

**An Additional Way of Thinking About
Organizational Life and Leadership:
The Quantum Perspective**

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Abstract

In this paper our first purpose is to outline a way of thinking about organizations and administration that has recently been gaining ground among theoreticians and practitioners, one that is portrayed frequently as a replacement for the well established newtonian or systems perspective. This way of thinking is the quantum perspective. Our second purpose is to illustrate how the metaphors of this emergent perspective can add to understandings about leadership, in particular when fostering commitment and dealing with conflict. To these ends, we first describe selected differences between the entrenched perspective on organizations and administration – the newtonian perspective – and the new quantum perspective. In this section we give particular attention to the quantum notion of a pervasive energy field that drives change as well as recent discoveries about the ways humans think. Next we contrast the values ascribed to an individual's public and private selves in newtonian and quantum organizations. Finally we consider how the newtonian and the quantum orientations in leadership are likely to affect the commitment of an organization's members. And we relate this to findings from research on the management of conflict.

Introduction

In a recent book on leadership, Bolman and Deal (2001) feature a fast-tracked and highly successful leader who has descended into a deep personal abyss. Steven Camden has found that he can no longer motivate his workers or himself, nor provide the dynamic and effective leadership that had allowed him to rise quickly through the ranks of his organization. Tried and true leadership techniques that had served him well to that point – time management, mission statements, strategic planning, re-engineering, training, quality programs, and so on – no longer work. In addition, he has lost his enthusiasm, seriousness, and zest. He cannot understand what has happened to him and is very worried about it. From an administrative perspective, the important question is “Why, or how did this successful executive suddenly become ineffective?” Clearly the answer is not that Steven has suddenly lost his management skills and wisdom.

Over the course of numerous sessions with a counsellor, Steven comes to realize that his malaise results from having neglected some critical aspects of leadership. With the counsellor’s help he comes to realize that he needs to approach leadership in a somewhat different way – that he needs to change the way he *conceptualizes* leadership. Thus, in their allegorical book, Bolman and Deal portray Steven as learning to think about effective leadership not as a matter of being dispassionate, manipulating the levers of power, extracting high productivity, and forging unity but giving of himself, giving followers four “gifts”. We the readers follow Steven’s exploration of thinking about effective leadership as grounded instead in:

Giving others love – by extending caring and compassion.

Giving others power – by letting them have autonomy and influence.

Giving others authorship – by enabling accomplishment and craftsmanship on the part of others.

Giving others significance – by weaving hearts and souls into a sense of shared destiny, and celebrating successes (Bolman & Deal, 2001, pp. 74-75 and 100).

Although the language used sounds condescending, Bolman and Deal make it clear that Steven’s “gifts” are designed to support his followers’ self-actualization – which is perhaps clearest in the fourth gift: giving others authorship. With this parable, Bolman and Deal point to a fundamental

problem in mainstream thinking about leadership – the hegemony of systems thinking, to the neglect of “right brain” thinking.

Stacey, Griffin, and Shaw (2000) put this problem in stark perspective when they sketch an all-too-familiar paradox in administration, one that surely resonates with school administrators too. Managers assume they should be “in control”, and when difficulties arise (like “poor communications” or “not enough information”), they analyze more data, design more systems, and install further procedures in order to stay in control – but, notwithstanding their best efforts, the problems keep arising and they go through the same process time and time again. Stacey, Griffin, and Shaw (2000, pp. 3-6) posit that this is because managers typically use linear, mechanistic thinking and need to use alternative ways of thinking, especially when trying to deal with complex problems. They suggest, furthermore, that one of the requisite shifts is to relax the assumption that leaders can control change.

With this paper we want to describe an alternative “way of thinking” about leadership that may help broaden school administrators’ ways of making sense of what happens in their organizations, what their work entails. Specifically, we set out to sketch the features of the quantum paradigm, lining it against the features of the more familiar newtonian paradigm. we also want to illustrate how the quantum paradigm gives rise to quite different understandings about administration, in particular the challenge of fostering engagement and managing conflicts.

To these ends we first describe some ways in which the newtonian and quantum imagery of organizations and leadership differ. Next we contrast the values ascribed to an individual’s public and private selves in newtonian and quantum administration. Finally we postulate how sense of personal worth is affected when school administrators adopt either the newtonian or quantum perspective on conflict management. In essence we describe a set of less familiar metaphors for making sense of what happens in organizations and illustrate, with examples from conflict management in the principalship, how those metaphors cast a different light on administration and leadership.

