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Conceptual Framework

Lessons from the New Science

This chapter outlines the conceptual framework that informs the remainder of the book. First, we briefly discuss the dominant Newtonian paradigm and the challenge to that worldview presented by the “new science” of the twentieth and twenty-first centuries. Second, we discuss how the insights of the new science have been applied to organizations and how they relate to higher education and student affairs. We develop four concepts from this literature that provide insights to help student affairs professionals think about their work in new ways. These concepts are valuing dualisms, paradigm transcendence, recognizing connectedness, and embracing paradox.

The Newtonian Paradigm and the “New Science”

A *paradigm*, in the way used here and in the original meaning of the word, is “a civilization’s fundamental view of the nature of things” or “the lens through which we see everything” (Schwartz & Ogilvy, 1979, p. 2). A paradigm is a system of assumptions about the nature of reality that is integrated, pervasive, holistic, and internally consistent. A paradigm establishes the ground rules for explaining on the broadest level the nature of the world and the place of human beings. It is the filter through which all human beings interpret the world around them. It is from within a paradigm that human beings

understand what is real, what is false, what is possible, and to what they should pay attention. Because one's thinking is so embedded in a paradigm, it is difficult to step outside of it and grasp its outlines. Paradigms are seen most easily when examining other times or other civilizations. One becomes aware of different ways of viewing the world when, for example, one is immersed in cultures of the Eastern world, which see the world in very different ways. Paradigms also become more visible when the paradigm of one's own civilization is changing. The beginning of the twenty-first century is a time of such paradigm change, or what Kuhn (1970) named "paradigm shift."

Paradigms emerge and decline over time. Schwartz and Ogilvy (1979) argue that at any given time there are three paradigms at work—the old, the dominant, and the emerging. Briefly, in terms of Western civilization the old paradigm is that of Aristotle as modified by Thomas Aquinas. The dominant model is the scientific worldview, which emerged from the seventeenth through the nineteenth centuries and which is known as the Newtonian worldview. In the twentieth century, a new postmodern paradigm emerged as scientists discovered aspects of the universe that were inexplicable from a Newtonian view of the nature of the physical world.

In historical terms in Western civilization, for more than a thousand years the world was understood through the teleological lens of Aristotle. This was the dominant paradigm. To understand the world teleologically is to believe all of creation has a purpose and an end that it is naturally moving to fulfill. The purpose of something was inherent in its nature. Aquinas modified this worldview by asserting that the purpose of creation was divinely ordained. The purpose of all creation was to move naturally toward God. Not only were the physical processes of the universe understood in this way, social relations were also understood as teleological and divinely ordained.

Although this old paradigm is still present in religious thinking, beginning in the seventeenth century this worldview was challenged

and finally replaced as the dominant worldview by the paradigm of science. Epistemologically, the generation of knowledge within the scientific paradigm was grounded in structured observation, experiments, and facts rather than knowledge based on natural law and authority. Beginning with such thinkers as Galileo, Copernicus, Newton, Descartes, and Bacon, this new epoch became known as the Enlightenment, or the Age of Reason. This new paradigm emerged and nudged off center stage the notion that how things are known is divinely ordained. It had been believed that the sun revolved around the earth because people were told by authorities this was God's plan and because it was confirmed by their own naïve observation. The structured observations of Galileo, Copernicus, and especially Newton changed that. Newtonian science reshaped the basic assumptions about the world, the universe, and humanity's place in the world.

The basic tenets of the Newtonian paradigm are as follows. The universe is stable and regular. It is like a very complex machine. Like a machine, under the same conditions phenomena will behave in the same way. Because the universe is stable and regular it is also predictable. This is the basis for experimentation and the reproducibility of results. If one fully understands and creates the proper conditions then one should be able to predict the results because the results should be the same. The conditions of the observations exist independent of the observer. The purpose of experimentation is to create the conditions under which the same results will be achieved. If that can be done then the result is true. Because results can be predicted they can also be controlled. If one wants to obtain certain results then one should create certain conditions. Stability, predictability, and controllability are hallmarks of a Newtonian worldview.

Scientists and other learned people came to see the world's workings as machinelike. The clock was Newton's metaphor for the real. Wholes could be broken down into parts that would help one understand more fully the whole. Wholes were sums of parts, just

as a machine is the sum of its parts. Proponents of science also introduced and preferred the notions of rationality and empiricism. Things were known that could be seen or in some way sensed. This was in contradiction to the previous way of understanding that relied on belief and faith in unseen forces and powers. The Newtonian paradigm is dominant because the underlying beliefs and assumptions about how the world works and humanity's role in it dramatically changed and pervaded virtually all thought, belief, and culture in the Western world. As Zohar (1997) wrote, "Classical physics transmuted the living cosmos of the Greeks and medieval time, a cosmos filled with purpose and intelligence and driven by the love of God for the benefit of humans, into a dead, clockwork machine" (p. 18).

