
CHAPTER 1

Introduction to Systems Thinking

I OFTEN BEGIN my course on Systems Theory with a game that has the following directions: “The name of this game gives the rules of the game. It’s called Letters and Patterns, not Words and Concepts.” I then give some of the following examples and ask the class to join in with their own examples.

It is puppies and kittens, not dogs and cats.
It is summer and fall, not spring and winter.
It is cotton and wool, not silk and nylon.
It is mommy and daddy, not grandma and grandpa.

Generally, at least a few of the students have played the game and chime in with their own examples:

It is beer, pizza, and cheese, but not wine, bread, and chocolate.
It is football and soccer, but not skating and snowboarding.

Then I shake it up a bit and give other types of examples: It is bedroom but not jockey; it is broom but not steak. And finally I will try to make it a bit easier:

It is running, but not run; it is hopping, but not hoping.

At times, a brave student ventures an incorrect guess (“It is swimming but not skiing”; actually, it is both!), but usually students who haven’t figured out the game sit with puzzled expressions until I explain the rules. Seeing the words on the page may have helped you uncover the pattern, and most people have an “aha!” moment

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when the pattern becomes clear to them. The game involves including words that have double letters and excluding words that do not have double letters.

This game is deceptively simple, and participating in the game provides an interesting glimpse into human cognition. While the directions clearly state that words and concepts are not important, students always say that they could not stop themselves from looking for organizing ideas within the list of words. I start the examples by including words that do have some kind of conceptual connection, and most people move right to that level of analysis. The game shows the strengths and the fallacies that come with the way that we organize information.

I also like to start my course with this game because the mental shift that most students experience provides a metaphor for the mental shift that I experienced in learning systems theory. Systems theory has given me comprehensive and far-reaching conceptual insights, and it has helped me correct many erroneous assumptions that are embedded in my thinking or that may be part of our current scientific tradition. While systems thinking has developed from Western scientific traditions, systemic concepts move beyond the type of linear analysis that focuses on isolating and reducing phenomena. This shift is both simple and profound.

As a psychologist, I came to study systems theory through a fairly typical path, by working with couples and families. I initially worked as an elementary school teacher, and in that capacity, I became skilled at applying behavioral theories for classroom management. While there were many elements of teaching that I enjoyed a great deal, I found myself frustrated that I didn't have the ability to help students with more difficult emotional or learning problems. At that point, I pursued graduate work in clinical psychology. I was especially drawn to psychodynamic theories, as they seemed to explain the problems of my former students in a unique and meaningful way, so I replaced my behavioral worldview with an object relations perspective. While I interned at a largely psychoanalytic institution, I was able to do specialty training in a family therapy clinic, and the "aha!" moment arrived for me. Rather than making me choose between behavioral or psychodynamic theories, systems theory offered a bridge between these perspectives and examined how they could work together.

In addition to providing a foundation for multiple theoretical perspectives, a systems approach provided an interesting shift in my clinical work. As I was learning systems theory, I vividly remember

beginning to work with a couple on the brink of divorce. The case was perplexing to me in many ways. Both Maureen, 42, and Vincent, 44, were bright, well-educated, and likable people who performed well at work and were devoted to their three children. Neither reported infidelity, substance use, domestic violence, or other dramatic reasons for their marital difficulties. Instead, Maureen reported feeling lonely and unfulfilled in the marriage and was considering asking Vincent to move out of the house. Vincent was baffled by Maureen's discontent and blamed her friends, several of whom were recently divorced. As I explored the problem, I could see individual issues that appeared problematic. Vincent was the high-achieving son of immigrant parents, and his surface bravado seemed to cover deeper insecurities. Maureen seemed to have plunged headlong into the marriage after the death of her mother 20 years earlier, and I thought that this grief was resurfacing as her oldest child was leaving home. But these individual explanations weren't as helpful as I had hoped, and I knew I was missing something.