THE NEWTONIAN CLOCK IS RUNNING DOWN

Running through Western ways of making sense of life is an apposition of assumptions about the nature of reality that has its roots in pre-Socratic philosophy. Two thinkers from those times (c. 500-450 BCE) represent the divergence well. Parmenides postulated that reality is constant, without change – he espoused the *being* view. Heraclitus held the *becoming* view – reality is all flux and change. These competing views have persisted and still underscore the differences between contemporary ways of thinking about nature.

The newtonian, mechanistic, or systems paradigm, which has dominated modern science, aligns with the *being* view of nature. It has led to the importation of engineering notions of causality into thinking about organizations:

This is a way of thinking that sends managers looking for the causes that will produce the outcomes they need in order to succeed. It is also a way of thinking that focuses on design. Just as engineers do, managers are supposed to design self-regulating planning, performance appraisal, and quality control systems (Stacey, Griffin, & Shaw, 2000, p. 7).

But the clockwork metaphor of this paradigm, which has dominated the physical and social sciences for over three centuries, is being questioned. Advances in the new sciences have drawn attention to phenomena that do not fit the newtonian perspective – phenomena that deny the mechanistic predictability attributed to nature and humankind (Fairholm, 2004, p. 369).

The new sciences (in particular quantum physics, chaos theory, and complexity science) suggest that another way of thinking about nature, using another set of metaphors, is needed. In contrast to the newtonian paradigm, the newer paradigm proposes that nothing in nature is fixed, events are not predictable, and control is an illusion. This paradigm aligns with the becoming assumption. In this way of thinking, coherence is seen to emerge spontaneously:

The entities of which nature is composed interact locally with each other and – in the absence of any blueprint, plan, or program – through that interaction they produce coherent patterns in themselves. ... interaction in nature takes

place not primarily in order to survive but as the creative expression of identity (Stacey, Griffin, & Shaw, 2000, p. 7; emphasis added).

We venture that a growing awareness of the limits of the being perspective, and a neglect of the becoming perspective, is what often lies behind contemporary calls for organizational theorists to re-examine their thinking: “If we want to transform the structure and leadership of our organizations, we have to ... change the thinking behind our thinking. ... [Leaders] must come to see themselves, the world, human relations, and their companies in a fundamentally new way” (Zohar, 1997, p. 25).

Often such calls are for a paradigm shift away from the newtonian way of thinking – just as the newtonian way of thinking “replaced” earlier paradigms and the limitations inherent in them. We believe, though, that allusions to replacement are unfortunate because they distort what is actually taking place – and needs to take place. We believe that the latest “shift”, like its predecessor, will be not so much a shift from one paradigm to another as the addition of another way of viewing things. In this perspective, the latest epistemological upheaval is another step toward greater paradigmatic pluralism.

Leadership is required in the world of ... administration to resolve its inherent imperfections. ... Managing the system and procedures [is] only part of the job. Initiative, motivation, inspiration – the things of leadership – also play a critical role in making ... organizations work (Behn, cited in Fairholm, 2004b, p. 578).

[The] new way of looking at organizations asks us to concentrate on relationships and culture more than on control and measurement techniques (Fairholm, 2000, p. 3; emphasis added).

For reasons that will become clear later, we want to emphasize that typically a paradigm shift has an emancipating dimension – it reflects a determination to break the limitations of the then dominant ways of thinking. Thus, in the domain of leadership theory, Fullan (2001, p. 4) has noted: “Rapid rates of change, an explosion of new insights from the life sciences, and the insufficiency of the machine model have created a critical mass [sic] for a revolution in management thinking (Fullan, 2001, p. 4).

DIFFERENCES IN THE NEWTONIAN AND QUANTUM PERSPECTIVES

General assumptions

In essence, the differences between the newtonian and quantum perspectives centre on their general assumptions about nature. In the newtonian perspective it is assumed that the laws of nature are knowable, events are predictable, and control is possible – even in social matters. The job of scientists is to reveal the organized simplicity that lies beneath nature’s apparent complexity such that it can be controlled. In the quantum paradigm, in contrast, nature is seen as often being complex, chaotic and unpredictable, and beyond much control through direct human intervention. The job of scientists is to reveal ways of living with nature and capitalizing on its potentialities.