This science-based paradigm has dominated the world for hundreds of years and still has pervasive influence today. However, a new paradigm has been emerging through much of the previous century. Just as the dominant Newtonian paradigm was the result of the emergence of modern science, the dawn of this new paradigm began when the limits of Newtonian science began to be discovered in the early twentieth century. Science itself began to discover that the universe was not stable, predictable, and controllable in the ways it had thought. It is not that the Newtonian paradigm is "wrong;" the old science is "right" about many things. But it is a perspective and, thus, it cannot explain everything. As phenomena were encountered that could not be explained sufficiently from a Newtonian perspective, new ways of thinking were required.

On the largest scale, Einstein discovered that time and space are not discrete and independent. They exist as dimensions in relationship to each other and to the observer. On the smallest, subatomic scale, instead of finding discrete particles and waves, Heisenberg found that they, too, existed as dimensions in relationship to each other and to the observer. Prigogine discovered that complex systems are not stable; they evolve and self-organize in response to constant feedback. Again, structure and environment

were not discrete. They existed only in relationship to each other. Each of these observations points to understanding that the universe is not closed, mechanical, and predictable as Newton and his progeny believed. It is open, evolving, connected, and participative.

What emerged in the twentieth century from the work of these and other thinkers has been called the “new science” of quantum physics or quantum mechanics, dissipative structures, and chaos theory. Although the new science was the harbinger of change, it was not the only sector of society that experienced changes indicating an overall paradigm shift (Kuhn, 1970). The notion of modernism with its belief in neutral, objective truth came under stress as well. Postmodernism was a radical response to and departure from the extremes of modernism. Shifts were occurring in the social sciences, management and organizational theory, art, architecture, and so on. In fact, in an analysis of the work being done in the 1970s and even previously in physics, chemistry, brain theory, ecology, evolution, mathematics, philosophy, politics, psychology, linguistics, religion, consciousness, and the arts, Schwartz and Ogilvy (1979) discerned patterns of change across the sectors that represented shifts of a paradigmatic nature occurring at a societal level.

The point is that things change together. When any aspect of our most basic belief structures is altered, the other elements of that internal framework [that is, the paradigm] must also adjust. We find strong evidence that a number of the underpinnings of our basic beliefs are under challenge. That challenge is coming from a multifaceted revolution of the sort that we have experienced only a few times in the course of our civilization's history: the revolution that began more than a century ago and has gathered momentum ever since involves as great a change as the Copernican revolution or the emergence of the Enlightenment (p. v).

Applying the Insights of the New Science to Organizations

It is necessary to focus on two principles from this brief discussion as it shifts to organizations in general, higher education, and, finally, student affairs. First, dominant paradigms explain the workings of social structures in society as well as natural phenomena; and second, the dominant paradigm of Western civilization is Newtonian. Taking these two principles together is to recognize that a Newtonian paradigm has informed our views of society as it has the sciences. This is seen more clearly because an alternative paradigm emerged during the twentieth century.

Newtonian science and the associated theories of Darwinian evolution were imported to administrative and management science as models to explain and shape organizational functioning. They are metaphors that shape one's thinking, what one focuses on, what one sees, and what one does in organizations. This framework encourages professionals to view organizations as machines—mechanical, predictable, and hierarchical. They are closed systems that incrementally change, where growth is orderly, disturbances indicate a problem, and where they are in perpetual competition for what are viewed to be scarce resources. Briggs and Peat (1999) argue: "As a social metaphor, Darwin's notion of 'the survival of the fittest' has been used to justify predatory commercial competition and class structure. In fact, the Darwinian idea has become so ingrained that we usually take it for granted that [any organization that fails] must have been in some way flawed while what survives must be 'better.' . . . Scientific ideas that become cultural metaphors are like medicine. They can be beneficial in the right dosage within the right context, but taken in the wrong way, they can be harmful" (pp. 6–7).

Chaos theory and the "new science" are emerging as cultural metaphors helping to see organizations and work in a different light. In the mid-1990s, two organizational consultants, Margaret Wheatley and Danah Zohar, independently began to understand that

persistent problems in corporations and other organizations stemmed from the framework from which those problems were understood and engaged.

