

Neurobiology and Family Process

The *Yellowbrick* Family Model

Families come to the decision to seek treatment by any number of paths, but what they have in common is the felt experience of contending with something above and beyond the ordinary course of things. Life feels unusually off-kilter, stressful and out-of balance. When these extraordinary disruptions persist over weeks and months, there is enormous pressure within the family to respond and adapt, to set things right again or else build a new normal that everyone can live with. Treatment providers who work with individuals and families in crisis are familiar with this pressure. Both therapist and patient, whether individual or family, faces difficult questions: What kinds of changes are needed? What needs fixing- the identified patient? Something about the family system? Both? And what kind of treatment will work? How long will it take? What outcome should be expected?

The purpose of this article is to frame an approach to the family treatment of troubled adolescents and Emerging Adults. The family treatment model developed at Yellowbrick incorporates both foundational principles and contemporary discoveries and insights into the neurobiological, developmental and systemic processes that govern change and adaptation in families. Relevant neurobiological principles and developmental processes will be outlined, followed by a discussion of change and adaptation within the family system. The article will conclude with a discussion of the Yellowbrick Family model.

We strive to create a safe community, which allows for apartment living with available on-site support for growth in all areas of daily living and functioning. For this reason, any actions that threaten the safety of the community such as bringing drugs or alcohol into The Residence/CTC or physical aggression towards others are potential grounds for administrative discharge. Symptomatic or self-destructive behaviors which violate the Community Agreements are understood and responded to as behavioral communications termed public behaviors. As treatment develops, these public behaviors are linked to each individual's "core enactment" which is the defining self-damaging pattern of relating to self, others and the world. Public behaviors and the core enactment are brought to the Yellowbrick Community Meeting for discussion by peers and staff in order to provide supportive accountability in treatment. In agreeing to enter Yellowbrick, you are joining a community of peers and staff working together to help each other make life transforming changes that have not been previously possible.

Making deep personal changes requires each of us within the Yellowbrick Community to agree with both the spirit and specific content of the Yellowbrick Agreements.

Neurobiological principles

Homeostasis

One of the central properties of living systems is the tendency to expend energy to maintain a stable equilibrium, or *homeostasis*. A common example within our own bodies is the regulation of a consistent internal temperature despite variations in the ambient temperature of our immediate environment. The equilibrium achieved must be continually monitored, as core temperature can be affected by a variety of changes in both internal and external conditions (getting out of bed in the morning, running to catch a bus, stepping into the chill night air, and so forth). Systems in equilibrium are changing, adjusting all the time... but it's in the service of maintaining stability. This is true for cells and it's true for brains: as my neuroscience-informed colleagues like to say, "For better or worse, brains are lazy! They like to keep doing the same thing."

Homeostasis appears to be an emergent property of all living systems, including families. From single cells to complex animal societies, homeostasis is inextricably linked to adaptation and survival. The greater the system's ability to meet its survival requirements while simultaneously managing threats and disruptions from inside and out, maintaining stability and connection with its environment, the greater the system's capacity to *adapt* and thrive. In the human family system, homeostasis is often disrupted, and then restored, in the ordinary course of daily life, which presents the average family with an ongoing supply of challenges to meet, problems to solve, and developmental crises to overcome.

Complexity and adaptability

"A system that moves toward complexity is the most stable, flexible and adaptive there is."
(Siegel, 2020)

Since von Bertalanffy's (1969) influential extension of general systems principles to biological systems, a number of scholars have adopted this lens to study organizational processes in human development (e.g., Siegel's "interpersonal neurobiology"; Thelen & Smith's "dynamic systems approach"), in human family systems (e.g., Bateson, 1972; Minuchin, 1974), and in psychoanalytic psychotherapy (e.g., Galatzer-Levy's "non-linear psychoanalysis"). From different fields of study (biology, anthropology, family therapy, psychoanalysis), their contributions offer varied and fascinating illustrations of system dynamics at work.

