinement of the micro system. When there is a disturbance to the cap, energy among and between the macro, mezzo and micro systems can create enough movement to shift the elements—disrupting equilibrium and generating more turbulence among the systems. The increasing turbulence creates a state of crisis for the micro system. Borrowing from the Chinese translation, crisis presents both a danger and an opportunity (Gilliland & James, 1997).

In a crisis, when the individual is at a point of maximum pressure and stress, he or she has three choices: (a) give in and submit to the external forces—passive approach, (b) oppose the forces—confront the people and institutions, and (c) transcend the chaos—metaphorically utilize the energy or move to the center of the tornado. With the first option, the client conforms to the pressures and the storm dissipates. In the second option, the confrontation spawns a tornado and the damage is not contained. In the third option, the conflicting paradigms are challenged and the tornado has developed, but the client is able to use the energy of the competing systems to rise above the chaos and experience personal growth. The ability to rise above conflicting pressures is dependent upon a clear sense of ones personal identity, security and meaning, and a primary task in therapy is to discover and develop that awareness.

Confronting the external pressures is illustrated in our model as the micro system's punching a hole in the cap. This happens when one is seeking individual identity and feels secure enough in that identity to break away from traditional paradigms.

Phase III: The tornado. Once the micro system has exerted the energy to punch a hole in the cap—or in other words, investigated and challenged the influences of family, community, societal and cultural norms, the directed energy within the micro system increases. When the boundaries and influences of one system attempt to converge upon the space of another system, the intrusion is met with resistance, while at the same time the imposing energy fuels a change in position. Instead of succumbing to the effects of convergence, the micro system struggles to maintain its boundaries while experiencing the other systems from a new perspective. The values and norms of the macro and mezzo systems, formerly considered by the individual as fact, in this stage are experienced as flexible, questionable, and changeable. The client is able to explore options and alternatives of paradigms outside his or her environment. Through the process of transcending the pressures of the external systems, the individual is able

to develop the strength of a firm identity as new information enlarges the client's perspective.

In this phase, the individual challenges the systemic structures, but the uprising and determination of the micro system's energy influences the equilibrium of the macro and mezzo systems. The turbulence of change peaks as the energy of the micro system shoots through the cap, which symbolically represents the opening of individual opportunity, (new information, energy) and the macro and mezzo systems respond naturally, closing in in an effort to trap or inhibit the evolution of the individual around the updraft and feeding the spiraling winds. Thus a full-blown "tornado" is formed.

In the midst of the "tornado," as the micro system challenges the boundaries, beliefs, and order of the macro and mezzo systems, disorganization is the inherent result. Although excited, optimistic, or simply curious about the new transition, at this point the individual is incessantly affected by the reactions of the macro and mezzo systems to his or her repositioning. Thus, for the individual, this new position may also result in feelings of discomfort, distress, and anxiety—the dangerous opportunity of crisis. Amidst the spiraling winds of the systemic tornado, it is natural for the individual to experience a lack of control or sense of chaos.

Punching a hole in the cap may not solely be the result of the individual's choice to challenge the systems. A person may be thrown into this spiraling whirlwind as a result of any crisis that causes him or her to question or doubt the beliefs formerly taken as truths from the mezzo and macro systems. For example, the death of a close relative may suddenly cause a person to contemplate life and death in a different way, question previous religious beliefs, or welcome new spiritual feelings. Losing a job might challenge one's beliefs that he or she is a valued employee with a secure position and, as a result, question the security of the systems around her. This process of inquiry is described by the metaphor as punching a hole in the cap.

Phase IV – The Vortex. The vortex, or eye of the storm, is the most captivating element of this model. The rationale in using the tornado as a healing metaphor is the belief that no matter what the situation, there is always potential for inner peace. For the micro system, inner peace comes as a result of transcending the confines and pressures of the external systems. It is through this process that the client develops a conscious awareness of her identity, security and meaning.

APPLYING THE TORNADO MODEL IN THERAPY: A CASE EXAMPLE

Client L was a Native American female in her early 30's. At the time of her involvement in therapy, she was separated from her third husband with a divorce pending. She was the mother of five children. The oldest child (age 14) was recently sent to live out of state with L's sister; the second child (age 12) was adopted by a relative when he was a baby. L also had two younger boys (ages 9 and 7) and one girl (age 2) who were living with her.