In the beginning of *Leadership and the New Science*, Wheatley (1999) described her increasing frustration over American organizational life:

Why do so many organizations seem lifeless? Why do projects take so long, develop ever greater complexity, yet too often fail to achieve any significant results? Why does progress, when it appears, so often come from unexpected places, or as a result of surprises or synchronistic events that our planning had not considered? Why does change itself, that event we're all supposed to be "managing," keep drowning us, relentlessly making us feel less capable and more confused? And why have our expectations for success diminished to the point that often the best we hope for is endurance and patience to survive the frequent disruptive forces in our organizations and lives? (p. 3)

The dominant paradigm for understanding and managing organizations is the view of the world based upon Newtonian science. This is because since the 1950s the principles of science have been imported to the management of organizations. And that science is the seventeenth-century science of Newton, not the "new" science of the twentieth century. Both Wheatley and Danah Zohar (1998) described this Newtonian organization. Wheatley (1999) wrote: "Each of us lives and works in organizations designed from Newtonian images of the universe. We manage by separating things into parts, we believe that influence occurs as a direct result of force exerted from one person to another, we engage in complex planning for a world we keep expecting to be predictable, and we search continuously for better methods of objectively measuring and perceiving the world" (p. 7).

In *Rewiring the Corporate Brain*, Zohar (1997) added: “We live largely in a world of Newtonian organizations. These are organizations that thrive on certainty and predictability. They are hierarchical; power emanates from the top, and control is vital at every level. So, often, is fear. They are heavily bureaucratic and rule bound, and hence inflexible. They stress the single point of view, the one best way forward. They are managed as though the part organizes the whole. Newtonian organizations do not respond well to change. Their primary value is efficiency” (p. 5).

If management is to be “scientific,” it should be grounded in science as it is currently understood, not in the outmoded science of the seventeenth century. People in organizations are *not* the same as planets in solar systems or electrons in atoms, and organizations are not machines! One only thinks and thus acts as though they are when one applies the principles of Newtonian science to organizational functioning. The assumptions of Newton have been challenged by the scientific models of quantum mechanics, field theory, dissipative structures, and chaos theory, which assert interconnection over fragmentation, networks over hierarchy, influence over control, and direction over destination.

From these insights, as well as other reading, the four concepts emerged that form the framework of this book. Before addressing those, we provide a picture of where student affairs is today from an organizational and philosophical perspective.

Newtonian Structures and Student Affairs

The experience of many in student affairs confirms a movement toward governing institutions of higher education from the perspective of business management. A review of recent issues of *Trusteeship*, the magazine of the Association of Governing Boards received by presidents and boards of trustees, reveals a growing interest in bringing traditional business practices to colleges and universities. “Business practices” mean such things as “budget

control, cost benefit analysis, hardheadedness, and bottom-line thinking" (Wessell, 1999, p. 29). Bergquist (1992) argued that there are four cultures of the academy: collegial, managerial, developmental, and negotiating. These cultures interact in any college or university to create a distinct mix. It is the experience of many that the managerial culture is increasingly becoming the dominant culture of many institutions.

That managerial culture and the business practices associated with it are grounded in the Newtonian worldview criticized by Wheatley and Zohar. Their critique is thus relevant to higher education in general and student affairs in particular. If one is to be truly scientific in one's approach to management then one should be grounded not in the increasingly outmoded science of Newtonian mechanics but in the emerging science of quantum mechanics. Wheatley and Zohar provide a starting point from which one may argue that to truly embrace "scientific management principles" is to challenge silo thinking and embrace relationship, vision, participation, feedback, and leadership.

But it is not a simple matter of replacing the old with the new. Newtonian science is not "wrong" and has not been "replaced" by the new science. It is not "either-or." A better way to grasp this is to understand that Newtonian science explains some, but not all, phenomena very well. The new science allows for the greater complexity of reality than one perspective could explain. It is "both-and." Schwartz and Ogilvy (1979) understood this when they argued that the old, dominant, and emerging paradigms may coexist. When this situation occurs, as it does now, it is easier to see new possibilities. The same is true for understanding institutions. The structures of the Newtonian institution are not "wrong." One cannot ignore the dynamics in the university that call for adherence to management structures, principles, and procedures imported from business and understood in the traditional sense. These are very real and powerful and they have an impact on how one fulfills one's responsibilities. To be successful one must be proficient in these practices.

Wheatley and Zohar argue that such proficiency is not enough because institutional life is more complex than the managerial culture can grasp. Both new thinking and old management practices are in play. These multiple paradigms are present in institutions of higher education, as well. Although there is evidence that the managerial culture is asserting itself and gaining dominance, there is also conflicting evidence that the university is increasingly postmodern, and nonrational, intuitive, and multiperspectival meaning-making systems are gaining favor.

