

## Systemic Thinking in Couple and Family Psychology Research and Practice

Mark Stanton and Robert Welsh

Azusa Pacific University

Systemic thinking is central to the specialty of couple and family psychology (CFP). Eleven applications of systemic thinking (perceptual and cognitive structuring processes) are described to characterize the way couple and family psychologists think about research and practice. The application of systemic thinking to research is described in light of dynamic systems conceptualization and a systemic research approach that delineates six steps that identify collective variables, characterize attractor states, describe dynamic trajectories, identify points of transition, recognize control parameters, and manipulate control parameters to identify core mechanisms of change is rehearsed and detailed. Systemic thinking is applied to professional practice in CFP, recognizing that psychotherapy with multiple individuals concurrently in couple or family formats presents particular challenges. Critical elements of therapeutic process in the specialty, including the therapeutic alliance, assessment and case conceptualization, the understanding of change in systems, and treatment interventions are described in light of systemic thinking and thoughts about professional supervision in the specialty are presented.

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Systemic thinking is the foundation of couple and family psychology (CFP) research and practice. Systems theory provides a set of principles and concepts that inform our understanding of human behavior, but it is important to operationalize these principles in a pragmatic manner that may be adopted by clinicians and researchers. This article summarizes key aspects of systemic thinking and explores the application of systemic thinking to CFP research and practice in light of contemporary theoretical, methodological, and professional practice advances.

### Thinking Systemically

Systemic thinking is a comprehensive cognitive reorientation that includes the willingness

and ability to challenge existing mental models, the understanding and use of systemic paradigms for structuring one's knowledge and thought (seeing the system; Barton & Haslett, 2007), the understanding of systemic concepts (see a summary list drawn from several sources in Stanton & Welsh, 2011), and the inculcation of those concepts into practical thinking about life issues, circumstances, and problems, termed "systems intelligence" by Sweeney and Sterman (2007). It should be noted that contemporary systems thinking is very different than using older mechanistic models of systems or the adoption of the historical model of a family therapy pioneer; 21st-century systems thinking focuses on the complex interaction of factors in problem origination, continuation, or change (Lebow, 2005). Several perceptual and cognitive structuring processes characterize systemic thinking; they may be used readily in CFP research and practice. The following section refines ideas introduced in Stanton and Welsh (2011).

### Challenge Mental Models

A mental model is an epistemology that provides a set of rules that govern perceptions and

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Mark Stanton and Robert Welsh, Department of Graduate Psychology, Azusa Pacific University.

Correspondence concerning this article should be addressed to Mark Stanton, Office of the Provost, Azusa Pacific University, 701 East Alosta Avenue, Azusa, CA 91702. E-mail: [mstanton@apu.edu](mailto:mstanton@apu.edu)

the management of information in problem solving (Auerswald, 1990; Stanton, 2009). Most people are educated to think according to the dominant epistemology of their society with little awareness that there are other ways of thinking. For example, there are substantial dissimilarities between those socialized in Western versus Eastern thought processes (Nisbett, 2007). Individuals raised in Western societies have typically been instructed in the scientific method originated by René Descartes in 1637 (Capra, 2002). The rules of the Cartesian method include dividing problems into separate chunks in order to understand and address them, initiating an analysis with the simplest pieces of the problem regardless of any natural relationship between the parts, and completing an exhaustive analysis of the problem (Descartes, 1999). Cartesian rules facilitated significant research advances, but when taken to an extreme they lead to conceptual errors (Capra, 2002; Stanton, 2009), such as reductionism (the loss of the complexity of a whole by reducing the whole to the sum of its parts; reductionistic solutions isolate issues and problems from their context and ultimately prove insufficient or adverse when implemented in real life context because of unintended consequences), linear thinking (the exploration of problems through simple cause-effect analysis that excludes integrative and synergistic effects within a complex web-type system), and extreme objectivism (the claim that the only valid knowledge is that achieved through use of the scientific method; Capra, 2002). Sweeney and Sterman (2000, 2007) created an inventory of problem-solving scenarios to identify how people respond to social and natural situations intended to demonstrate multifaceted cause-effect relations and found that participants rarely consider factors not directly mentioned and often do not notice reciprocal processes in action. Systemic thinking avoids these errors by challenging Cartesian thinking and balancing it with rules that emphasize context, complexity, and reciprocity between parts.

The willingness to challenge mental models is based on personal experience of discontent or insufficiency with an established set of rules, and the introduction of an alternative method for conceptualization that appears credible and demonstrates the ability to resolve problems (Gregoire, 2003; Sandoval, 1996). Mary Cath-

erine Bateson describes this as an “epistemological shock” that challenges the existing perceptual worldview and results in an unsettled period of exploration of alternative conceptual frames (cited in Bloom, 2004). Bateson and her father, Gregory, used an assortment of methods to facilitate thinking about thinking, including ecological examples and complex, constructed conversations (termed “metalogues”) that required readers to contemplate diverse ways of thinking (Bateson, 1972). Others have used engaged individuals in the creation of systemic analogies (Duit, Roth, Komorek, & Wilbers, 2001), the inductive observation of social behavior that illustrates complexity (Whitchurch, 2005), or the contemplation of complex problems in a semistructured format intended to promote awareness of interactive factors (Plate, 2010; Sweeney & Sterman, 2007).

Consideration of alternative mental models may facilitate the ability to examine one’s own mental model and to choose the mode of thinking best suited to the problem under consideration, instead of simply adhering to the framework into which one was socialized. Gregory Bateson (1972) called this “deutero-learning” or “learning to learn” and suggested that it facilitates problem solving. Don Michael refers to this process as “error embracing” because it involves reconsideration of one’s epistemological expectations and indicates that it is a crucial “condition for learning” (cited in Meadows, 2008). The ability to examine one’s own use of mental models and to challenge one’s own epistemological bias is crucial to systemic thinking.