As I sat in the therapy room with Maureen and Vincent, I began to understand that I needed to examine the development of their relationship, in addition to knowing about them as individuals. In the popular series of *CSI (Crime Scene Investigation)* television shows, the camera often surveys the crime scene, sometimes zooming in to notice an important microscopic detail, and sometimes taking a wide-angle approach to examine a pattern at a distance. Invariably, the change in the camera angle and focus reveals important evidence that was easy to miss at first glance. Similar to the way that the *CSI* camera work shows what is beyond the scope of ordinary vision, the systems theory supervision I received gave me the experience of being able to "see" Maureen and Vincent's relationship. Suddenly, their marriage became a character in the room, and I understood that the neglect of their relationship had left it feeble and underdeveloped. While I could remain connected to Maureen and Vincent as individuals, I could simultaneously see the richness of the space between them. It was a revelation to understand that their relationship was also my client.

Of course, this revelation did not establish whether they were going to save the relationship or end the relationship. But the focus on their marriage as a system allowed us to explore the balance between their individual needs and the needs of the marriage. I could zoom in and see the important details that each of them felt had been neglected by the other and then zoom back and highlight the ways that these details related to the big picture of their relationship. As the conversation shifted, both were able to identify the ways that they had turned away

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from each other, giving attention to work and family without nurturing the marriage. Further, this realization allowed each to invest in the relationship in new and meaningful ways. Maureen included Vincent in family activities in ways that allowed him to feel valued for more than his earning capacity, and Vincent took the time to go to movies and plays with Maureen, something he had previously refused. As they increased their level of involvement, they became warmer and more affectionate, both remembering times early in their relationship when they felt more connected and beginning to dream about what they might enjoy together when their children left home.

I am somewhat embarrassed to say that I was surprised by the changes in Maureen and Vincent's relationship. Thinking about them as individuals, I believed that their marital distress signified something unresolved in each of them. I now know that one of the dangers of emphasizing the problems of an individual is that this emphasis can minimize the healing potential of relationships. A systems perspective showed me that I was missing something crucial in seeing them only as individuals, and the focus on the relationship brought it back to life. Although I have also worked with cases in which the relationship did not revive, I found that the ability to understand individuals in the context of their relationship and to work on relationships as well as on individuals has been invaluable to my clinical work.

The knowledge of systems theory has enriched my work with individuals as well as with couples and families, and it has been useful in a variety of other contexts as well. Colleagues who know that I utilize systems theory often describe themselves in situations like the one I experienced with Maureen and Vincent, feeling that they are missing something and knowing that systems theory could help. When they ask me for resources to brush up on systems theory, I have found myself in a bind. I can generally ask questions about the case and find specific applications of systems theory that will be helpful, but what is missing is a resource that really provides an overview of systemic concepts.

I have four options to offer in terms of systems references at this point, and none of them meets the needs of my colleagues. First, I can recommend one of the original sources in applying systems theory to psychology, and my favorite is the classic by Watzlawick, Bavelas, and Jackson, *Pragmatics of Human Communication* (Watzlawick, Bavelas, & Jackson, 1967). This book is a fascinating source for many basic systems concepts, and it grounds these concepts in mathematical and physical sciences in a sophisticated and elegant manner. Much of the language borrowed from the physical sciences is awkward, however, and can be

difficult to translate into more standard psychological principles. I recommend the book to anyone who has the curiosity and wherewithal to move through it, but it doesn't fit the bill for most clinicians and students. A second option is one of the general systems books that are meant to be useful in a variety of human systems (Hanson, 1995; Laszlo, 1972; Weinberg, 2001). Although these books also review helpful concepts, their applicability to the practice of psychology is limited. A third option is one of the excellent family therapy textbooks on the market, which both review general systems concepts and detail applications from various family therapy traditions (Nichols, 2010; Nichols & Schwartz, 2001). These books do an excellent job of reviewing the history of family therapy and of highlighting its contemporary use, but clinicians who are not involved in family work find their relevance limited. Finally, there is an outstanding book about applying family systems concepts to work with individuals, which uses much of the information that one would find in a family therapy text as a backdrop for working with individuals (Wachtel & Wachtel, 1986). But what is missing in the current literature is a book that addresses the broad themes of systems theory in psychology that utilizes clear, readable language and clinical examples.