As discussed previously, learning communities and service learning opportunities challenge the silo structures of many institutions. Kuh, Whitt, and Shedd (1987) in their prophetic monograph, *Student Affairs Work, 2001: A Paradigmatic Odyssey*, laid out cogent arguments about the need for student affairs professionals and the student affairs profession itself to believe and see things differently. Allen and Cherrey (2000) argue that society has entered an era of networked knowledge that will require different mindsets and skills in order to be effective in higher education and student affairs in particular. So we are not the first, but it is clear to us the need to encourage student affairs professionals to think in new and complex ways is still very much in evidence.

Our perspective is this. Once we recognized that both paradigms are present on a university campus we could not simply propose a new agenda for student affairs professionals and expect that this would provide them with any practical tools for creating change within the structures that exist. We recognized that whatever we proposed needed to recombine elements of the Newtonian paradigm and insights from the new science. Although it may sound too pithy, we realized what we proposed needed to be “both-and,” not “either-or.” It needed to be both the rabbit and the duck. As we already described at the beginning of the chapter, reflecting on the literature cited above we developed four concepts that incorporate this “both-and” thinking. These concepts recognize Newtonian structures and move beyond them. They are valuing dualisms,

transcending paradigms, recognizing connectedness, and embracing paradox.

Valuing Dualisms

Dualistic thinking has been an aspect of Western philosophy, theology, and psychology from the Greeks through the Enlightenment. Dualistic thinking divides something into two opposites and values one aspect of the dualism over the other. It is “either-or” thinking, not “both-and” thinking. An example is the mind-body dualism that characterized Greek philosophy and much of subsequent Western theology and psychology. According to this philosophy, not only does the mind function separately, housed in the body but not interacting with it, but the mind also is superior to the body. The spiritual-intellectual is superior to the physical. Much of Western philosophy, including Newtonian philosophy, incorporates this dualism. Like all frameworks, dualisms help construct a meaningful world but also limit how one views and constructs the world. Dualisms constrain and focus one’s attention and perception in particularly dichotomous and often hierarchical ways.

Dualistic thinking focuses on boundaries. In fact, discrete and fixed boundaries are a necessary construct for the creation and persistence of dualisms. If it is X then it cannot be Y. The first step in thinking differently about dualisms is to recognize that the boundaries that exist between elements of a dualism are social constructions. They exist between the elements of a dualism because one believes they are there, much in the same way the boundary between the United States and Canada exists. A view from an airplane shows a landscape that is unbroken. The border is real, to be sure, but it has been created by human beings for specific reasons. Presumably, it could be changed if circumstances warranted.

Dualistic thinking focuses on value judgments and hierarchy. Thinking holistically is difficult. It is often useful to understand something by first understanding what it is not. It is X; it is not Y.

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Attempts at understanding focus on what it means to be X. However, dualistic thinking then decides which aspect of the dualism is more valuable. The X is better than Y.

Dualisms are used to understand and construct meaning related to the work of student affairs. These include student affairs or academic affairs, theory or practice, faculty or student affairs professionals, leader or follower, order or chaos, to name a few examples. Assumptions about dualisms, which have been inherited from the Newtonian worldview, shape views of student affairs work and guide practice in the field. These traditional assumptions include

1. One element of the dualism is preferred to the other (for example, practice over theory, order over chaos, leader over follower).
2. The elements of the dualism can exist without the other (for example, practice can exist without theory).
3. The elements are separate entities.
4. Any relationship is one in which the elements' differences and boundaries are highlighted.
5. The elements oppose one another.

A story may serve to illustrate these dualisms. Each year the National Association of Student Personnel Administrators (NASPA) and the American College Personnel Association (ACPA) include sessions on making the transition from being a student affairs professional to becoming a member of the graduate faculty in student affairs preparation programs. Most often the professionals considering this transition have been successful senior student affairs professionals who now are interested in teaching the next generation. However, at one such session a presenter made the point that one of the most difficult aspects of this transition was to recognize when one became a faculty member one left the world of student affairs and entered a new world, even if one had made the transition at the same university. This person argued that it was

important to understand that the concerns of the student affairs division were no longer the concerns of the new preparation program faculty member. The new faculty member's former colleagues in student affairs were no longer important. One needed to connect with new faculty colleagues and new faculty concerns in order to be successful as a member of the faculty. The generation of knowledge was now this person's concern. It no longer was effective management of student affairs. This person made this point even though he was teaching student affairs master's students who were graduate assistants and interns in the student affairs division he had once headed and who were being trained to become effective student affairs practitioners. This story illustrates the dualistic thinking characteristic of many institutions. One presumes that one of the reasons the presenter was hired to teach student affairs was because of his successful experience as a student affairs administrator. Yet the structure and psychology of the university separated that previous experience from the person's current role as a faculty member.