According to Zohar (1997, p.9) the two sets of general beliefs that are now driving theories and research contrast in the following fundamental ways:

<u>Newtonian belief</u>	<u>Quantum/complexity belief</u>
Absolute truth	Multiple possibilities
Absolute perspective	Contextualism
Uniformity	Pluralism, diversity
Certainty	Uncertainty, ambiguity
Simplicity	Complexity

At a more detailed level, newtonian and quantum thinking differ in eight primary ways, as listed in Table 1 (based on Fairholm, 2004a, pp. 371-379; Pascale et al., 2000; Zohar, 1997, pp. 41-73).

Table 1

Essential Differences Between the Newtonian and Quantum Paradigms

Newtonian	Quantum
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<u>Atomistic</u> Focus on functional parts.	<u>Holistic</u> Focus on relationships, integration.
<u>Determinate</u> Assumes certainty & predictability. Emphasis on control.	<u>Indeterminate</u> Value in uncertainty & ambiguity. Requires trust, faith.
<u>Reductive</u> Whole is the sum of its parts. Parts exist independently. Parts are interchangeable. Co-ordination must be imposed.	<u>Emergent, self-organizing</u> Each part defined by relationships with other parts. Whole greater than sum of its parts. Order or patterning emerges spontaneously.
<u>One or the other</u> Selective/exclusionary – There is one truth, one best way. There is inescapable tension between the individual and the group.	<u>Differences embraced</u> Inclusive, synergistic. Individual and group are mutually defining in dialogue with experience.
<u>Duplication</u> Mirrors – Uniformity	<u>Fractals</u> Kaleidoscopes – Variations on themes
<u>Actuality</u> Focus is on “the here and now”, facts, actuality. Values are ignored.	<u>Potentiality</u> Focus is on creativity, thinking outside the box, exploring the unknown, the possible. Values are factored in.
<u>Subject-object split</u> The scientist is detached from the object of inquiry – the world is “out there”.	<u>Participatory universe</u> The scientist is “in the world” – both are mutually co-defined.
<u>Vacuum</u> Emptiness fills the space between objects of the universe; objects are all there is.	<u>Field</u> Things/objects all ex-ist (Latin for “to stand out from”) on the quantum vacuum – they are excitations on the vast pond of energy that provides the ultimate vision for the universe’s unfolding.

Before we elaborate on these we want to state a caveat and a thesis. The caveat is that the two models are not mutually exclusive; they can occur side-by-side. Indeed, in studying organizations and management, we need to use both perspectives, because the newtonian lens is appropriate for understanding some aspects of organizations while the quantum lens provides insights into other aspects. The thesis is that by applying both perspectives – that is, deliberately varying how we think about organizations and administration – we will develop better understandings of more aspects of administration.

Most of the newtonian features listed in Table 1 are quite familiar and do not need elaboration. Those of the quantum perspective, however, may not be as familiar. For the purpose of this paper we will devote attention now to only three of the contrasts, the first two and the last – atomistic vs. holistic, determinate vs. indeterminate, and vacuum vs. field. These, we venture, are the ones that lead to the more novel perspectives on organizations and leadership.

Atomism vs. holism

The newtonian paradigm gave rise to systems theory, which focuses on the parts of a whole and how they mesh. In this way it is atomistic. A central concept is that systems have a strong tendency to move toward order and stability (homeostasis), with disorder kept at bay by defining boundaries and roles clearly. Change occurs through redefinition of boundaries and roles.

In the quantum paradigm the most basic units are seen as having both particle and wave properties, as being both separate and connected. Because of its particulate aspect, a quantum unit can be pinned down in space and time and can be measured. But it also has a wave-like aspect – dynamic energy, vibrations of further potential – through which it is linked inextricably with all other units which, in turn, have their particular dynamic energy and potentials. It is this relational nature of every quantum unit (its contextualism) that makes it impossible to view it, to characterize it on its own, for more than a fleeting instant. After all, its contextualism ensures that it changes whenever there is a change elsewhere in the system. This image emphasizes relationships and integration, is holistic rather than particulate.

In management theory the atomism of the newtonian paradigm leads to an emphasis on delimiting roles and controlling boundaries (Stacey, Griffin, & Shaw, 2000, p. 65). Causality is thought of in linear terms: (predetermined) form or internal dynamic causes behaviour but behaviour does not cause the form or internal dynamic. The holism of the quantum perspective leads to an emphasis on free-flowing interaction and co-determination.