Individual elements that are part of system live and grow in an ongoing conversation with their environment. There is an intrinsic interdependency of the constituent elements of the whole, whether we are considering the organelles of a single cell, or the vast number of interconnected neurons of the human brain. By implication, the development of an individual element of a larger system is context-dependent. Neurons that fire together, wire together. Those that don't, die off in a continual process of neural pruning in the brain (cf. Bruce Perry's assertion that "the brain develops in a use dependent way"; Perry & Pollard, 1998).

With increasing complexity comes greater interdependency and adaptability. A single cell requires a very specific (and relatively stable) set of environmental conditions to survive. A human individual, less so, but our exemplary Marlboro Man is still more dependent on a relatively hospitable environment for survival, compared to a clan or a nation-state. Complexity and interdependency go hand in hand with flexibility and resourcefulness when it comes to mediating the changing conditions of the environment. This will become further evident in the concluding section about treating families in crisis.

Developmental Principles

There are two additional implications of the relationship between complexity and interdependency: the first is that development proceeds not according to some fixed genetic blueprint in which the final outcome is predetermined, but as a *process – a dynamic interplay* of constituent elements (cells, neuronal networks, individual humans) and their ever-changing environments (cf. Siegel, 2020; Sapolsky, 2017; and the emerging field of epigenetics).

The second implication may be less obvious: the developmental processes that allow for growth and adaptation depend upon both stability and change. Growth and development viewed from a sufficient distance appears to unfold in an orderly, linear way (cells divide and multiply, bones grow longer, humans age). But the real story, at least on closer inspection, is one of dynamic change and the transformational growth.

Consider the human toddler who learns to walk: although parents tend to view this achievement as a steady progression from standing with support to hesitant first steps to confident mastery, in fact walking is entirely different from what came before it (crawling), involving the sophisticated integration of novel sensory-motor capacities. In other words, growth and adaptation proceeds less as an orderly unfolding (gradual evolution) and more as a non-linear process of leaps and bounds (punctuated equilibrium). Here's Thelen and Smith on this point: "Development is messy ... linearity, uniformity, ... and even irreversibility break down ... What looks cohesive... from afar ... is more exploratory [and] opportunistic." (1994, cited in Jaffe, 2018, p. 18).

Social Building Blocks

In human systems, growth and adaptation proceed in conversation with the social environment. Humans are social creatures, and growth cannot occur outside of connection (attachments) with others. How do humans develop, becoming more complex, interdependent and adaptively capable? Well, genes certainly help! But genes don't do it, can't do it, alone. As Bruce Perry reminds us, it's life experience that builds the brain (Perry & Pollard, 1998).

Recall Perry's dictum, "The brain develops in a use-dependent way." No better illustration of this principle, or more terrible, can be found in Perry's work with the young children of the Branch Davidian compound who survived the Waco firebombing. When he first encountered these

children, they appeared to be miraculously unharmed. Perry observed them playing quietly with toys that their new adult caregivers had laid out for them in a large, comfortable, observation room. But when Perry measured their autonomic response patterns, a very different picture emerged. Far from being unaffected, the young survivors displayed patterns of autonomic arousal consistent with traumatized combat veterans. Perry and his team found these outwardly calm children possessed highly developed threat-detection, with the central nervous systems to support those adaptations, including high resting heart rates, cortisol levels, etc. And to what threat were these children exquisitely attuned?

The human kind – other people.

The brain is fundamentally a *social* organ, indeed the primary social organ of the body. Developmental neurobiologists like Dan Siegel (1999/2020) note that social transactions are the building blocks of human development, from the baby's smile onward. In his words, "Human connections shape neural networks." Not surprisingly, there is a natural congruence between our developing neural networks and the social stimuli that helped to shape them. This is because human social transactions, at least the formative kind, tend to be patterned and complex; containing both predictable and unpredictable elements (both repetition and novelty are necessary for brain development; brains like both); and embedded in a flow of nonlinguistic, affective information (emotion, the "music of the mind," in Siegel's words).

Moreover, brain development proceeds with ever-increasing complexity to support ever-more-complex attunement to and differentiation of our social world. As Sapolsky argues in an exhaustive review of studies ranging from neuroanatomy to social psychology, humans are fundamentally *tribal* – we size up the world in terms of *us* versus *them* -*because our brains are tribal* (Sapolsky, 2017). Our tribal brains subsist in an emotionally activated neural bath at all times (whether one is conscious of the fact or not).