### See the System

The ability to see the system in CFP is a cornerstone of thinking systemically. It is perhaps the most radical departure from the Cartesian way of studying the world. Systems theory, in contrast, is based, in part, on process metaphysics (Whitehead, 1929) and shifts focus from the parts to the whole. A system is hierarchically ordered into networks of relationships, each with greater complexity (Capra, 1996; Bronfenbrenner, 1979). Systems have systemic properties, including the ability to self-organize in states far from equilibrium (Prigogine & Stengers, 1984), self-regulate through feedback, and are continuously changing in a nonlinear fashion toward a trajectory (i.e., men-

tal process; Bateson, 1979). Systemic properties will be discussed in greater detail below.

A helpful framework for seeing the system is to consider the individual, interpersonal, and macrosystemic factors of a system over time (Stanton, 2009). Considering these three system domains helps the couple and family psychologist to focus first on the system and then on the reciprocal elements of the system (Robbins, Mayorga, & Szapocznik, 2003).

### Comprehend Complexity

The ability to comprehend complexity broadens thinking beyond the individual and recognizes the reciprocal influence of hierarchically ordered systems (Bronfenbrenner, 1979). One of the challenges of comprehending complexity is the number of possible factors that might influence the system. The ability to separate relevant from irrelevant influences is exceptionally difficult and can only be accomplished through an ongoing process of assessment, observation, and trial and error. One must resist the tendency to simplify the description of a problem. Beginning therapists often look for direct causes of problems like trauma, unemployment, or domestic violence. Such seminal events should not be underestimated, but the unique constellation of reactions to low-probability events is often multidetermined and largely contextual.

Complexity moves beyond the familiar cybernetic idea of homeostasis, in favor of existing at a state far from equilibrium—at the edge of chaos.

The edge of chaos . . . is where the components of a system never quite lock into place, and yet never quite dissolve into turbulence . . . the edge of chaos is where life has enough stability to sustain itself and enough creativity to deserve the name of life. The edge of chaos is where new ideas and innovative genotypes are forever nibbling away at the edges of the status quo, and where even the most entrenched old guard will eventually be overthrown (Waldrop, 1992, p. 12).

Comprehending complexity means thinking about systems as dynamic, continuously changing, spontaneously organizing, and relentlessly adaptive. As complex systems move further away from equilibrium, the system can destabilize and transform into an even more complex system, spontaneously producing a new set of properties and organizational structure (termed

emergence). Embracing complexity in systemic thinking expands the way family psychologists consider intervention and change.

### Recognize Reciprocity

The ability to recognize reciprocity within systems is a critical factor in systemic thinking that avoids the error of linear thinking in analyzing complex problems. Individuals educated in Western society tend to identify simple, linear, causal pathways in problem situations, typically identifying a single cause and failing to recognize causal webs or causal feedback loops (Plate, 2010). Systemic thinking identifies “simultaneous and mutually interdependent interaction between multiple components” (Capra, 1983, p. 267). These interactions are nonsequential and allow for multiple causes and effects in the etiology, evolution, and resolution of problems. For instance, a systemic understanding of the attachment relationship between a parent and child would recognize the mutually interactive nature of the relationship and understand that the actions of each are simultaneously influencing and being influenced by the other, creating a causal loop that defies reduction to linear cause–effect (Schermerhorn, Cummings, & Davies, 2008). If other members of a typical social system (e.g., second parent, siblings, grandparents, etc.), are factored into the dynamic, it is immediately apparent that a complex web of “causation” (or effect) is created (Stanton, 2009).

The ability to recognize reciprocity may be enhanced by instruction in systemic concepts (Peterson, 1996; Plate, 2010). Initial efforts to assess the recognition of reciprocity found that participants rarely identified reciprocal processes even when they were explicitly included in a problem situation. Participants improved their recognition of interaction between elements when they were presented with diagrams based on interactive processes in the scenarios (Sweeney & Serman, 2007). Plate (2010) developed a device to assess the mental cause–effect map that individuals create to conceptualize reciprocity. The ability to recognize webs of reciprocity is crucial to systemic research and systemic psychotherapy interventions.

## Conceptualize Change

At the heart of change in an open, complex, adaptive system is the ability to transform from one state into a more adaptive complex state. Unlike closed systems, open systems are influenced by outside forces that can assist the transformation process; therapeutic intervention is one such outside force. Viewing the system at the point of transition, therapists can look for “leverage points” or “places in the system where a small change could lead to a large shift in behavior” (Meadows, 2008, p. 145).

“Change occurs in self-organizing systems when the build-up of system energy propels the system toward disruption, disorder, confusion, and irregularity” (Chamberlain, 1998, p. 11). As systems destabilize and the status quo no longer works, they often experience the change as a crisis, which can drive them into treatment. Many treatment perspectives view the change from status quo as a decrease in baseline functioning; however, in working with self-organizing systems, it is important to also view the crisis as an opportunity for positive reorganization of the system. Bütz, Chamberlain, and McCown (1997) note that “if we return them to their previous steady state, assuming this is possible, we might be doing them a horrible disservice” (p. 20).