As a result of the pending divorce, L was struggling financially to support herself and her children. She was receiving welfare assistance from several government agencies as well as her church. She was enrolled in a job skills training program to become a re-

ceptionist, but her career goal was to pursue a degree in business. She volunteered with a nonprofit organization where she was learning to apply her new skills. She aspired to open a tourist lodge one day on a section of land she inherited from her father.

L was raised on a Native American reservation. Her childhood was filled with experiences that made her feel devalued and destined to fail. She was used as a pawn by her alcoholic parents and made to feel responsible for their divorce. She was physically abused by various members of her family and sexually abused by a group of older teenage boys. A foster care experience exposed her to a healthier lifestyle but didn't salvage her self-esteem. As an adult she had been involved in several relationships, including three marriages, all of which she described as "abusive and unhappy." She sought counseling after separating from her third husband to help her gain insight into, and break free of, these abusive relationships.

THE TORNADO AS AN EXPLANATORY METAPHOR IN THERAPY

Therapy sessions with Client L had a dual focus. First, the client was helped to gain insight into her situation. Using the tornado as a metaphor, she was able to identify the conflicting and oppressive forces in her life. She felt validated in her victimization and she also recognized that what she was attracted to in her family, culture, and society was more powerful than what she was opposing. Second, she was empowered to make use of the energy of the conflicting systems in her life and to find peace amid the chaos.

With a nonlinear approach to psychotherapy, Goldstein (1995) emphasized the importance of helping the client firm up weak individual system boundaries so that vital, growth-promoting exchanges with the environment can take place. Boundaries for Client L were strengthened during the therapeutic process by clarifying her personal sense of identity, security, and meaning. Personal identity was explored with questions such as: "Who were you before the tornado hit?" "What did you dream of becoming?" "What did you value, care about, treasure?" Security was identified with questions such as: "Where or with whom did you feel safe, loved, secure?" "Where did you fit in your family, friend group, school, community, church?" "Where, with whom, or with what group would you like to fit now?" Meaning was conceptualized with deeper questions: "What is the purpose of your existence?" "What do you have to offer others?" "Where or how can you make a difference in the life of someone else, or in the world?"

A photo of an actual tornado was used to assist the client in conjuring up images and descriptive phrases. Several diagrams were also introduced to illustrate the explanation of the preparatory stages of tornado development. Finally, illustrations matching the diagrams, yet unlabeled, were provided, and L was invited to use the illustrations to describe her own situation, comparing it to a forming tornado. She easily related to the metaphor and attributed her current state of depression and anxiety to being caught up in the winds of the "tornado" in her life.

The therapist began by labeling the three layers of the forming tornado as representative of the macro, micro, and mezzo systems, defining each in general terms.

Then she asked L to imagine herself as the layer in the mid section of the diagram—the layer that represents the biological, psychological, social, emotional, and spiritual aspects of the individual. The client was then asked to tell the therapist more about the person this layer of air represented and to address the various categories listed. L described herself as headstrong, a maverick in her family of origin because of her firm faith in God, and a maverick in her culture of origin because of her faith in her own potential. She said she loved her children and wanted to be a good mother. Also, she struggled with relationships and wanted to learn how to develop healthy ones. Following is a portion of the dialogue during that session.

Therapist: (Pointing to the diagram) "Imagine this top layer of air above you, beginning to press down on you. It influences almost everything you do, although you don't always recognize its influence consciously. It represents the world around you—the perspectives of the larger society, your culture of origin, the predispositions of your gender, the norms, mores and values of the society you live in. Have you ever thought about the way in which some of these aspects have influenced you?"

Client: "Oh, most definitely! First of all, my heritage—Native American. I was raised on the reservation knowing, 'this is not all there is,' as my mother once told me, 'there's a whole world out there.' However, she also insinuated that even if I were to leave the reservation, my heritage would go with me and that it wouldn't be easy to 'make it' in the big world, because being Native American was not something to be proud of, at least not 'out there.'...Also, I hated being a girl. I was always the victim—sexual abuse, neglect. I used to wonder what I had done wrong before I was born because it felt like being female was a punishment. No one seemed to respect women. There was one thing I always dreamed of though: freedom....My people are a very patriotic people and I always knew growing up that our country was special. Whenever we said the pledge of allegiance at school, I felt proud to be part of something good."

Therapist: "Going back to this diagram, you are here (pointing to the mid section) and these influences you've described are here (the top layer). In this position, what does it feel like to be you?"