Repetitive transactions between children and their caregivers, or attachment patterns, are especially influential. According to Siegel and others (from Sapolsky to Allan Schore), secure attachments are the foundation for brain functioning and maturation. Insecure, unpredictable or disrupted attachment patterns make for unstable, fear-based styles of relating to others that prove remarkably resilient to change (Doane & Diamond, 1994). Different families tend to support different characteristic attachment "styles" or patterns, which can be thought of as the family's characteristic template for regulating distance and closeness, dependency and need for separateness, power and control, autonomy and connection (cf. Minuchin, 1974; Nichols, 1987).

Core enactment

A beguiling concept with enormous clinical utility, *core enactment* draws conceptually from both psychoanalysis and recent developments in the field of interpersonal neurobiology (cf. Ginot, 2018; Schore, 2018). At its heart, it is a dynamic integration of intrapsychic and neurobiological (especially right-brain) processes situated in an interpersonal context. Core enactments are those resilient and repeating patterns of self regulation-with-Other that shape one's recurring

relational experiences with significant others, and which produce both conscious and unconscious effects in the mind of the Other. They are analogous to transference-countertransference enactments in the psychoanalytic relationship, but the concept has broader utility in a variety of clinical and nonclinical situations, owing to its roots in developmental neurobiology. Core enactments reflect the activation of unconscious, right-brain-organized memory, those nonverbal, extra-linguistic and implicitly encoded elements of experiential memory that are otherwise split off (dissociated) from conscious processing.

Within the growing field of neuro-psychoanalysis, Solms (2019) and Panksepp (Panksepp & Biven, 2012) have advanced a similar integration in their reformulation of traditional drive theory. The mind stores lived experience in both declarative and nondeclarative memory systems, the latter serving as a dynamic repository of implicit emotional sequences, mental algorithms corresponding to adaptive “solutions” to critical challenges faced in childhood in relation to primary emotional needs (Solms, 2019). The important point to bear in mind is that these implicit, experiential “memories” have powerful organizing effects, not only on the individual’s implicit emotional communications with others but also on the Other (through what Schore terms right-brain-to-right brain communication, a limbic dialogue between two or more people).

Its applicability to clinical situations, including both individual and, as we will see, family therapy, resides in the fact that a person’s Core Enactment represents their chief adaptive dilemma, their cherished but adaptively obsolete “solution” to meeting life’s challenges, the central recurring, affective-behavioral activation pattern that impedes developmental growth and progress.

Separation/Individuation

The hallmark developmental task of adolescence and emerging adulthood is separation/individuation. The consolidation of a coherent sense of self and identity, within a relational context that supports connection, closeness and intimacy, requires two interrelated developmental achievements. The first involves the emergence of capacities for self-regulation and differentiation of self from other, necessary to support more independent functioning as a separate person. The second involves an emerging self-awareness of one’s capabilities and aptitudes that confer a sense of being a capable, effective person in the world. Both develop in concert together, and both emerge from a pre-adolescent, familial context of relatively greater dependency.

Separation ... connection. Independence ... intimacy. Self ... *in relation*. These dualisms make up the heartbeat of development, and one can think of emerging adults as living in a kind of dynamic tension between opposing forces, motivations, social demands and expectations (cf. Arnett, 2009, who popularized the term “Emerging Adult”). Along with Arnett, another developmental psychologist, Jennifer Tanner, reminds us that emerging adulthood is not just a stage but a critical turning point in our lives, encompassing key events and transitions that come to define how our adulthood and later life will take shape and play out. There is a progressive movement, a “recentering” of oneself from one’s family-of-origin to the larger world (Tanner, 2006), which begins with the adolescent’s push toward separation from family-of-origin and

proceeds with the acquisition of the sense of oneself as a separate, unique individual who is nonetheless connected to others (interdependent}, including to one's own family. This is a developmental process of adaptation to a more complex environment. (Note the repetition of key themes of developmental neurobiology and system theory.)