The lack of other systems references in psychology quickly triggers one of my pet peeves, the merger of systems theory and family therapy approaches. It is very common for a student to tell me, "I find systems theory very interesting, but I probably won't use it, since I don't want to work with families." Depending on the day, the poor student making this comment may get a long diatribe about the relevance of systems theory to all of psychology, not simply to families. In fairness, it is true that within psychology, much of the application of systems theory comes from the family therapy movement of the 1960s and 1970s, so the confusion is understandable. Yet I find this confusion unfortunate because it limits the use of these concepts and minimizes the relevance of the theory. The use of systems theory as synonymous with family therapy seems especially unnecessary, as systems theory has been applied in business and other disciplines (V. A. Anderson, 1997; Haines, 1998; Senge, 1990). I have come to rely on the basic concepts of systems theory as the foundation of my practice, and I believe that these core concepts have provided consistent, helpful grounding. As current discussions about the integration of psychological services into medical and educational systems have increased, I see that systems concepts could be used as a helpful foundation for many discussions. The timing seems right to revisit a basic knowledge of

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systems principles, and it is my hope that this book can provide this type of foundation for work with all types of systems.

WHAT IS SYSTEMS THEORY?

So just what is systems theory? Many of the concepts that we will explore in this book are already familiar and have been described through other philosophical and scientific traditions. In some ways, the term *systems theory* is a misnomer, as there isn't a single definition or tradition that would qualify as a distinct theory. Instead, *systems theory* can be defined as a set of unifying principles about the organization and functioning of systems. *Systems* are defined as meaningful wholes that are maintained by the interaction of their parts (Laszlo, 1972). Using this general definition, systems can include organisms, social groups, and even electronic entities. Most of the concepts that I will discuss can be traced to the work of Ludwig von Bertalanffy, a biologist who was born in Vienna in 1901 (Bertalanffy, 1968; Davidson, 1983). An excellent discussion of Bertalanffy's work can be found in a biography by one of his students, Mark Davidson, who convincingly captures the way that systems theory brought together the cutting-edge trends of the last century. As discussed in the next chapter, Bertalanffy was reacting to the scientific controversies of his time by trying to examine biological phenomena in a holistic, methodical manner. Bertalanffy's 1968 summary work was translated into English as *General System Theory*, yet as the systems theorist Ervin Laszlo (1972) points out, a more accurate translation would be *General Systems Teachings*. Rather than trying to create a new theory, Bertalanffy identified general principles that could be used in a variety of disciplines to move scientific inquiry forward. His hope was to create a type of metaperspective that could allow a common language in multiple areas of study.

In many ways, Bertalanffy's hopes have been realized, as systems principles have been incorporated into a range of scientific paradigms. Parallel to Bertalanffy's work in biology, work by the mathematician Norbert Wiener (1948) also explored systemic ideas, which provided the basis for artificial intelligence. Using the foundational ideas of Bertalanffy and Wiener, the movement to use systems theory to create interdisciplinary study began to grow and develop during and after World War II. This movement culminated in several national conferences and meetings, most notably the Macy's conferences, held between 1946 and 1953 (Heims, 1991). The roster of these conferences

reads as a who's who in systems theory, starting with Norbert Wiener and including the neurophysiologist Warren McCulloch, the social psychologist Kurt Lewin, and the anthropologists Gregory Bateson and Margaret Mead. It is difficult to know exactly what happened at these conferences and how they influenced later scientific study, as there were no written records of the proceedings from the first several conferences. Seeing who attended, didn't attend, and left later conferences leaves much room for speculation about the process of sharing ideas at this level. What is clear, however, is that systems ideas are currently influential in business, sociology, anthropology, and mathematics (Davidson, 1983). The specific application of systems ideas is unique in each of these areas, yet the fundamental concepts are surprisingly similar. In each area, a systems approach adds an emphasis on seeing problems in context, looking at how interactions create and maintain problems, and examining the ways that patterns can remain constant or change.