By valuing dualisms one recognizes dualisms exist and have meaning. It is not possible to move immediately to overcome dualisms with holistic thinking. The dualisms are built into the context of the institution. To ask professionals to ignore this reality and think differently is to invite frustration and failure. But it is possible to take steps in this direction. The first step is to recognize value in both poles of the dualism. If one is in student affairs then focus on the role of academic affairs and the faculty. If one is a member of the faculty or an academic administrator then focus on the role of student affairs. Do not try to blend them; try instead to see both aspects of this dualism clearly. Ask what each brings to the educational environment. It may even be helpful as an exercise to write these down. The task at this point is to understand and appreciate the value of each pole of the dualism.

To value dualisms does not mean to stop there, however. Once the two poles of the dualism are identified then it is necessary to focus on the space between them. From the new science we know

that space is not “empty;” it is a field filled with connection. When one focuses on the two points of the dualism this field is in the background. When it is brought to the foreground one may see new connections and new possibilities. In terms of organizations it is not simply respecting what the “other” does. New thinking presumes a connection is there; that the two aspects of the dualism are not discrete. Each pole of a dualism embodies an aspect of what really is a whole. In the story above it is obvious that the new preparation program faculty member is both a faculty member and a student affairs professional. It is also clear that faculty and the members of the student affairs division are connected by the graduate students who work with both of them. By focusing on the experience of those students it is possible to ask new questions and thus to develop a new relationship despite the silo world in which they all work. Are the experiences of the graduate interns and assistants incorporated into the classroom pedagogy? Do the departments work with the faculty member in placing interns and graduate assistants for the express purpose of providing a more holistic education for the students? Is the faculty member invited to participate in student affairs staff meetings and activities? Does the division utilize the expertise of the preparation faculty in the design of its activities and services?

The traditional opposite of dualism is unity or monism: the two shall be as one. That is not what is argued by valuing dualisms. Instead the two are both two and one. The elements or poles retain their identity, their distinctiveness, but their relationship creates a new entity. Dewey (1980) referred to this relationship as a functional unity. Wheatley (1999) wrote, “In organizations, which is the more important influence on behavior—the system or the individual? The quantum world answered the question for me with a resounding ‘Both.’ There are no either/ors. There is no need to decide between two things, pretending they are separate. What is critical is the relationship created between two or more elements” (pp. 35–36). The transcendence of an either-or dualism does not

result in a new level of predictability or control. When we focus on the individual, the group or system goes out of focus and is imprecise, and vice versa. It results in new understanding and new perspectives.

Transcending Paradigms

Our intention in the book is to discuss, redefine, and transcend some of the dualisms that limit and constrain the ability to realize the stated goal of a holistic education of students. Consistent with the point made by Wheatley, new relationships are suggested for what has been seen as separate. Again, the point of this is not to make the dualism a unity, but to enhance the view that the elements are in relationship with each other. This is the key to having this book be both forward thinking and practical.

Paradigm transcendence is the next step toward thinking differently. The concept of paradigm transcendence is different from Kuhn's concept of paradigm shift. Rather than a paradigm shift, what has occurred during the last half century is paradigm transcendence. A paradigm shift implies that there is the old way or the new way. There is a change from the old to the new, with the old being discredited and discarded. The two paradigms cannot coexist; they are mutually exclusive. In its own way the concept of paradigm shift is an example of dualistic thinking. To transcend, however, involves rising above, being greater than, and going beyond the limits of something and even incorporating it. When applied to paradigms, transcendence implies that there is the old way *and* the new way. Both exist and both have legitimacy depending on the context. Take, for example, research methods in higher education. Qualitative, naturalistic, and constructivist research methodologies grounded in the new paradigm have gained legitimacy in academe. Yet they have not replaced quantitative, positivistic methods. Each is used depending on the question and focus of the research.

Paradigm transcendence recognizes the existence of multiple paradigms and proposes that one “brackets” each one in order to perceive new connections. To bracket one’s experience is a concept borrowed from phenomenology. Once one recognizes that knowledge and experience are socially constructed then one also must realize that “pure” knowledge does not exist outside of one’s specific context. For example, one’s understanding of the world is framed by one’s context as an American of a particular ethnicity and gender in the twenty-first century. However, once this is realized it is possible to transcend this context specifically by focusing on how the context itself frames one’s understanding. By putting the social context in the foreground, instead of in the background, one may understand it more clearly. One may recognize both the explanatory power and the limitations of the context of one’s perspective.