The determinate vs. indeterminate assumptions

In the Newtonian perspective nature consists of simple units interacting according to laws that can be discovered; once discovered, the laws can be used to predict and control how units interact. Thus, in their studies of organizational behaviour, Taylor and Fayol sought to discover the universal laws that would allow managers to predict and control subordinates, production, and markets.

In the quantum perspective, nature is seen as complex, in constant flux, chaotic, and uncertain – but ultimately self-organizing.

It is precisely because the identity, the coordinates, and the possible movements of individual quantum entities are ambiguous that a whole quantum system can “fall into place”, all its constituent elements integrally interrelated and working for the greater good (the eventual stability or creativity) of both themselves and the system. Because they are indeterminate, quantum entities have no fully fixed identity until they are in relationship. This gives the quantum system maximum flexibility to define itself as it goes along. It co-creates with its environment. All of nature’s complex systems are at their most creative when they are delicately poised between fixedness and unfixedness – poised at the edge of chaos (Zohar, 1997, p. 50; emphasis in original).

An important clarification is provided by Stacey, Griffin, and Shaw (2000, pp. 7-8): “It is only when the interaction between entities has a critical degree of diversity, emerging as conflicting constraints on each other, that there arises the internal capacity for spontaneous novelty.”

During the process of co-creating, chaos reigns – a state in which patterns cannot be discerned, interrelationships cannot be understood (Pascale, Millemann, & Gioja, 2000, p. 6). In a quantum world, then, the challenge to administrators is to, as it were, surf the edge of chaos (Pascale, Millemann, & Gioja, 2000), the waves of “emergent self-organization” They must learn to go with the flow; indeed, attempts at control can be counterproductive. Thus it comes as no surprise that Fullan says, in connection with managing change: “[Many] of us have concluded that change cannot be managed. It can be understood and perhaps led, but it cannot be controlled. ... Mintzberg et al. reflect that ‘the best way to *manage* change is to allow for it to happen” (Fullan, 2001, p. 33).

Contrasting perspectives on “vacuum”

In the newtonian perspective, “the universe is a still, cold, and silent place ... black emptiness fills the space between visible objects” (Zohar, 1997, p. 69). In keeping with this conceptualization, theoreticians and researchers focus on objects – their properties and how they can be manipulated, controlled. Thus, for example, in newtonian sociology individuals are seen as the basic atoms of society, bound to one another through the institutions and laws of that society – the social whole is just the sum of its parts. And in Western education, the newtonian perspective is endemic: knowledge is divided into separate subjects, training focuses on specialization, and programs of general education are rare.

In contrast, quantum thinkers postulate, first of all, that the universe is an infinite field of energy in which there is no emptiness. This field is called “the quantum vacuum” – but this “vacuum” is far from empty: “The whole universe consists of energy, and the ground state of that energy – the still, unexcited state of source energy – is the quantum vacuum” (Zohar, 1997, p. 71).

Objects, including individuals and organizations are, in essence, specific, recognizable patterns of energy embedded in the quantum vacuum; more accurately, they are “perturbations” in the field. Second, quantum theory postulates that all entities in the quantum field are inextricably related to all other parts of the field; this is referred to as the “contextualism” of an entity. Accordingly, in this perspective quantum entities have no fully fixed identity until they are in relationship (Zohar, 1997, p. 50); they co-create with their environments. Third, quantum theory

holds that all entities (perturbations of energy) undergo constant change – and change in one location in the quantum vacuum inevitably leads to changes elsewhere, much as each unique pebble that is dropped in a pool of water causes unique patterns of waves to spread through and affect the entire pool – and is affected reciprocally by the waves created by other unique pebbles dropped in elsewhere. Finally, quantum theory postulates that the interactive effects of all the changes that are constantly taking place render the quantum vacuum “a vast pool of seething potentiality, an interwoven pattern of dynamic energies” (Zohar, 1997, p. 70) that is beyond much control and prediction – at least by humans. Because the quantum entities A and B are in constant flux, and because they co-create the relationship between them, there is an infinite number of possible paths (“virtual transitions”) into the future. As far as management of human affairs is concerned, therefore, the “right path” will “emerge” from the interaction of A, B, and their context. The quantum perspective rejects the notion that there is only one path from one state to another.

Parallels in thinking processes

Recent developments in neuroscience suggest that there are “newtonian” and “quantum” modes of thinking, each grounded in distinct brain functions.