## Observe Patterns and Trends

The ability to recognize trends and patterns within systems is essential to systemic thinking. Patterns are fundamental to the functioning of systems, and one of the reasons that systems are destroyed by reductionistic analysis. As noted by Capra (1996), “What is destroyed when a living organism is dissected is its pattern. The components are still there, but the configuration of relationships among them—the pattern—is destroyed, and thus the organism dies” (p. 81). System patterns are termed homologies and they reflect the interactive feedback processes within the system (Sweeney & Sterman, 2007). Homologies may appear dissimilar on cursory examination and they may present in various domains of behavior that seem disconnected, so many people will focus on the surface features (termed the “cover story” by Sweeney & Sterman, 2007) and miss the underlying processes at work in the system. A systemic analysis

identifies the commonalities at a fundamental level, noting structural similarities despite variation in the cover story. In addition, systemic thinking understands that feedback loops may have different outcomes (e.g., reinforcing loops vs. self-correcting loops). The ability to identify homologies may be assessed at three levels: Level 0—focus on surface features and attempting to link dissimilar structures; Level 1—identification of similarities without understanding differences in the feedback behaviors; and Level 2—recognition of structural similarities and differences (Sweeney & Sterman, 2007, p. 300).

Systemic thinking identifies the associations between apparently disconnected issues or behaviors. For instance, a clinician may note that while a couple may have identified several relationship issues (e.g., sexual problems, parenting disagreements, finance management difficulties) that they believe are distinct because of the content domain involved, there is a common underlying pattern of interaction that cuts across the identified issues (e.g., power up-down loops or personality-interaction cycles). Once the partners recognize the pattern, it can be interrupted and adjusted in a manner that benefits both individuals and the relationship between them. Work on one cover story domain may allow a pattern adjustment that affects the other problem domains simultaneously (or at least facilitate couple recognition of the pattern across the other domains so that improvement in all areas is advanced).

Patterns may also be understood in terms of the dynamical systems idea of an attractor. “As applied to a relationship, an attractor is a systemic tendency for a dyad to get ‘stuck’ in an exchange pattern that unfolds over time” (Lunkenheimer & Dishion, 2009, p. 289). Through repetition of particular patterns of behavior, an initially novel dynamic may evolve into an attractor that is deeply embedded and difficult to change because it provides a kind of stability to the individual and to the relationship. Intervention around aversive attractors may help the dyad to reorganize around alternative positive, or at least neutral, attractors. Finally, patterns may also be recognized across time as they occur in a sequence that is monitored and tracked at a metalevel of analysis (behavior trends, progress toward a goal, and timing of progress). For example, treatment

progress may be monitored by changes in identified patterns, such as a decrease in dominant-submissive decisions as evidenced by an increase in collaborative decisions.

### Consider Unintended Consequences

The reference here is not primarily to Merton's (1957) description of unanticipated consequences to purposive actions, but extends to the consideration of the complexity and unpredictability of chaos theory and the likelihood that interventions in any system will result in unintended consequences due to the multivariate factors in a system (McBride, 2005). Individuals tend to focus only on intended consequences in problem solving, but more thorough consideration of the interaction between variables in a complex system may avoid this tendency by recognizing potential unintended consequences, increasing the ability to select alternative behaviors, and/or improving predictions (Ehrlinger & Eibach, 2011). This requires a shift away from simple linear analyses that rely on the assumption that there are "direct and proportionate reactions to every action" (Stanton & Welsh, 2011, p. 34) to the understanding that "change is not proportional to inputs. Large inputs sometimes produce small results, and a small input at the right time can produce a dramatic result" (Guastello & Liebovitch, 2009, p. 1). Highlighting the interrelation between factors in a system may facilitate recognition of unintended consequences and reduce the sole focus on expected consequences (Ehrlinger & Eibach, 2011).

Unintended consequences may be positive or negative. For example, an intervention aimed at improving couple collaboration in parenting may also improve couple sexual relations. On the other hand, quick fixes that address only immediate factors and provide short-term gain may result ultimately in more problems (leading to the common expression in systems thinking, "Today's problems were most likely yesterday's solutions"). In fact, the failure to consider the impact of time (see below) may be one reason for unintended consequences. Senge (2006) referred to these solutions as "fixes that fail" because they address only immediate concerns and fail to recognize future consequences (p. 399). Stanton and Welsh (2011) cite the traffic cameras installed by some cities to re-

duce red light violations, improve safety, and generate revenue for the cities as one example of an apparently simple initiative that had significant unintended consequences (including, per various studies noted, an increase in rear-end accidents as motorists hit the brakes suddenly to avoid a red light infraction; insufficient revenue from tickets to support the cameras; and, a decrease in the yellow light time by some cities in order to increase revenue, resulting in more accidents), noting that psychological interventions in social systems may also result in unintended consequences. Systemic thinking avoids reductionistic research and intervention design through the recognition of reciprocity between factors in social behavior.

### Contemplate Connections

One result of the influence of Cartesian logic in Western society is the individualism of Western psychology, as evidenced in theory, research, and practice (Capra, 1983, 2002). Many Western models identify the individual as the focus of analysis and minimize the connection of the individual to interpersonal or environmental systems (Stanton, 2009). Indeed, they tend "to study the individual by removing the person from the context of his or her life" (Cervone, Shoda, & Downey, 2007). Systemic thinking actively recognizes the connections between persons inherent in systems. For instance, Lunkenheimer and Dishion (2009) discuss the important connection between relationship processes and the need to research them as connected variables:

If we then analyze parental work status and child behavior problems as two separate variables with a linear relationship, we have missed this fluid interdependency across time and relational context . . . we need to move beyond representing these scales as separate entities and work toward the direct analysis of their interrelationship (p. 287).

Capra (1996) describes interrelated systems as networks of individual organisms that nest within each other to form "networks within networks" (p. 35) that constitute a "web of life" (p. 35). Connection is activated through the communication of information and ideas that arise out of the purpose of the system to coordinate the interface between the interdependent parts (Meadows, 2008). This web-of-life framework impacts research conceptualization and professional practice case conceptualization.