In paradigm transcendence the “both” and the “and” of both-and are the two paradigms, as opposed to defining the either-or from within the same paradigm. For example, there is the concept of rationality. Rationality is a key concept of the Newtonian paradigm. The first step in thinking differently about this concept is to focus on the dualism. If rationality is one pole of a dualism, what is the other pole? If one perceives dualisms only from within the dominant paradigm the counterpart or opposite of “rational” is “irrational.” So the both-and they are attempting to perceive is rational-irrational. Very quickly this becomes an either-or because something cannot be rational and irrational at the same time. But someone who perceives dualisms from across paradigms sees “affective” as the counterpart or opposite of “rational.” Both have value and are dimensions of learning. When one begins to focus on what connects the two poles one will discover different possibilities by focusing on rationality-affective than by focusing on rationality-irrationality.

The same dynamic comes into play with other aspects of the paradigms. The opposite of “objective” across paradigms is “multiperspectival” or “constructed.” However, within the dominant

paradigm, the opposite of “objective” is “subjective.” One will notice that the commonality among these within paradigm opposite examples (that is, irrational, subjective) is their perceived negativity. The perceptions of these opposites reinforce the overall perspective of the dominant paradigm.

From the perspective of paradigm transcendence the two aspects of the dualism still exist; however, one is able to perceive both rational-affective and objective-constructed as dimensions of experience. Transcending paradigms helps one see new connections. A different set of assumptions about dualisms and their role in organizations emerges when considered from the perspective of paradigm transcendence. They are

1. One element of the dualism cannot exist without the other.
2. They are not separate from one another.
3. Elements of each exist in the other (consider the concept-metaphor of holography).
4. Their relationship is one of neither attraction nor of repulsion, but one of dance.
5. They exist together in orbit about one another.
6. One cannot understand one without the other.

These changes and shifts in basic views of the world are illustrated in Table 1.1, which presents reconstructed common dualisms across paradigms rather than from within the same Newtonian paradigm. This table can serve as a guide as one begins to understand dualisms from a quantum perspective. The “old” side of the paradigm table describes the assumptions and elements of the paradigm described as Newtonian, industrial, traditional, and Western. The “new” paradigm draws its descriptors from chaos theory, complexity theory, the “new science,” quantum theory-mechanics, and Eastern philosophies and cultures.

Table 1.1. Elements of the Old and New Paradigms

<i>Old (Newtonian, Industrial, Traditional)</i>	<i>New (Emergent, Networked, Quantum)</i>
Objectivity	Social construction
Truth (capital T)	Multiple perspectives (truth, little t)
Certainty	Uncertainty
Reality	Context, perspective
Discovering Truth	Discovering effectiveness in context
Predictability	Probability, pattern, tendency
Determinate	Indeterminate
Generalizability	Applicability, transferability
Hierarchy	Network, web, heterarchy
Authority, control	Influence
Mechanical	Holographic
Competition	Cooperation
Destination	Direction
Separation	Relationship
Independence	Interdependence
Closed system	Open system
Disturbance	Fluctuation
Disturbance in organization signaling problem	Disturbance as source of new order
Growth through order	Growth from disorder
Incremental change	Dynamic, morphogenic change
Entropy (energy dissipating)	Self-organization (energy infusing)
Neutrality	Interaction
Simplicity (simple complexity)	Complexity (complex complexity)
Linear causality	Nonlinear, mutual causality
Fragmentation	Multifunctionality, holism
Critical mass	Critical connections
Time, experience, change as discrete units	Time, experience, change as continuous
Organization as machine	Organization as organism (e.g., human)

Recognizing Connectedness

The four elements of the conceptual framework—valuing dualisms, transcending paradigms, recognizing connectedness, and embracing paradox—are related to and overlap with each other. The concept of recognizing connections flows from the concept of paradigm transcendence. The new paradigm encourages a view of life as rife with connections, which can be seen in such concepts as cooperation, relationship, interdependence, network, web, heterarchy, interaction, multifunctionality, holism, critical connections, and organization as organism. Dennard (1996) describes the traditional view of the world as the paradigm of fragmentation, which assumes a disconnectedness among people and between people and their world. Wheatley (1999) goes so far as to describe fragmentation as the problem, which she differentiates from disorder. Chaos theory understands that new order emerges from disorder. Disorder is not the opposite of order; fragmentation is. Wheatley describes fragmentation as the arbitrary and unnatural breaking of relationships. The point is that connections are not optional. The reality is not that individuals are inherently disconnected in organizations but may choose to be connected in some ways. The reality is that individuals are connected in multiple ways but may have organized their work in such a way that these natural connections are broken.

The fragmented view encourages one to see the world as unconnected experiences that require that order be imposed; that the various elements of the world (for example, humans, nature, other life forms) are adversaries needing to be controlled or they will destroy one another. Management theory grounded in the old paradigm emphasizes that control and order need to be imposed by managers if the organization is to be successful. Alternatively, the emergent paradigm encourages one to recognize the connections among people and between people and the natural forces of the planet. All life is in relationship and communication. These are

connections that can be nurtured, shaped, and enhanced in order to influence positive change and effectiveness.