Newtonian thinking includes serial and associative thinking. Serial thinking, first of all, relies on one sort of neural “wiring” called neural tracts. These tracts consist of chains of neurons in which the head of one neuron connects to the tail of another, in series mode. Neural tracts are strengthened with repeated use and resist change once established. They are like computer programs. Neural tracts are associated with rational, logical thinking. The thinking they support does not tolerate ambiguity or nuance. Serial thinking is what a PC does. Another sort of neural wiring supports associative thinking. Associative thinking involves neural networks that consist of thousands and thousands of interconnected neurons – each neuron acts on and is acted upon by many others simultaneously. To complicate things, networks themselves are interconnected; and networks in the brain are connected with networks throughout the body. Associative thinking is the kind of thinking that is mimicked by parallel processing computers, which can learn or adapt their programs. Associative thinking is involved in trial-and-error learning. It tolerates

ambiguity and nuance – it is what enables us to recognize a pattern even when up to 80% of it is missing. However, associative thinking is also prone to the limitations of habit, is difficult to change. As well, because it is often tacit, associative thinking is difficult to share with others.

Moving now to quantum thinking, neuroscientists have indications that “quantum” thinking is supported by an energy field of some sort that is generated by the oscillations of electro-chemical currents in many, many neurons in both tracts and networks. Quantum thinking involves integration of serial and associative thinking; it allows us to “see the whole picture” or gestalt.

Quantum thinking is called into play when the unexpected happens, in situations of crisis or opportunity when our rule-bound [serial] and habit-bound [associative] thinking can’t cope. ...

In the brain, serial parallel, and quantum ... thinking structures are integrated and work in tandem to generate our uniquely human thinking processes (Zohar 1997, pp. 38 and 107).

This perspective on thinking processes helps explain research findings that decision making and problem do not necessarily proceed in a linear fashion. For example, it has been noted that administrators’ decision making and problem solving sometimes involve judgement, intuition, and schemata (Lazaridou, 2002; Leithwood & Steinbach, 1995; Mumford & Connelly, 1991; Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000). Further, we would suggest that the integration of serial, parallel, and quantum brain functions is what supports humane or moral thinking processes.

Newtonian and quantum perspectives on administration

According to Fullan (2001), “Leadership ... is not mobilizing others to solve problems we already know how to solve, but to help them confront problems that have never yet been successfully addressed” (p. 3).

In the newtonian approach to organization, administrators concentrate on objects – humans, materiel, contexts – and are preoccupied with techniques for manipulating those objects to achieve goals and results. Furthermore, newtonian managers tend to assign more value to the

collective than the individual. Thus, for example, Rousseau and Marx favoured the greatest good for the greatest number and accepted the need for limits on the rights of the individual. Newtonian managers value tight objectives and single-minded dedication (“stick to the knitting”). In contrast, in the quantum approach to organization, the administrator assumes that in complex systems prediction is impossible; the leader accepts indeterminacy and ambiguity. In light of this, the leader relies on intuitive feel for situations, and trusts in the character, creativity, and abilities that both she/he and others bring to the organization. Consequently, quantum managers strive to help build an ethos of cooperation and integration that is very different from the newtonian ethos of control.

[Quantum leaders build] infrastructures that bypass the old individual-versus-group dichotomy, infrastructures that allow individuals to flourish both as individuals and as members of larger creative groups. A quantum leader would cultivate his or her own inner light and individual potential, but at the same time be always aware that a truly creative leader draws a great deal of insight and inspiration from the unexpressed qualities of the group being led (Zohar, 1997, pp. 55-56).

In similar fashion, Fullan (2001, pp. 3-7 & 79; emphases added) posits that the fundamental requisites of leadership in complex organizations include:

- acting with moral purpose – the intention of making a positive difference in the lives of employees, customers, and society as a whole;
- building relationships;
- creating information and turning it into knowledge through sharing.

Note, however, that Fullan’s phrasing has strong connotations of the leader being a director rather than a catalyst, which leaves Fullan with at least one foot in the Newtonian camp.

The newtonian and quantum mindsets also differ in their assumptions about stability and change. The new science view posits that systems/organizations are “self-organizing” or autopoietic (Jantsch, 1980) – that the properties of a system are emergent, developing and inevitably changing in dialogue with an infinite, complex, and dynamic context. At first this notion may seem not far removed from the newtonian concept of an organization adapting to changes in its

environment. However, the distinction is clear if one remembers that newtonian managers believe they can control events, whereas quantum managers believe that the vectors of change inhere in the “quantum vacuum” and that they are limited to “surfing the waves” of emergent self-organization, working with the flow of the interwoven patterns of dynamic energies that link all entities and drive changes.