## Accept Ambiguity

Unexplained or uncertain phenomena that occur in complex systems that feature reciprocal interactions, unintended consequences, and variations over time defy the natural desire for simple solutions and easy explanation. Systemic thinking appreciates the ambiguity that exists in complex systems and resists the temptation to jump to absolutes, which deny the meaning or value of the unexplained and ambiguous. Acceptance of ambiguity facilitates the ability to evidence other forms of systemic thinking, such as comprehending complexity (see above) or shifting perspectives (see below). Ambiguity is a form of recognition that not all knowledge can be reduced to the parameters of the Cartesian method (Capra, 2002). "Tolerance for ambiguity implies that one is able to deal with uncertainty and/or multideterminacy" (Beitel, Ferrer, & Cecero, 2004, p. 569). Contemporary science often attributes the unknown to error, focusing on what is understood to be known with certainty. Systems thinking focuses on both, admitting that what is unknown or unclear is still part of the reality of the situation and may become clear, or not, as nonlinear analysis provides perspective and insight. Ambiguity may be related to the concept of emergent phenomena in nonlinear dynamical systems, as these events or circumstances may be viewed as random by some because they are apparently dissociated from immediately prior events or the considered actions of individuals, but may be understood instead as instances of nonlinear processes and events (Guastello & Liebovitch, 2009). Ambiguity allows for the novel. Constructivism argues that individuals (or interrelated social systems) may feed forward what they have experienced or come to know in the past when faced with current ambiguous situations, reducing uncertainty, but concomitantly disallowing novelty or change (Mahoney, 1991). Systemic thinking remains open to new learning and new ideas by embracing ambiguity.

## Shift Perspective

The ability to shift one's perspective to analyze a situation or circumstance from a different vantage point facilitates the understanding of complex systems issues and problems. Modern science operates under the guise of objectivity,

assuming with Descartes that mind and matter must be separated so that the scientist can observe the world objectively. The only reliable knowledge in this approach is that achieved through use of the scientific method (Capra, 2002; Descartes, 1999). Such extreme objectivism is questioned by others who argue that advancements in the understanding of cognition and physics suggest the inclusion of subjective as well as objective analysis (Capra, 2002). Systemic thinking adopts the holistic view that a variety of perspectives contribute to understanding of complex systems.

The skill of shifting perspective involves the capacity to recognize and examine systems at various levels. For example, Bronfenbrenner (1979, 1986) identified the microsystem, the mesosystem, the macrosystem, and the chronosystem levels of analysis for systems. Each perspectival frame provides a lens for understanding system dynamics. Stanton (2009) suggested the intraindividual, the interpersonal, and the macrosystemic/environmental arenas as a systemic paradigm for categorization of factors. Various models provide levels of analysis that aid investigation.

In research and practice, systemic thinking attempts to take the perspectives of others and to see the circumstance or event from their vantage points. In research, this means that the perspectives of various participants are valued and studied (see, for instance, the clinical process questions in the Systemic Inventory of Change that assess one partner's understanding of the other's behavior or feelings; Pinsof & Chambers, 2009). In professional practice, this requires accurate empathy and the ability of the clinician to take the perspective of each person in the treatment process and to accurately empathize with each person's perspective on issues under consideration.

## Factor in Time

Awareness of the role of time in systems functioning extends across all forms of systemic thinking. Systems are not static, they are dynamic, reflecting past, present, and future concurrently as they evolve and change (Capra, 2002). Systems demonstrate historical influences at the individual (e.g., life-span development successes and failures), interpersonal (e.g., familial patterns and values), and macro-

systemic (e.g., cohort effects or the evolution of social mores) levels. The ability to characterize time horizons is not intrinsic to thinking. Sweeney and Sterman (2007) identify four levels of time identification in problem solving situations: Level 0—no reference to time; Level 1—nonspecific reference to time (“later on”); Level 2—specific reference to time (“it takes 20 minutes”); and Level 3—understanding of the significance of time-related dimensions of problems (e.g., immediate vs. delayed consequences, a long-term perspective on efforts, or epistemological beliefs about time; p. 298). Bronfenbrenner (1986) coined the term *chronosystem* to denote the evolution that occurs between an individual, the environment, and proximal processes across time. Systemic research incorporates time horizons into research design and does not assume that variables are static over time. Systemic practice incorporates time in the conceptualization of presenting problems, the assessment of system features (e.g., individual psychosocial history, assessment of family functioning under stress, or historical influences through the use of a family genogram; McGoldrick, Gerson, & Petry, 2008; Sperry, 2004), and the timing of treatment interventions (Stanton & Welsh, 2011).

### Systemic Thinking in Research

For those studying dynamical systems, research will look distinctly different than research conducted on closed mechanistic systems. Just as the “new physics” (quantum mechanics, relativity, chaos, and complexity) employed a different research methodology than Newtonian physics, psychological science also needs to use a methodology appropriate to the study of living social systems. Most psychologists, including systemically oriented psychologists, rely on a linear model for the statistical depiction of change (Guastello & Liebovitch, 2009) and are unaware of the diverse range of research methodologies and data analysis strategies that are systemic in nature. Developmentalists Thelen and Smith (1994) offered a research strategy for incorporating a dynamic systems methodology to studying treadmill stepping in infants. Lunkenheimer and Dishion (2009) and other members of their research network (Granic, Hollenstein, Dishion, & Patterson, 2003; Granic & Patter-

son, 2006) have used this approach to model interactional patterns between parents and children. In the discussion that follows, we rehearse the methodology articulated by Lunkenheimer and Dishion (2009) and draw attention to ways this approach can be used in couple and family psychology to guide data collection and experimental procedures.