Consider the behavior and actions of two hypothetical supervisors. One sees the world as an inherently disordered place in which control needs to be imposed, and the other sees the world as abounding with connections and relationships that shape and influence the behavior of people. How these two individuals might approach the supervisory relationship would be very different. The first supervisor sees each supervisory relationship as a distinct and separate interaction. He or she views the person she or he supervises only in terms of the role that person plays within the organization. Goals and objectives are set, actions and behaviors are observed and measured, and praise and punishment are used to improve performance. The purpose of these activities is to impose control. The latter supervisor recognizes the individual supervisory relationship as occurring with the whole person, and not just the particular role, and within the context of multiple relationships. The supervisor also realizes the individual staff member's interaction with other individual staff members, and the staff itself (that is, the whole) influences the behavior of that individual staff member, as well as anything the supervisor does with the individual. This is also another example of both-and; it is both the influence of the supervisor and the influence of the context and the other relationships.

Consider also the notion of athletic competition. Briggs and Peat (1999) argued, "Athletes love the spirit of competition and become exhilarated when pitted against each other. But we should note that their competition takes place within the context of cooperation. Agreements by individuals to cooperate in teams and follow rules make competition possible" (p. 63). Given a traditional paradigm focus on the importance of competition, our tendency is to miss completely the cooperative aspects of our relationships, a tendency that only further intensifies the competitive aspects, thus in turn further dampening cooperation. The focus in this section is to highlight connectedness and bring it to the foreground.

To Wheatley (1999, p. 11), “relationship is the key determiner of everything.” Organizations are webs of relationships. It is through focusing on these connections that communication takes place and information is shared. Wheatley understands information from a quantum perspective. Information is not a “thing” to be shared, or not. It is the dynamic feedback that is always present in any system of relationships. Information is the creative material of organizations. It is through recognizing that information is feedback that new reality is created. In the traditional paradigm, information is perceived as finite and it is something that needs to be hoarded and controlled. Feedback is understood as an optional aspect of organizational life as, for example, when one indicates that one is going to seek someone’s feedback. In the new paradigm, information is viewed as a self-renewing resource and feedback is understood as always present. If one is focused on connectedness one will be sensitive to that ever-present feedback.

Embracing Paradox

The final aspect of the conceptual framework informed by the new science is embracing paradox. Dualisms are about the dynamic relationship of opposites, whereas a paradox is a statement or proposition that is seemingly self-contradictory but in reality expresses a truth. Dualisms or functional unities are closely related to paradoxes. An everyday example of a paradox is that standing is more tiring than walking. A paradox is another way in which dualisms can be transcended even while they remain structurally in place. Opposing elements of a particular dualism are recognized to exist together at the same time. In reference to the paradigms discussed above, the most significant paradox of the new science is that order derives from disorder (or chaos). In the traditional or Newtonian paradigm, disorder is seen as being indicative of a system’s deterioration. When one sees conflict as an element of disorder, from a traditional perspective one would be moved to mute or mediate the

conflict as quickly as possible in order to preserve the system or organization. From a new science perspective, instead of rigidly trying to maintain a state of equilibrium, that is, the absence of conflict, one instead might more appropriately see conflict as a source of creativity or new growth. This insight is particularly important in considering leadership and the role of politics in the next chapter. As Dennard (1996) indicates, "Chaos can be understood in a nontechnical way as occurring when (1) a system or organism can no longer sustain a particular pattern of behavior in an increasingly turbulent environment and (2) when the system or organism sets about reorganizing itself to accommodate these environmental changes. In this view, conflict is only a symptom of a social system seeking to appropriately reorganize and rebalance itself" (p. 498).

Identifying, creating, and understanding paradoxes is one of the keys to this shift in perspective. Wheatley (1999) asserted that context is everything, that nothing transfers, that nothing is generalizable. This assertion can be used to build a paradox: nothing is generalizable and everything is generalizable. Here is an example: there are approximately 3,600 colleges and universities in the United States. All are surveyed about some issue of importance, such as addressing racial tensions. By some miracle, a 100 percent return rate is achieved. The numbers are run. Do the results obtained tell someone how she or he should proceed on her or his campus? No. Individuals would have to decide how the findings relate to the specific context on their campus. So even the most perfectly designed and implemented social science research is not generalizable. At the other end of the scale, there is a novel about a fictitious college with a fictitious dean of students. This dean is wrestling with racial tensions on her campus. Can this information be generalized to another situation? It can. Again, the context will be important, as Wheatley states.