Finally, newtonian and quantum managers differ in the values they espouse. Newtonian managers value survival/continuity, efficiency, effectiveness, growth, control, and predictability (Hodgkinson, 1991, pp. 104-110). Quantum managers do not ignore these values but “draw their focus, their energy from a deeper pool of vision and more lasting values” (Zohar, 1997, p. 72). To explain: In the quantum perspective, all entities are perturbations in a “ground” of energy which “[an] Eastern philosopher might describe as ‘the Infinite that is the background for the whole.’ It is what the Western psychologist Carl Jung would call ‘the Self that is the source of self.’ It is the source of all the potentiality that is latent in the universe” (Zohar, 1997, p. 71). Thus, the quantum vacuum is seen as the ultimate source of change, potentiality, destiny, fate, and so on. It is the locus of ultimate teleology, purpose, spiritual essence, *élan vital* (Stacey, Griffin, & Shaw, 2000, p.14). It is the source of all visions and values, the source of ethical principles. A similar construct is found in the notion of “hidden knowledge” (Markides, 1995, pp. 26-27), which “surpasses all ordinary human knowledge ... rising above the plane of ordinary knowledge and stretching beyond the limits of the five senses.”

The overarching task of leaders is, in the quantum perspective, to help release the energy of the “vacuum” – to release the potential of individuals, help them evolve through relations with others. In this sense administration is choreography. The key to choreographing lies in setting up “strange attractors” (more on these later).

Synthesis

To end this part of this paper, we will first use the distinction between management and leadership to highlight the primary dimension of quantum leadership. Then, to put this picture in perspective, we will refer to Gil Fairholm’s (1998) five-fold historical typology of administrative styles or paradigms.

A distinction has been made quite often in the literature between management and leadership (e.g., Bennis, 1993; Hodgkinson, 1991; Selznick, 1983). We find it conceptually useful to treat “administration” as an umbrella term that comprehends both management and leadership, recognizing that distinguishing between the latter is useful only up to a point. Very succinctly, managers are said to be concerned with making organizations work smoothly and efficiently – they focus on finding and implementing the best ways to get things done; the organizational structures they use are essentially bureaucratic. Leaders, on the other hand, engage in making sure that the activities undertaken are proper – they focus on the philosophical, ethical, or moral correctness of activities. As Bennis (1993) put it, managers ensure things are done right, leaders ensure that the right things are done. Further, leaders tend to rely on “organic” organizational structures to deal with “the big problems of the day, [which] are complex, rife with paradoxes and dilemmas” (Fullan, 2001, p. 2).

Building on this, we may posit that a newtonian approach to administration results in management while a quantum approach produces leadership, as depicted in Table 2.

Table 2

Hallmarks of Newtonian Management and Quantum Leadership

Newtonian Management	Quantum Leadership
• Assumes nature features certainty and predictability	• Assumes nature is essentially uncertain and unpredictable
• There is one best way	• There are many ways of getting things done
• A primary emphasis is control through hierarchy, power concentrated at the top – tyranny of a minority	• Relies on nonhierarchical networks, influence is a function of personal attributes and distributed widely among members
• Division of labor, functional specialization, competition	• Personal versatility, integrated effort, cooperation
• Individuals are passive resources	• Members are co-creative partners
• Organizational change is initiated at the top, is reactive	• Change can start anywhere in the organization, is experimental
• Values efficiency, effectiveness of the	• Values meaningful relationships, individual

organization	wellness
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Further, quantum leadership may be conceptualized as having three primary dimensions that may be enacted through three sets of administrative strategies, as follows (adapted from Fairholm, 2004a, p. 372):

Table 3

Primary Dimensions of Quantum Leadership and the Related Strategies

Dimensions of quantum leadership	Leadership strategies
1. Going with the “autopoietic flow” – the tendency to self-organize	<ul style="list-style-type: none"> • Facilitating the free flow of information • Facilitating the development of feedback loops • Focusing on nourishing and sustaining relationships • Encouraging trust • Supporting fractal organization –individual members act independently, with their behavior bounded by shared vision and values
2. Working with uncertainty and ambiguity	<ul style="list-style-type: none"> • “Getting on the balcony” – striving to see day-to-day events in terms of the big picture, the “tides” in events • Supporting creativity, permitting consequent destruction • Supporting the view that change is centred in people, not “The Organization”
3. Recognizing that fundamental imperatives flow from the quantum vacuum, celebrating visions and values	<ul style="list-style-type: none"> • Emphasize the importance of values, helping to clarify values • Supporting belief in the plurality of values