As we will see in upcoming chapters, the major roots of systems theory within psychology come from three major areas (Nichols & Schwartz, 2001). First, Gregory Bateson began to study psychopathology from a systems perspective. In 1954, Bateson joined psychiatrist Don Jackson in Palo Alto, California, to study families with schizophrenic members. By 1959, they had created the Mental Research Institute and were joined by psychologists Paul Watzlawick and John Weakland, as well as by other family therapy pioneers, including Jay Haley and Virginia Satir. Second, in 1946, Murray Bowen began working with mothers and their schizophrenic children at the Menninger Clinic, and by the mid-1950s, he had expanded this work to include large family groups (Bowen, 1985). He continued working to apply systems concepts to understand the ways that the extended family influenced individual psychopathology, first at the National Institutes of Health and then at Georgetown University. A third area of systems work came in the 1950s, when Nathan Ackerman (1966) was expanding traditional psychodynamic definitions of relationship problems at the Family Mental Health Clinic in New York. All of these practitioners and researchers focused on different aspects of systems theory, but all were involved in the shift away from examining problems in an individual and linear manner to looking more at context and circular causality, which will be explored in subsequent chapters.

Many would argue that the glory days of family therapy occurred in the 1970s and early 1980s and that since then, the field has been disillusioned with the overall efficacy of family treatment. There was

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certainly an enormous amount of excitement around family therapy at this time, and many within the field felt that we had finally found the ultimate answer to psychological problems. The original idealism of the family therapy movement seems quaint today, as we understand more about the frequently intractable nature of human problems. We are now more aware of genetic and biological influences on human behavior, and we have a more realistic picture of the difficulty of overcoming challenges such as violence and trauma. While couple and family therapy has remained popular, we are much more aware of the complexities involved in providing this type of service. At the same time, many systems concepts have been integrated into other therapy models. Ideas of context, culture, and bidirectional influence are part of virtually all psychological theories now, although these approaches may not directly credit systems theory for these concepts. It is difficult for a psychologist to make it through a day without seeing references to one of the major systems concepts that we will discuss.

I hope the case for the utility of systems theory will pervade each chapter, as I highlight a central concept in the model and link the concept to a major theoretical application. I have positioned each concept in relation to other scientific ideas, and I hope that you will be challenged to think about theory in both a broad and specific manner. One of the key advantages of systems theory is that it allows a metaperspective, and as a scientist and scholar, I believe that questioning our big-picture assumptions is essential. One of my favorite books in graduate school, Thomas Kuhn's *The Structure of Scientific Revolutions* (1970), outlined the way that scientific knowledge grows, changes, and is discarded over time. He posited that science is guided by a dominant paradigm, which he called "normal science," and noted that scientific evidence tended to be accepted if it fit with current normal science and to be marginalized or ignored if it did not, at least until there were sufficient inconsistent data to push for a reorganization of theory. He called this reorganization a scientific revolution, and the process he describes is consistent with the type of discontinuous change we will discuss in later chapters. Reading Kuhn helped me remember that being a psychologist is part of an ever-emerging process, and I think that systems theory can be seen as the same type of evolving, dynamic base of knowledge.

SEVEN SYSTEMIC CONCEPTS

For purposes of introduction, here I'll emphasize very briefly the principles that will be covered in the book, as well as show the basic

format I follow. Each chapter is designed to cover a single major concept in depth and then feature a psychotherapy method that provides an especially relevant utilization of that idea. Of course, each of the psychological theories that I discuss contains many, if not all, of the concepts I will cover, so there is something artificial about linking a theory to one single idea. Further, many of the psychotherapy approaches I reference come from the family therapy tradition, perhaps making it appear that I have fallen into the trap of equating systems theory with family therapy. But my hope is that by consistently moving between a general concept and a specific theoretical application, I can show both the relevance and the utility of the general concept for many types of systems. Similarly, I hope that a discussion of both theory and technique will bring the concepts to life. I have found that the systems ideas we discuss are both basic and profound and that the best way to really understand each idea at a deeper level is to apply each in a variety of ways. I will use the terms *client* and *patient* somewhat interchangeably, as each term has a history in the ideas we will discuss, and both terms have distinct advantages and disadvantages. Similarly, I will alternate the use of gender language throughout the book, unless I mean to refer to a specific gender. Finally, the case examples that I will use are composites of actual cases that I have seen in my practice, but all have been modified or disguised to protect an individual identity. I have used bits and pieces of real clinical stories, but none of the case examples refers to a single clinical case. My hope is that I have captured a psychological truth in the case material, but I am determined not to create a feeling that I have betrayed any material or spoken at anyone's expense.