The way out of this particular paradox is to understand the two poles differently. Nothing is generalizable, but everything is applicable. This is an example of creating or using new and different

words or language in order to transcend particular dualisms. Everything can be applied in a particular situation. Why? Because everything is filtered through the experience and sense-making skills of the individuals involved in the particular context of application.

Paradox is one form of dualism that represents the transition to understanding and applying paradigm transcendence. That is the acceptance that two items on one level are contradictory but on another level exist together in a relationship. Examples of paradoxes from the literature on organizations include the following:

- Leaders require credibility, yet effective leaders are constantly having their credibility questioned (Kouzes & Posner, 1995).
- Routine(s) is required for the effective and efficient operation of an organization, yet it is routine(s) that destroys the opportunity for creativity (Kouzes & Posner, 1995).
- “A living system produces itself; it will change in order to preserve that self. Change is prompted only when an organism decides that changing is the only way to maintain itself” (Wheatley, 1999, p. 20).
- The more freedom there is, the more order. “This is, for me, the most illuminating paradox of all. The two forces that we have placed in opposition to one another—freedom and order—turn out to be partners in generating healthy, well ordered systems” (Wheatley, 1999, p. 87).

Paradoxes and dualisms encourage individuals to hold contradictory or apparently contradictory assertions or beliefs in their minds. That kind of mental flexibility is important as one proceeds through the remainder of this book.

Danah Zohar (1998) wrote an article entitled, "What Would a Quantum Organization Look Like?" There is a danger and a fallacy in this question. The fallacy is that there are or could be quantum organizations that would be discernable from nonquantum (Newtonian, industrial, old paradigm) organizations. The point made throughout this volume is that all organizations are both. It depends on how one is looking at them and what one is looking for; one can see a rabbit or a duck. If one is looking for hierarchy, simple complexity, and linear thinking, one can find that in virtually any organization. The same can be said for complexity, chaos, self-organization, and indeterminacy. If one believes organizations are rational and predictable that is what one will see. The rest will simply be noise or static in the system. The goal for readers of this volume is to enhance their ability to see both at the same time. If one works with supervisors who impose hierarchy, pretending that they do not have the power to impose this is organizational suicide. However, that does not mean one is powerless or one must adopt that as one's dominant or sole worldview. One must be aware of it and take others' worldviews into consideration when acting in the organization.

The four concepts presented in this chapter provide a practical method for learning to think differently about the organizations in which one works and to perceive new possibilities within them. To briefly summarize:

First, one should understand dualisms as connected poles of a hidden whole. Each aspect of a dualism illuminates a quality that is important to the whole itself.

Second, one should focus on the hidden connections between the two poles of the dualism and bring them to the foreground.

Third, once one does this, one should consciously redefine one's perception of the "opposite" aspect of any dualism from a

quantum perspective. Thinking differently means that when one recognizes Newtonian assumptions then one should consciously look for the quantum possibilities.

Finally, living in both worlds will produce paradoxes. Working through paradoxes will also provide new options.

Although it is our hope, desire, and expectation that those individuals and groups who reflect on the issues and ideas contained in this volume and who use them to shape their actions as student affairs professionals will experience greater success and effectiveness in their work, we are not promising or implying that one's work will be any easier. So much of what we discuss in this book is about change, and whether one approaches change from a traditional, industrial perspective or an emergent, new science perspective it will be messy and painful at times. In fact, there are aspects of viewing the world in multiple and complex ways that are "worse" than viewing the world from a singular, traditional viewpoint. When the world is perceived as simple, then the answers to one's questions and what one should do in a particular situation appear to be clear. However, when the world is viewed as complex, possible answers multiply and choosing particular strategies may provoke even more anxiety because the choice may be limited. The good news, if it can be called that, is there can be multiple "right" answers to any particular challenge, and even "wrong" answers when viewed complexly or from different contexts will offer the seeds of "right" answers to try again.

At its most effective, applying the suggestions and experiences in this book to one's own experience may result in a metanoic experience. *Metanoia* is a dramatic reorientation of one's being. In theological and religious circles this type of reorientation might be described as a conversion experience. In one's cognitive development, there is a dramatic reorientation as an individual moves from perceiving the world as inherently knowable and certain to recognizing the world as ultimately unknowable, complex, ever

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changing, socially constructed, and ambiguous. We argue that such a conversion needs to occur within student affairs as well. Students are coming of age in a world where complexity and ambiguity are taken as givens. Our goal in this book is to provide information, perspective, and challenge to encourage the kind of thinking, reflecting, and experiencing that could result in such a reorientation in student affairs organizations.