	<ul style="list-style-type: none">• Listen and watch for indicators of values• Articulate visions• Model values
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Finally, another useful perspective on quantum leadership is provided by Fairholm (1998) in his typology of leadership mindsets and styles. He proposes that over the last century five distinct ways of conceptualizing (and enacting) leadership have emerged:

1. Leadership as scientific management – Emphasis is placed on efficiency (the best ways) and effectiveness (productivity).
2. Leadership as excellence management – The focus is on systematically striving for improvements in the quality of the organization’s people, processes, and products.
3. Leadership as values-displacement activities – Goal achievement is pursued through activities aimed at aligning members’ values and visions with those of the organization.
4. Leadership as building a trust culture – The focus is on establishing and maintaining an ethos of trust, based on shared values and an ethic of respect and equal worth.
5. Whole-soul or spiritual leadership – The focus is on fostering members’ continuous growth, improvement, self-awareness, and self-leadership by accommodating not only their professional selves but also their private selves; working with the spirit (the soul, the heart, or the character) of followers at the emotional, value, intellectual, and technical levels.

Clearly the newtonian mind-set regarding administration aligns with the first three styles, the quantum with the last two. The first three see people as means to ends; the last two consider people as ends in themselves.

Before leaving this section, we want to reiterate the caveat that we need to use both perspectives because the newtonian lens is appropriate for understanding some aspects of organizations while the quantum lens provides insights into other aspects. One lens is not superior to the other. Effective leaders are aware of these thought-frames and use them as appropriate. In this connection it is interesting to note that many years ago the anthropologists Kluckhöhn and Strodbeck (1961) posited that cultural groups differ (in part) because they choose to align

themselves with one of three archetypical “solutions” to the fundamental human challenge of how to relate to nature: to be subject to nature, or to be in harmony with nature, or to control nature. If we accept that an organization will have sub-cultures as well as a dominant culture, it stands to reason that its administration may require the selective application of various analytical frameworks and administrative styles. As a result, it would be appropriate to think of leadership as sometimes being reactive (subject to), sometimes collaborative (working with), and sometimes proactive (dominating/controlling).

THE SELF IN NEWTONIAN AND QUANTUM ORGANIZATIONS

Organizational theory and practice are grounded in culturally determined assumptions about people. Furthermore, the effectiveness of organizational theory and practices is determined by the appropriateness of their underlying assumptions. Therefore, administrators need to be aware of the assumptions they are making about people.

Traditional Western views of the individual often reflect newtonian atomism and dark takes on human nature. The atomism inheres, first of all, in the perception that each person is isolated, an atomistic unit. But it inheres also in the recognition of two dimensions of an individual, the private and the public. The private self is often seen as being driven by instinct and aggression, as selfish and unloving, as greedy, and as vulnerable (not necessarily predisposed) to doing things that harm society, others, and even self. As one sociologist put it (Denis Wrong, source unknown), “Man is a social creature ... but not entirely socialized”. As a result, in the public sphere social contracts that center on norms of acceptable or decent behaviour are crucial. In organizations the necessary constraints take the form of rules, regulations, norms, and the associated enforcement mechanisms and agencies – rewards, punishments, supervisors, police, and so on. These, of course, are the hallmarks of bureaucratic or newtonian administration. This atomistic way of thinking about people leads managers to look on an organization’s members, clients, resources, and environment as things to be used, manipulated, and controlled. They speak of employees as “valued resources”, “human capital”, and “intellectual capital”. Their methods and structures also contribute to a split between the private and public aspects of people’s lives; newtonian managers create spaces for and nurture only those personal characteristics that are relevant to effective and efficient performance of the work that the organization requires.