#### 1. Identifying the collective variable of interest.

Collective variables are “an observable phenomenon that captures the interrelatedness of diverse systemic elements” (Lunkenheimer & Dishion, 2009, p. 290). They are similar to dependent variables, but are used to identify process rather than outcomes. The collective variable needs to be unambiguous and account for the constantly changing and nonlinear interaction between the systemic unit of study (couple or family) and the context (Thelen & Smith, 1994). The collective variable targets behavior that can be quantified by direct observation and is theoretically linked to constructs of interest. Gottman (1993) provides a good example of identifying collective variables. Seventy-nine couples had three 15-min videotaped conversations which were coded with the Marital Interaction Coding System (MICS), the Specific Affect Coding System (SPAFF), and the Rapid Couples Interaction Scoring System (RCISS). Three collective variables were identified: persuasion attempts (MICS), problem solving (RICSS), and specific emotions (SPAFF).

Granic et al., (2003) used a similar procedure to understand parent–child interaction patterns. These microanalytic techniques are not new to couple and family psychology research, however, the way that the collective variables are used in the research design described below is distinctly different.

#### 2. Characterizing the behavioral attractor states.

An attractor is a place where a point in a behavioral display comes to settle when the system has been perturbed. Attractors have been described as “magnets that exert a pull on the system” (Ward, 1995, p. 633). Behavioral attractors are both within (self-system) and between persons (interpersonal system). Behavioral attractors operating within a

couple or family may include patterns of negotiating conflict or triggers for conflict escalation. The strength of an attractor is measured by the depth of its basin. A deep attractor is well-developed and behavioral repertoires are frequently drawn to this attractor. As behavioral patterns are repeated, the attractor is strengthened. In any given interaction, there are likely to be several available attractors in the state space, with some presenting a stronger pull than others. A state space is a “topographical map of a system’s behavioral repertoire” (Granic & Lamey, 2002, p. 267). For example, a couple’s conflict over a child’s behavior may eventually result in withdrawal, avoidance, civility, or a nonproductive argument. The same conflict in a high conflict situation may quickly lead to violent outbursts because of the strength of the pull toward a violent attractor. Identifying attractor states in couples and families is consistent with observing patterns and trends previously discussed.

3. **Describing the dynamic trajectory of the collective variable.** Collective variables move discontinuously from one attractor to the next and tracking the trajectory of the collective variable begins to explain a dynamic process. Dynamic patterns, maladaptive or not, exist in a state of relative stability (steady state; Von Bertalanffy, 1968). Thelen and Smith (1994) used dynamic systems to study changes in coordination in infants by mapping the behavior of treadmill stepping from 1 month to 8 months. Mapping the behavior across the developmental transition period (usually 7 months) allowed for them to explain the point of transition (phase transition). They note that it is important to map the behavior over the “ontogenetic” period of change. Granic et al., (2003) used a similar design for studying structural changes of early adolescent communications with parents.

Using dynamical systems methodologies, researchers studying therapeutic change in families can explain the dynamic trajectory of the collective variable by recording it over time (treatment sessions) and identifying points of phase transition (or change in at-

tractor states). When perturbations disrupt the family stability, the system moves further away from equilibrium and abrupt changes (phase transitions) can occur within the system. These changes often drive a couple or family to seek treatment because they feel destabilized. During these times, families are often more open to change because of the dynamic process of transformation that is occurring. Mapping the trajectory of change with the accurate collective variable in CFP treatment research is likely to yield fruitful results. This step in the research design incorporates observing patterns and trends, considering connections, and conceptualizing change.

4. **Identifying points of transition.** The trajectory of behavior change moves in non-linear “fits” and “starts” and is different from system to system, thus making it difficult to analyze through traditional research methods. Thelen and Smith (1994) recommend identifying change by exploiting the noise in the data. By considering noise in the data as an indicator of change, rather than as error, researchers might be able to identify dynamic processes of change with greater success. Instability is a hallmark of a transition point.

Granic et al., (2003) used variability as an indicator of change in the structure of family interaction patterns during early adolescence. A large sample of families ( $N = 149$ ) with boys in the Oregon Youth Study participated in the study. Data were collected over five periods that surrounded the hypothesized phase transition (13 to 14 years), when the most significant change in parent-adolescent interaction is thought to occur. After videotaping problem-solving exchanges, data were coded using the Family Process Code. Codes were collapsed into four categories (hostile, negative, neutral, and positive for both adolescent and parent). Using a state-space grid analysis (a method for mapping the process of developmental change developed by Lewis, Lamey, & Douglas, 1999), flexibility of interaction was mapped according to the pattern on the grid. A pattern was considered more flexible if more variable configurations of interaction were exhibited. Results indicated that variable interaction patterns were



significantly higher in boys 13 to 14 years old than other age cohorts.

A similar methodology could easily be adapted to psychotherapy research to map couple or family interaction patterns at various stages of the therapeutic process. However, one of the challenges with this approach is that it is used with direct observations in real time, making it ideally suited to micro-analytic forms of data collection. To our knowledge, it has not been used with self-report data collection. This step in the research procedure captures the essence of considering change in systemic thinking.

**5. Recognize control parameters.** Control parameters in dynamic systems are similar to independent variables in that they can be manipulated to influence the state of the dynamic system (Friedenberg, 2009). Identifying the correct control parameter will help identify the core variable(s) in affecting change. Once the point of transition can be identified (Step 4), it can be predictably altered by identifying the correct control parameter. Lunkenheimer and Dishion (2009) cite the example of identifying of a parent-child dyad predictably shifting to a hostile exchange when discussing relationship problems (transition point) and identify the appraisal of the conflict as the control parameter. Several control parameters may interact to form a more complex parameter. Granic and Patterson (2006) identified two reciprocally interacting control parameters in their dynamic model of antisocial behavior—cognitive appraisal and emotion, using the example of how an anxiety attractor state can move to a hostile attractor state (e.g., an anxious mother may attempt to have her son clean his room, setting off a cycle of negative cognitive appraisals by both parties that escalates into a hostile attractor). The model developed by Granic and Patterson (2006) is an exemplar of thinking systemically about research and provides a testable model with great heuristic value. This step in the research process incorporates considering connections, recognizing reciprocity, and conceptualizing patterns and trends.