Going back to view Vincent and Maureen's relationship through the seven concepts that I will cover in the book, we can see that even on a preliminary level, a systemic lens offers something beyond what is available in other psychological theories. Starting with the idea of context, we can first look at their relationship as a whole and then examine the way that the marriage is embedded in other relationships. Vincent and Maureen both value their children immensely, but being in the family context doesn't enrich their relationship at this point. Similar situations exist with Vincent's work and Maureen's friendship networks. At this point, these other contexts compete with the marriage rather than complementing it. They put more time and energy into other contexts and thus have more positive experiences in other contexts.

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After seeing all the relationships in which Vincent and Maureen are grounded, and seeing the connections between these subsystems, we can move on to looking at the unique way that systems theory addresses causality. A more traditional approach to causality might look at the individual problems that Maureen and Vincent bring to the marriage. Using systemic ideas of causality, rather than blaming Vincent's narcissism or Maureen's depression for the problems in the marriage, we can look at the multiple factors that contribute to Vincent's self-involvement and to Maureen's passive withdrawal. Further, we can see the circular patterns through which all of these subsystems influence one another and create the unintended consequence of a distant unsatisfying marriage. This emphasis on circular and multiple causality is less blaming than a linear approach and also provides a broader perspective on intervention.

Systems theory helps us understand how and why this pattern resists change and also gives us ideas about how the pattern can be transformed. We can look at the ways that communication keeps the problem locked in place but could also create an avenue for change. Vincent feels relieved when Maureen turns to her friends for support, as he feels inadequate in addressing her sadness around their children leaving home. Maureen sees Vincent's reluctance to listen more fully and supportively as a sign of his selfishness and lack of caring, and she withdraws from connection with him. He then labels her withdrawal as a sign of depression or a midlife crisis, reinforcing his rationale for keeping his distance. We can see that this communication reinforces the pattern and that it establishes a structure within the system that isn't functional. Maureen feels closer to her friends and to her children than to her husband, suggesting problems with boundaries and proximity.

Looking at the development of the structure over time, we can see that family history and development also influence the current problems in the marriage. The distant, formal relationship between Vincent's parents and Maureen's loss of her mother as a young adult give them no vision of how to create a warm, satisfying relationship after the children leave home. We can imagine that early childhood patterns reinforce this difficulty even further, as Vincent's template in relationships is to gain approval through external success, while Maureen's involves taking care of those around her, without an awareness of her own desires. The intersection of history and development further suggests that these problems are likely to be even more meaningful and painful as the couple faces a relationship with each other without the distraction of children.

Finally, a systems perspective uses social constructivism to examine the cultural narratives that give their story meaning but limit the possibilities for change. When Maureen attends a friend's divorce party and sees the prevalence of relationships ending as children prepare to leave home, it is easier for her to tell herself that the time might be right for her to end her marriage. Both Vincent and Maureen expressed different variations on cultural beliefs around middle age. Vincent discounted Maureen's feelings of sadness by attributing them to a midlife crisis, while Maureen was pessimistic about Vincent's ability to change, saying that middle-aged men are stuck in their ways.

Weaving these themes together, I had before me a rich view of all that had created and maintained the problem, but I also could tap into a wealth of intervention strategies for addressing the problem. I was able to help Vincent and Maureen identify a shared vision for their relationship, which had been given short shrift as they attended to other parts of their lives. As would be predicted by systems theory, when the marriage improved, both Vincent and Maureen reported that they were happier as individuals and that their family life was more satisfying. Their communication improved in quality and quantity, which in turn increased their connection and altered the structure of their marriage and their family. In making these changes, I believe that they not only reworked their own family legacies but also passed along a new relational template to their children. The interplay between relational and individual change was rewarding to witness and gave me a chance to experiment with systems theory directly. I hope that as we move into exploring these themes in more depth, you will have a similar experience of intellectual growth and experiential empowerment. These lofty goals are certainly consistent with a theory that seeks to explain everything from atoms to the universe.