Another significant characteristic of adolescence, as every parent knows, is *ambivalence*. We can think of ambivalence as having simultaneous and contradictory attitudes or feelings toward a person, action or thing. Ambivalence is tricky-younger children (and some adults) are overmatched by the task of reconciling its polarities and tend to default to one pole or the other. Managing ambivalence in relationships is a hallmark of maturity – another reason that separation/individuation is such a critically important developmental achievement. It should not be surprising to find that families develop their own, characteristic ways of managing the polarizing tensions of adolescence (and emerging adulthood).

Revisiting what we understand about attachment patterns in the family: in adolescence and emerging adulthood, those attachment patterns return most notably in family transactions involving power and control, separation and closeness, identity and autonomy. And it's not just the words exchanged, or the behaviors observed or enacted, but also the feelings that accompany and surround them that give these transactions involving separation/individuation their power. These transactions-glide along the currents of pre-existing family tensions the way that an earthquake follows old fault lines. Recall Siegel's concept of emotion being "the music of the mind," giving shape and direction to thought and action: in the family mind, emotion plays a similar role in lending shape and force to the family's characteristic relational patterning, or process, like the musical score for a film. The analogy points to that other characteristic of family process: its scripted pattern. Like a musical score, one enhanced with words and actions, family processes are laden with emotional activation corresponding to internalized rules, recipes and relational scripts that hold particular survival utility for family members.

The Family in Crisis

Consider the difference between discovering your daughter's bike has a flat tire and discovering your daughter has cancer. The greater the emotional disruption, the greater the impact on functioning. When we say, "I'm trying to wrap my brain around this," we are trying to cope with how it *feels*, because the feelings are jumbled, coming at us in waves, scrambling our senses and wrenching us from our safe and trusted moorings to an orderly, predictable world. What happens next is determined in part by the neurobiological process of threat activation.

Threat activation

Our brains allow us to detect, interpret and respond to external threats by virtue of a complex dance of neuronal communications across several regions, mostly limbic and cortical areas of the brain. Our emotional experience of threat – fear – is produced largely by limbic activation, but it is also mediated by cortical-sponsored appraisals and judgments, which in turn draw from

experience (memory). To complicate this picture a bit further: fear activation entails two different kinds of memory activation, one conscious, “slow” and discrete (“What tests did that doctor order? Oh, yes – first the CT scan, and then we will have some answers.”); the other, unconscious, “rapid” and intuitive (“I don’t know why, exactly, but I feel like I can trust Dr. Singh. She knows what she’s talking about!”) (cf. Kahneman, 2011). The first kind of memory activation corresponds to explicit or declarative memory, i.e., “experience” that can be readily described in words and that gives us reason or cause to take action to deal with the threat at hand. This memory system is what we draw from when we explain or justify our decisions or actions. But there’s a second, nondeclarative memory system as well.

This system has been described as the repository of learned adaptive responses that are not encoded or stored in words and thus inaccessible to conscious thought or reflection. Nonetheless these unconscious “memories” function like embedded programs in a computer’s hard drive, implicit algorithms that our brains have collated and stored for later use due to their prior utility in dealing with life’s essential challenges, such as managing threats.

The explicit family

David Reiss (1981) studied the ways in which families respond to various kinds of threats, including those occurring naturally (e.g., a newly diagnosed, serious medical condition) and those produced in the researcher’s laboratory (e.g., asking family members to talk about a recent conflict together). He observed that families under threat become acutely self-conscious and deliberate in their transactions together, as though held to some contractual agreement. Reiss termed this hybrid family organization the “explicit family.” The *explicit family* functions, for better or worse, in accordance with the family’s own, internalized set of rules, recipes, and scripts for successful adaptation. Its “purpose” is to guide the family-under-threat through the crisis.

In this respect, threat activation in the family proceeds in ways analogous to threat activation in individuals. At both the individual and family level, there is the activation of strongly held convictions and dispositions as to the necessary course of action to take. In both cases, threat activation entails the activation of interrelated systems of memory, emotion and self-regulation; and in both cases, the result is the emergence (or re-emergence) of previously adaptive patterns of managing fear, uncertainty, loss, and other real and perceived threats to survival.