**6. Manipulate the putative control param-**

**eters to experimentally generate phase transitions.** To test whether control parameters are correctly identified, they are experimentally manipulated in order to observe the effect on the behavior of the system. If a phase transition from one attractor to another (e.g., hostility to cooperation) can be obtained through the manipulation of a control parameter, then researchers have identified a core mechanism of the dynamic change process.

Granic and Lamey (2002) demonstrated this process by manipulating control parameters to identify subtypes of externalizing disorders (externalizing only and mixed externalizing and internalizing). The researchers experimentally perturbed a problem-solving session where the mother-child dyad was given four minutes to discuss a problem and then end on a positive note following a knock on the door. It was hypothesized that interrupting the interaction would destabilize the participants and force a phase transition. Results of the study indicated that mixed externalizing and internalizing subtypes were more frequently perturbed into hostile interactions than the externalizing only subtype.

This six-step procedure is a research approach that is consistent with systemic thinking habits and embodies the process-based focus of a systemic epistemology. It has obvious heuristic value for CFP treatment research and provides a valuable alternative to the component studies (additive and dismantling) used to identify specific ingredients in randomized clinical trials.

### Systemic Thinking in Practice

In this section we suggest the melding of systemic thinking, research results, and the experience of the clinician in systemic-focused professional practice. Systemic thinking provides a unifying feature to the variety of specific CFP models. We focus on critical elements of the therapeutic process to demonstrate the application of systemic thinking to CFP professional practice.

**Thinking systemically about the therapeutic alliance.** The competence to create and sustain a meaningful and effective therapeutic relationship with clients is crucial to CFP prac-

tice (Stanton & Welsh, 2011). Unlike psychologists who practice primarily with individuals, CFP clinicians must be able to establish a therapeutic alliance with multiple individuals in various treatment formats (e.g., individual, couple, family, or larger social system; Friedlander, Escudero, & Heatherington, 2006). This requires an understanding of the complex and reciprocal systemic dynamics that shape interpersonal relations in the therapeutic context and an awareness of the way multiple people contribute to and are impacted by the evolving therapeutic alliance. For instance, there may be varying opinions of the alliance by different people in the social unit in treatment (e.g., partners, parents, children, siblings, etc.) and the assessment by women in couples therapy of their partners' therapeutic alliance with the clinician constitutes a separate outcome factor beyond their own relationship with the clinician (Knobloch-Fedders, Pinsof, & Mann, 2007). Individual low-quality family functioning in one's family of origin and the level of current interpersonal distress between partners or family members in therapy also predict the type of treatment alliance (Knobloch-Fedders, Pinsof, & Mann, 2004). The systemic clinician recognizes and attends to individual and cultural differences and the manner in which they may impact the therapeutic alliance (Pedersen, Crethar, & Carlson, 2008); for instance, empathy from a multicultural perspective focuses on understanding the individual in the cultural context, not apart from it (Chung & Bemak, 2002). CFP clinicians also understand that specific treatment models define the client-clinician relationship differently (e.g., on a continuum from very hierarchical and directive to collaborative), so the alliance will be impacted by the intervention model (Rait, 2000; Sexton, 2007). For instance, a comparison of Functional Family Therapy (FFT) and Multidimensional Family Therapy (MDFT) found that the most effective therapeutic alliance involved a balance between adolescents and parents in FFT; in MDFT it is most effective to create a strong alliance with the parents (Robbins et al., 2006; Robbins, Turner, Alexander, & Perez, 2003). In addition, specific treatment models may need to adjust the preferred alliance according to the ethnicity of the clients and their cultural expectations (e.g., preference for directive vs. collaborative

styles; Flicker, Turner, Waldron, Brody, & Ozechowski, 2008).

CFP clinicians implement the therapeutic alliance across the phases of treatment, informed by systemic thinking. Research into couple therapy indicates that it is critical to establish the therapeutic alliance rapidly at the beginning of treatment because couple perceptions of the clinician in the first session persist well into treatment (Knobloch-Fedders et al., 2007). This involves creation of a caring context, communication of professional expertise, and appreciation for the clients' expertise. Systemic clinicians need to convey interpersonal warmth, genuineness, and friendliness to create an empathic and caring environment appropriate to all clients (Blow, Sprenkle, & Davis, 2007) in order to facilitate client openness and self-revelation in the assessment and treatment planning phases of therapy (Friedlander et al., 2006). This requires the clinician to modify the style of interpersonal relationship according to the expectations of individual clients within the social unit in treatment (Blow et al., 2007). Conveyance of clinician expertise involves instilling confidence in the clients that the clinician has the education and experience to address the complex presenting issues of social systems (Blow et al., 2007) and the ability to provide a clear sense of direction that engages clients in treatment (Friedlander et al., 2006). This requires attention to the varying perceptions of the presenting issues by different members of the unit in treatment, so that treatment tasks are credible to all (Sprenkle & Blow, 2007). Systemic thinking informs the interaction with clients and enhances appreciation for the input of all clients, recognizing that they are the experts on themselves, their relationships, and their world (Anderson, 2009). Immediate client feedback about the creation and maintenance of the alliance is important to ensure an effective alliance. The CFP clinician solicits the opinions of each person in treatment, using either informal queries toward the end of the first session and later (Stanton & Welsh, 2011), or formal feedback devices that monitor systemic treatment progression, such as the Systemic Inventory of Change (Pinsof & Chambers, 2009) or the System for Observing Family Therapy Alliances (Friedlander et al., 2006). The Systemic Inventory of Change, for instance, has dimensions that evaluate the individual alliance and each

person's view of the alliance with other treatment members (Pinsof & Chambers, 2009).