Client: "Pressure. I feel like so much is expected out of me, yet I'm destined to be nothing. There are so many forces that I cannot get away from—ever. They make it hard to breathe sometimes. It's oppressive. I can't get out from under it. And yet I still dream that it is possible—that somewhere freedom does exist."

Therapist: "Now let's look at this bottom layer of air, the one that is underneath you, pushing up on you. We will compare this layer to the immediate circles of influence around you on a daily basis—your family, your community on the reservation, your friends, peers, the influence of your school, your local government, and so on. These are all influential sources in your life. In what ways do you perceive they have influenced you?"

Client: "My family was a mess. My mother once said to me, when I was very young, 'Chaos. That's what this is. Chaos.' She was right. There never seemed to be a moment of peace. Contention, infidelity, alcoholism, abuse—I never learned how to form healthy relationships. I'd never seen even one!...My community was a tight knit one,

very connected. In many ways I felt part of a larger family. We attended community functions and celebrations regularly. There was a sense of belonging, one that I've missed since I left home. The food, the music, the dancing—it went back generations.

"More recently, my marital relationships have been of significant influence. Each time I became involved with an abusive man, I was indoctrinated further and further into a helpless victim role. For a while I felt comfortable there. At other times I'd fight back, very aggressively.

"... You know, not all of this was bad. (Pointing to the mezzo layer) There is a lot about my past that has been my motivation, motivation to make something out of myself. And when I return home to the reservation for a function, such as a funeral, I always feel a pull, something pulling me back there. I hope to make something out of my life, and then go back and help."

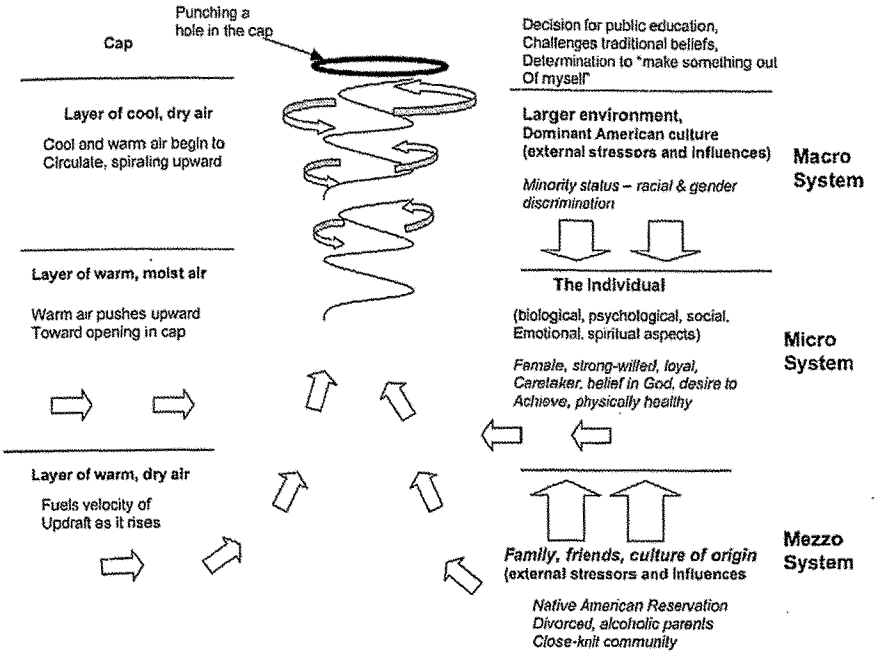
As the client made comments, she was asked to label the layers of the diagram accordingly, with the significant stressors or influences of the systems around her. The macro influences were marked along the top layer, the aspects of the mezzo system were written at the bottom layer, and the micro was included in the middle layer (see Figure 1).

Therapist: "With the background you've described, not ever having a 'healthy relationship' role model, being the victim of heinous forms of abuse, how have you managed to survive, to cope? What's given you the courage to leave three abusive relationships?"

Client: "Well, this pressure, here (pointing to the top and bottom layers of the diagram) there were times when it was almost too much to bear. At various times in my life I have felt like I was nothing. I have contemplated suicide often. The thought has crossed my mind. I even tried it once. However, even amid all of this darkness, there was always something inside of me telling me that everyone and everything was wrong."