The family core enactment

The neurobiological family model in use at Yellowbrick extends the clinical focus on Core Enactment to families as well. By now, this should seem like an obvious conceptual leap. Indeed it is, for families in crisis entering intensive treatment are, like Reiss’s “explicit families,” struggling to meet an adaptational challenge by relying on implicit, transactional algorithms, scripts and patterns whose adaptive utility has become obsolete. The family Core Enactment can be observed in recurring transactional sequences involving power and control, separation

and closeness, identity and independence, and, most importantly, the management of emotional activation among family members. The family Core Enactment, like Minuchin's (1974) description of the family "dance," unfolds to its own emotional "music." It can be stormy or quiet; achingly sad or intensely furious; rational and constrained, or chaotic and unpredictable.

Hidden grief and loss

Whatever its emotional tone and tempo, these recurring transactional sequences communicate to the clinician-observer essential but dissociated aspects of the family's experience that the family cannot otherwise articulate. These split-off bits of family experiential memory often correspond to unprocessed fear, anger, grief, and loss evoked by separation/individuation and its vicissitudes in the adolescent or emerging adult. As such, they hold the key to resolving the family's developmental crisis.

Exposure to loss is common among families with a profoundly troubled young person. These losses accrue over time, especially for parents, and include the loss of the wished-for parenting experience and the wished-for family; the loss of confidence in a safe, predictable future; the loss of faith in a just, predictable and secure world; the loss of control and personal agency (described above); loss of health; loss of financial security and predictability. Some of these losses are obvious and shared explicitly by members of the family. However, in many families, the losses are more implicit and harder to recognize as such, even as family members experience their downward emotional tug. Telltale signs of hidden grief include anxiety, fatigue, irritability, sadness, and even somatic symptoms that don't have a clear medical cause. In addition to these emotional markers of grief and loss, there are relational impacts that affect parents' connections with others outside the family, especially when parenting struggles within the family seem too private, too complicated, and/or too painful to talk about with others. As a result, family members may suffer a loss of positive connection with significant others (within and outside the immediate family). The implicit losses here include the loss of family togetherness, pride, and social support (relational health).

Another kind of loss that affects many families entering intensive treatment is the loss of effective agency. Parents who have been seeking help over time often feel abandoned, dismissed, neglected, and even betrayed by the healthcare system. This disheartening experience can lead parents to become mistrusting, self-protective, and guarded with healthcare professionals; not to mention impatient, fearful, defensive, and demoralized. It's common for families in this circumstance to experience feelings of helplessness and a corresponding loss of control. Parents find they have little or no leverage to restore order and balance. Previous "solutions" no longer seem to work or may even make things worse. Parental authority has been compromised or damaged in some way so that things cannot be "set right" by a simple declaration or some other straightforward parental action. In some families, a kind of learned helplessness takes over, and it becomes harder to tell whether a parental authority has been neutralized or merely abandoned, parental control fought for and lost or surrendered without a struggle. Even in those families, parents usually experience something like helpless futility and a corresponding loss of personal agency and effectiveness.

Change, adaptation, and community

To borrow from general system theory, growth and adaptation proceed through cycles of stress, dis-equilibration, and reorganization. There is no meaningful change without disruption of the established order. The noted family therapist Frank Pittman once observed that every family in crisis faces the necessity of change outside their usual repertoire (Pittman, 1987). For a variety of reasons, this kind of change is hard to come by and often resisted by family members intent on managing things without abandoning familiar habits and coping patterns. Families come to treatment “in order to not change,” Pittman writes. “They may be willing to change in a great many ways, as we all must, but they are now under pressure to change in some way they want to avoid” (Pittman, 1987, p.45). The kind of change that Pittman refers to is the second-order change in some aspect of the family’s Core Enactment. In the language of general system theory, this kind of change requires disruption for the system to achieve a new, more adaptive equilibrium.

Recall that families, like all living systems, engage in continuous conversation with their environment. Community is no less important to the family’s survival during a period of crisis than at any other time, but its influence (and adaptive benefits) may increase during periods of disruption. These connections help build and strengthen needed social support, which turns out to be a vital ingredient in the recovery process (social support is consistently linked to better outcomes for both individuals and families in treatment).