As treatment progresses, CFP clinicians must monitor, maintain, adjust, and improve the alliance (Stanton & Welsh, 2011; Thoburn, Hoffman-Robinson, Shelly, & Hagen, 2009). This involves advanced understanding of complex alliances in multiperson treatment (i.e., monitoring two or more individuals at once and the relationships between them while simultaneously monitoring any threats to the relationships with the clinician and making appropriate adjustments; Friedlander et al., 2006; Knobloch-Fedders et al., 2007), competent communication with the system members (i.e., the capacity to listen, convey understanding and empathy, and send messages to multiple people at once while recognizing and monitoring the varying perceptions of the communication across the social system; Friedlander et al., 2006; Stanton & Welsh, 2011), and interpersonal conflict management skills (i.e., the ability to manage the alliance with multiple individuals who may be in conflict with each other; Flicker et al., 2008). The latter is especially difficult and requires learned skill in "diffusing hostile exchanges, minimizing blaming attributions among family members, and promoting a relational or systemic view of the problem behaviors" (Celano, Smith, & Kaslow, 2010, p. 37) in order to create a safe therapeutic environment (Friedlander et al., 2006).

By the conclusion of treatment, the CFP clinician may have become a quasi-member of the family (Friedlander et al., 2006) and care is needed to process the range of client affect as the process proceeds toward termination. Obegi (2008) suggests that a systemic understanding of attachment may conceptualize the established alliance as an internalized form of attachment; it is possible to extend that idea to create extended distance and boundaries between the clinician and the clients as they face challenges using skills and insights gained in the therapeutic environment.

**Thinking systemically about assessment and case conceptualization.** Case conceptualization is a broad framework that involves three distinct phases: (a) problem formulation, (b) case formulation, and (c) treatment formulation (Sperry, 2005; Sperry, Blackwell, Gude-man, & Faulkner, 1992). Problem formulation is the initial phase of the conceptualization pro-

cess, in which the psychologist develops a preliminary understanding of the client's presenting problem. The problem formulation phase is primarily a data collection and assessment process, where hypotheses about the problem are developed. Thinking systemically about problem formulation first involves identifying the system (i.e., who are the key stakeholders, which individuals hold power and which do not, what is the life context of the couple or family). Understanding the system involves identifying connections between the various elements of the system and tracking patterns that constitute typical cognitive, emotional, and behavioral homologies within the system (observing patterns and considering connections).

The problem formulation phase is primarily descriptive and involves generating hypotheses that have been formulated on the basis of psychological assessment. CFP assessment has been defined as "the application of individual, couple, and family psychological assessment methods to identify the assets and liabilities of individuals, couples, and families for the purpose of problem identification, treatment planning, and intervention" (Stanton & Welsh, 2011, p. 66). This may include using instruments designed specifically to assess couple and family constructs or traditional personality instruments (e.g., the Millon Clinical Multiaxial Inventory, or MCMI-III). When traditional psychological instruments are used in the assessment process, they are interpreted within a systemic epistemology (Nurse, 1999; Nurse & Stanton, 2008). The data obtained from individual psychological assessment instruments frequently describe psychological processes that capture an individual's style of negotiating other relationships and the environment. A more comprehensive review of applying individual assessment to couples and families can be found in Nurse (1999) or Stanton and Welsh (2011).

Case formulation involves organizing the data and applying a systemic theory of persons and relationships to interpret the data collected in the problem formulation phase. The heart of systemic case formulation is interpretation of the case from a systemic perspective. The theory used to formulate the case may come from a first generation family model (i.e., structural or multisystems theory) or combination of theories, an evidence-based model (i.e., functional

family therapy or emotionally focused therapy), or it may involve a broader and more general systemic epistemology. The early family theorists incorporated select aspects of developments in systems science including cybernetics and general systems theory (Von Bertalanffy, 1968) and applied these ideas to therapy with families. A broad application of systems theory to clinical cases will incorporate systemic thinking and capitalize on the newer developments in systems science, such as the burgeoning fields of complexity and chaos theory. In a seminal text, Bütz, Chamberlain, and McCown (1997) describe ways to integrate newer developments in dynamical systems theory into family treatment. Recent developments in systemic thinking have been applied to systems beyond the couple and family, including individuals (Chamberlain & Bütz, 1998; Seligman, 2005), organizations (Dooley, 2009), and sociocultural problems (Eagly, Baron, & Hamilton, 2004).

Treatment formulation is the final phase, and is characterized by developing an initial approach to treatment that considers format (an important issue when more than one individual is involved in therapy), client goals (including multiple perspectives), and target areas for intervention. The treatment formulation process is prescriptive in nature, and provides a basic blueprint for beginning the treatment process.

**Thinking systemically about change in therapy.** The ability to conceptualize change (see above) is the foundation for psychological practice with individuals, couples, families, and larger social systems. This includes the recognition that therapy is often initiated as social systems experience destabilization during periods of change. Psychotherapeutic interventions may serve as an external force to encourage reorganization of the system at higher levels of functioning sufficient to meet the demands of the current circumstances. Three factors are important to the facilitation of change, identification of homologies or attractor states that function as established patterns of behavior in social units, timing of interventions, and application of mechanisms of change that may modify current patterns.