The illustration and metaphor of a tornado captured in the client's mind an image for conceptualizing the oppressive forces in her own life: the pressures of the dominant culture, the pressures of her own family and culture of origin, and the conflict between those two forces. Recognizing the power of those oppressive forces was a validating experience and helped her to appreciate the unique set of characteristics and strengths with which she either fought back or capitalized on the energy of the impinging forces in her life. Perhaps even more important was the process of remembering the inner voice that reinforced her self-worth despite the external pressures. A primary goal in therapy was to help her explore that identity and to help her attach meaning to her personal struggle.

Figure 1. Elements of a Tornado Compared to Human Behavior in the Social Environment, using Client L as an example.



DISCUSSION OF THE TORNADO AS A MODEL FOR INTERVENTION

From an early age, Client L felt the pressure of the systems of her family, culture, and dominant society. She was in the inversion (sandwich) stage for years and was aware of the pressure but unable to react. "Even if I did think or feel differently in terms of my own values, there was no point in challenging [these systems]." She saw herself as a victim and felt stuck in that role, so she tolerated her situation and coped as best she could.

As an adolescent, she became angry and was motivated to escape the oppression. She fought with siblings and accepted foster care placements to get away from her family. While in foster care she began attending public schools outside the reservation, a decision that was in direct opposition to her family of origin and the dominant culture—both of which were sending the message that it was futile for her to try to "make something out of [herself]." For her, this was punching a hole in the cap. She was determined to prove to the people back home that the way they lived was wrong and they were wrong about her value and potential. She was also determined to prove to the dominant (white) society that they were wrong about Native Americans and that she could be successful in their world.

The client's energy to fight the stagnation state she experienced as a child spawned a "tornado" and fueled more chaos in her life. Like the layers of air in the tornado, L

was unable to converge with the macro and mezzo systems because she had acquired a different density, or different makeup, based on her values, beliefs, and goals. Yet she was still struggling to define herself. She did not have a solid grasp on an identity. Consequently, this was a time of depression, anxiety, and suicidal ideation.

Despite the debilitating effects of the "tornado" in her life, Client L had the strength to ultimately make decisions that resulted in opportunities in the "dangerous opportunity" of crisis. In the language of chaos theory, this strength could be attributed to a series of bifurcations and the butterfly effect. At crucial forks in the road of her life, L made small decisions that produced big differences. For example, she was not compelled to move into a foster home. It was a choice she made. In retrospect, that single change in her life circumstances as a young adolescent made it possible for her to recognize opportunities for choices later in life, such as the decision to leave an abusive husband and the decision to embrace religion.

Through therapy, L was able to gain insight into her experience of chaos and oppressive forces and she recognized the crucial bifurcations and personal decisions which had developed her sense of identity, security, and meaning. The resulting self-respect gave her even more power to not only fight, but to transcend the external systems in her life, bringing her to a state of inner peace even when being surrounded by chaos.

DISCUSSION OF THE TORNADO MODEL AND CHAOS THEORY

Clients naturally desire order. They wish to predict future events and adapt to change in an orderly fashion. But in reality, the future is anything but predictable and change, even in the therapeutic setting, is anything but incremental or linear. Ironically, true equilibrium is the equivalent of entropy (Goerner, 1994). In the words of Carl Jung (1966), "When the opposites unite, all energy ceases" (p. 467). Jung also described chaos as a "wellspring of creativity" (Bütz, 1997, p. 128).

As an example of conflicting systems exerting extreme pressure in the chaotic generation of energy, the tornado provides a metaphor for chaos in the human condition. The elements of wind, moisture, and temperature brought together in an infinite number of variations result in unpredictable outcomes. Similarly, there is an infinite number of pressures brought to bear on an infinite number of variables associated with the individual system, and the possible outcomes are unlimited. Clients benefit from understanding that chaos is not only inevitable but essential to individual growth and development. The tornado metaphor provides validation of the damage experienced by clients, while chaos theory provides a context that gives meaning to the damage and helps clients make choices amid conflicting environmental pressures.

Finally, the definition of chaos as a state of confusion and disorganization does not imply complete lack of control. As manifested in the butterfly effect, even small stressors in the environment endlessly magnify through positive feedback loops to create major changes. Likewise, providing insight into the chaos, as well as strengthening personal boundaries through identity, security, and meaning, increases the likelihood that bifurcations will result in healthy, seemingly minor decisions that produce positive major changes.

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