Putting It All Together: The Yellowbrick Family Model

The Family Program at Yellowbrick is known as *Parents as Partners*. This represents our understanding that parents and Yellowbrick together partner with the adolescent or emerging adult in treatment. Yellowbrick also partners with parents separately in creating a process that will support shared goals in treatment. Finally, Yellowbrick has come to value the power and meaning of parents from different families partnering to support and learn from each other.

Education

Parents as Partners offers opportunities for parents to learn about adolescence and emerging adulthood as distinct phases of development in health and illness. There are multiple forums, both formal and informal, for parents to experience and explore new ways of communicating and relating to their young person and to treatment staff. Formal venues include the monthly *Parents as Partners* weekend program, a twice-monthly parent call-in forum, Family Rounds Conferences and family therapy. The educational component of the *Parents as Partners* weekend is structured as a “day in the life” of Yellowbrick treatment. This intentional format includes Mindfulness introduction, followed by an educational presentation devoted to a particular aspect of emerging adulthood, and concluding with a facilitated process group for parents (Multiple Parent Group). In addition to building supportive connections between parents and Yellowbrick, as well as parents with one another, these programs provide educational

support for families to build a deeper and more complete understanding of the neurobiological-developmental forces at play in their current struggles.

Community

In addition to educational scaffolding, family treatment at Yellowbrick unfolds against a backdrop of community. Just as there is no change without disruption, family treatment can be messy – emotionally activating in ways that disrupt the family’s usual process for managing stressful life experiences. Yellowbrick recognizes the need for communal support for family members as they navigate these inevitable cycles of activation, disruption and recovery. Communal support-especially peer support from other parents – is built into the Yellowbrick treatment model. Families seeking treatment at Yellowbrick are invited to join a community, not simply stand by while their adolescent or emerging adult receives certain units of service.

The Parents as Partners weekends contribute to community in several ways: by creating a day-long shared treatment experience for parents, including the Multiple Parent Group and the Multiple Family Group; by providing informal opportunities for parents to talk with one another over shared meals, including the Family Brunch at The Residence (prepared by peers with staff support); and by promoting dialogue with treatment staff through group discussions and Family Rounds.

Connected autonomy

Yellowbrick’s model emphasizes the developmental concept of connected autonomy. Connected autonomy focuses on re-connecting with trust and security through authentic engagement; establishing separateness; and collaboratively negotiating needs for both generations. It also means approaching often complex emotions regarding integrating the past into an experience of family within which all individuals are challenged to change. We have learned that connected autonomy requires emotional safety within the family; developmentally appropriate limits from parents; boundaries that protect the integrity of confidential treatment relationships; trust between family members and Yellowbrick; and clear, transparent expectations and accountability on everyone’s part.

At the outset of treatment, each family is assigned a Family Liaison, who serves as the family’s personal communication link with the rest of the treatment team. In this role, the Family Liaison supports and maintains the boundary of privacy and confidentiality between parents and emerging adult (or adolescent) patient vis a vis confidential treatment relationships, while also ensuring that parents have ready access to a senior member of the professional staff to ask questions, voice concerns, problem-solve, and seek guidance and support. The relationship between family and Family Liaison becomes a powerful crucible for change in the family system. For not only does the Family Liaison co-conduct all family therapy sessions and Family Rounds, the Family Liaison also models in action the transformative power of openness and transparency, emotional fluency, and distress tolerance in the context of family relationships.

Family Therapy

Family engagement at Yellowbrick proceeds through a series of formal and informal processes of supportive connection, communication and activation. Family therapy brings these processes into focus to address the fundamental developmental and relational impasses that brought the family into treatment. At Yellowbrick, all family therapy is conducted as co-therapy with the Family Liaison (serving as primary family therapist) and the patient's primary therapist, or *Advocate*. The Advocate's role in family therapy is to support the patient to find and use their voice effectively in family process, to express feelings and needs without retreating into silence or using actions to communicate instead. Family therapy is individualized as to frequency and duration, with a focus that largely derives from the patient's own expressed goals for treatment. At times, siblings and significant others may be included, with or without the presence of parents, in accordance with the individual's treatment needs and goals.