Homologies and attractor states reference the developed patterns of behavior and interaction within and between people (Lunkenheimer & Dishion, 2009; Sweeney & Stermann, 2007). As explained above, these established sets of be-

havior can create strong forces that reinforce existing behavior and disallow new behavior unless an intervention may adjust the pattern. For instance, the pattern of interaction during conflict may be identified in therapy with a couple to the point that they recognize the self-perpetuating nature of the interaction (e.g., one person says something strongly, the other reacts forcefully because of a perceived power move by the other, and soon they are fighting intensely). Change in therapy is often connected to identification and modification of these patterns. Adjustments in one pattern of behavior may function as leverage points (Meadows, 2008) to cause change in other areas of behavior (e.g., improvement in one area may restore hope and develop new skills that can be used to modify other patterns).

Time and timing can be crucial to change. In therapy, it is important to understand historical influences and the trajectory of change in collective variables and patterns of behavior and interaction (Granic, 2008). The history of change can use periods of variability in patterns to identify current and future opportune times for interventions toward change (Granic et al., 2003). Completion of a thorough history and use of assessment devices and practices that examine historical influences and prior periods of change may inform therapy (McGoldrick et al., 2008).

Mechanisms of change are central to the therapeutic process. These may be identified common factors (i.e., frequently recognized elements in evidence-based interventions, such as certain characteristics of the therapist, the client, or the therapeutic alliance) or model-specific change mechanisms (Blow et al., 2007; Sexton, 2007). Advocates of the common factors for change claim that "psychotherapy works predominately not because of the unique set of interventions (what we call the model-driven change paradigm) but rather because of a set of common factors or mechanisms of change that cuts across all effective therapies" (Sprenkle, Davis, & Lebow, 2009, p. 2). Others suggest that there is an active interplay between common aspects of the therapeutic relationship and treatment-specific interventions (Eisler, 2006), recognizing systemic complexity and the reciprocal interaction between factors in the change process (Sexton, 2007). A complex analysis that conceptualizes a dynamic interaction between



factors is most amenable to systemic thinking (Blow et al., 2007; Norcross, 2001).

**Thinking systemically about treatment interventions.** The ability to conduct systemic interventions is founded on a thorough understanding of clinical intervention research, i.e., “study of the relationship between identifiable clinical practice (techniques, interventions, treatment problems) and client outcomes” (Sexton, Hanes, & Kinser, 2010, p. 166) and CFP treatment models. Clinical intervention research includes outcome studies, process-to-outcome studies, ideographic case studies, qualitative research based on clinical practice, transportability research, and qualitative and meta-analytic research reviews (Sexton et al., 2010), focused on understanding what works, when, and for whom (Minami, Wampold, & Walsh, 2008). CFP treatment models are based on a systemic epistemology and include an awareness of the change factors in the model, the recommended process of implementation, and the intended or expected outcomes. It is important to review the research and analyze such models and their features for consistency with systemic thinking. See Stanton and Welsh (2011) for a list of systemic models that includes citations and specification of treatment populations and issues) or explore books that incorporate chapters from various models (Bray & Stanton, 2009; Pinsof & Lebow, 2005; Sexton, Weeks, & Robbins, 2002).

Psychotherapy with individuals, couples, families, and larger social systems may all be considered systemic therapies for CFP practitioners because the various social contexts may be understood within a systemic construct. CFP practice typically requires advanced knowledge and skill in working with multiple individuals at one time to accomplish the therapeutic process. For instance, the creation of collaborative treatment goals requires input and agreement from each person involved in therapy, based on creation of a treatment context that includes multiple perspectives and is equitable to all (Knobloch-Fedders et al., 2007; Van den Bos & Miedema, 2000). Selection of a targeted intervention must recognize the presenting issues and unique needs of all clients (Adams & Grieder, 2005). Implementation of common therapeutic factors in CFP practice requires conceptualizing problems in relational terms, interrupting dysfunctional patterns of interaction between clients, and

including multiple people in the treatment system (Sprenkle et al., 2009). Adherence to model-specific interventions requires the CFP clinician to fully understand the conceptual underpinnings of the model and to conduct the intervention consistent with its intended design (Frey, Ellis, Naar-King, Sieloff, & Frey, 2007; Hogue, Liddle, Singer, & Leckrone, 2005). Monitoring treatment progress requires solicitation of feedback from multiple clients and adjustments in clinician behavior to maintain the multifaceted therapeutic alliance and continued agreement by all clients with intervention goals (Kelley & Bickman, 2009; Sapyta, Riemer, & Bickman, 2005). It is possible to use a formal device to monitor treatment progress in complex, multi-person treatment settings (Friedlander et al., 2006; Pinsof & Chambers, 2009). Ethical issues may arise in CFP practice different than in individual practice (e.g., definition of the client; specification of the type of relationship that will exist with each person; limitations to confidentiality; and change of format between individual, couple, and family therapy) (Gottlieb, 1995; Patterson, 2009; Stanton & Welsh, 2011). Finally, the conclusion of treatment is more complex in CFP practice and requires interaction around the varying needs and desires of each person involved in the treatment.

## Conclusion

Systemic thinking underlies research and practice in the CFP (Pinsof & Lebow, 2005; Sweeney & Serman, 2007). This article provides an overview of systemic thinking and presents ideas about the application of such thinking to CFP research and practice. Further effort is needed by CFP researchers and clinicians to increase the incorporation of systemic thinking into research design and professional practice. The connection between research and practice must be strengthened as systemic clinically relevant research and systemic clinical intervention research is published.

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### In the Loop (Comments from Readers)

*In the Loop* will be a featured section of the journal beginning with the second issue. We intend it to be a forum for input, feedback, and interaction around the ideas, research findings, and clinical implications noted in our articles. We invite readers to submit comments fewer than 1000 words (including references) that make a significant addition to the topic of the original article. Comments may be submitted electronically through the Manuscript Submission Portal, under the Instructions to Authors at [www.apa.org/pubs/journals/cfp](http://www.apa.org/pubs/journals/cfp), within 60 days of the original publication. Comments will be reviewed by the editor and associate editors.