The Yellowbrick model of family therapy probably resembles most those models of family therapy that favor dialogue, transparency and the collaborative exploration of tensions, polarities, stuck points, and competing agendas – in the service of supporting connected autonomy. It is a model informed by contemporary neuroscience, as well as psychoanalytic perspectives of affective and interpersonal processes, within the developmental context of adolescence and emerging adulthood.

References

- Arnett, J. J. (2009). *Adolescence and Emerging Adulthood: A Cultural Approach, 4th Ed.* Boston: Pearson.
- Bateson, G. (1972). *Steps to an Ecology of Mind.* Chicago: University of Chicago Press.
- Doane, J. A., & Diamond, D. (1994). *Affect and Attachment in the Family: A Family-Based Treatment of Major Psychiatric Disorder.* New York: Basic Books.
- Galatzer-Levy, R. (2017). *Nonlinear Psychoanalysis: Notes from Forty Years of Chaos and Complexity Theory.* New York: Routledge.
- Giedd, J. N. (2015). "The Amazing Teen Brain." *Scientific American.* CTune, 33-37).
- Ginot, E. (2018). *The Enacted Unconscious: A Neuropsychological Model of Unconscious Processes.* *Yellowbrick Journal of Emerging Adulthood, Issue VI:* 10-13.
- Jaffe, C. M. (2018). *Organizing Adolescents(-ce): A Dynamic Systems Perspective on Adolescence and Adolescent Psychotherapy.* *Yellowbrick Journal of Emerging Adulthood, Issue VI:*14-23.
- Kahneman, D. (2011). *Thinking, Fast and Slow.* New York: Farrar, Straus and Giroux.

- Minuchin, S. (1974). *Families and Family Therapy*. Cambridge, MA: Harvard University Press.
- Nichols, M. P. (1987). *The Self in the System: Expanding the Limits of Family Therapy*. New York: Brunner/Mazel.
- Panksepp, J., and Biven, L. (2012). *The Archaeology of Mind: Neuroevolutionary Origins of Human Emotion*. New York: W.W. Norton & Company.
- Perry, B. D., & Pollard, R. (1998). *Homeostasis, Stress, Trauma, and Adaptation: A Neurodevelopmental View of Childhood Trauma*. *Child and Adolescent Psychiatric Clinics of North America*, 7; 1: 33-51.
- Pittman, F. S. (1987). *Turning Points: Treating Families in Transition and Crisis*. New York: W.W. Norton & Co.
- Reiss, D. (1981). *The Family's Construction of Reality*. Cambridge, MA: Harvard University Press.
- Sapolsky, R. M. (2017). *Behave: The Biology of Humans at Our Best and Worst*. New York: Penguin Press.
- Schore, A. N. (2018). *Moving Forward: New Findings on the Right Brain and Their Implications for Psychoanalysis*. *Yellowbrick Journal of Emerging Adulthood*, Issue VI: 4-9.
- Siegel, D. J. (2014). *Brainstorm: The Power and Purpose of the Teenage Brain*. New York: Penguin Group.
- Siegel, D. J. (1999/2020). *The Developing Mind: How Relationships and the Brain Interact to Shape Who We Are (3rd Ed.)*. New York: Guilford Press.
- Solms, M. (2019). A Practical Introduction to Neuropsychoanalysis: Clinical Implications. Workshop given for Conference in Neuropsychoanalysis, Chicago: March 30-31.
- Tanner, J. L. (2006). *Recentering During Emerging Adulthood: A Critical Turning Point in Life Span Human Development*. In *Emerging Adults in America: Coming of Age in the 21st Century*, Arnett, J.J. & and Tanner, J.L., Eds. Washington, DC: American Psychological Association.
- Thelen, E., & Smith, L. (1994). *A Dynamic Systems Approach to the Development of Cognition and Action*. Cambridge, MA: MIT Press.
- Van der Kolk, B. (2014). *The Body Keeps the Score*. New York: Penguin Books.
- Von Bertalanffy, L. (1969). *General System Theory: Foundations, Development, Applications*. New York: George Braziller Press.