In contrast, the quantum administrator accepts a participative universe and views the organization, employees, customers and clients, the community, the market, and the ecology as elements that influence and mutually define each other – interconnected elements that co-create their realities and their futures (Pascale, Millemann, & Gioja, 2000; Stacey, Griffin, & Shaw, 2000; Zohar, 1997). This way of thinking underlies the organizational culture that Harris and Brannick call “the culture of spirit”:

Executives in spirit-driven cultures ... proclaim that employees are the company, and they back it up with a sincere, concerted effort to build a culture that uplifts the spirit and energizes the soul. ... Spirit-driven [leaders] are obsessed with creating environments that unleash the limitless creativity, enthusiasm, and energy of people. They often embrace a higher calling, a special cause, or a unique path to personal enrichment, all to better themselves and the world. What can be done to shape the work environment to better enable an employee’s natural gifts, values, and abilities to emerge is a top priority (Harris and Brannick, 1999, p. 78).

In similar fashion, Beatty and Barker Scott have found that when the denizens of contemporary organizations face *jamais vu* challenges (as opposed to *déjà vu* challenges), they are required “to expand their thinking, to learn from each other and others outside of the immediate team, to build on existing know-how, to apply knowledge in new ways, and to go through many iterations of collecting and analyzing data before a solution emerges” (Beatty & Brker Scott, 2004, pp. 2-3). And Citron (2002) notes that successful leaders are “provocateurs” – asking the difficult questions – but they also act as “giant shock absorbers”, buffering (not insulating) people in the organization against uncertainty, chaos, and crises. They do this by helping to build community, by fostering open systems and communications, and by teaching and learning.

Perhaps most tellingly, Delbecq (cited in Klenke, 2003) found that successful executives attributed their inner strength and wisdom to, amongst other things, an integration of the “private life of spirit” and the “public life of work”. The quantum way of looking on people supports the integration of individuals’ public and private selves.

Theorizing like this makes it important to define spirituality.

SPIRITUALITY IN ORGANIZATIONS

Traditionally discussions of spirituality have been allowed no place in science or organizational theory. However, spirituality in organizations and administration is being discussed more and more frequently in academic and popular presses (e.g., Ashmos & Duchon, 2000; Burns, 1978; Conger, 1994; Delbecq, 1999; Fairholm, 1998; Moxley, 2000; Zohar & Marshall, 2000). In these discussions spirituality is frequently related to effective leadership.

Nature of spirituality

Often spirituality is associated with sectarian religious indoctrination, mythology, superstition, and so on, but here we are concerned with the construct as it applies in the context of organizations and administration. The meaning we use is captured well by Klenke: “[Spirituality involves] experiencing a sense of purpose and meaning in work that goes beyond the performance of tasks and a sense of contributing to the greater community” (Klenke, 2003, p. 57). Similarly, Astin & Astin (1999) define spirituality as the individual’s sense of self, sense of mission and purpose in life, and the personal meaning that one makes out of one’s work. They also note that organizations typically cause members to lead fragmented and inauthentic lives because they treat the spiritual dimension as irrelevant to vocation or work. Under these conditions, they say, people’s work becomes divorced from their most deeply felt values, and they hesitate to discuss issues of meaning, purpose, authenticity, wholeness, and fragmentation with their colleagues. For our purposes in this paper it is important to note that values, meaningfulness, purpose, authenticity, wholeness, and fragmentation are fundamental to an individual’s person-hood or being.

Spirituality in conflicts

Research on conflicts encountered by school principals (Fris, 1992b) brought to light a cause that had not previously been recognized in the literature and that seems to support the quantum perspective on what goes on in organizations. When this cause of conflict first became apparent,

it seemed to be associated closely with the values of professionalism or ethnicity and it was designated “attacks on personal integrity” (Fris, 1992a & b). However, with the acquisition of more interview data, it seemed more accurate to speak of “personal diminishment.” This is the perception that one's reputation, one's “place” or worth in a social or professional group, or one's significance *as a person* in the eyes of others has been compromised or eroded.

People believe that they have a certain worth. ... When other people treat them as though they are worth less than that, they experience the emotion of anger. Conversely, when people fail to live up to their own sense of worth, they feel shame. ... When they are evaluated correctly in proportion to their worth, they feel pride. (Fukuyama, 1992, p. 165)

For administrators there are two important points to note. First, usually a person's perceptions are not immediately apparent; in conflict situations they are phantoms that lurk behind such tangible aspects of a conflict situation as angry tirades and violent behaviour (Fris, 2001). Consequently, all too often the phantom of diminishment is not recognized and not dealt with. Second, the perception of diminishment is a very personal thing. What is seen by one person as a slight may be of no consequence to another.

How, then, does diminishment of the person tie in with spirituality? We suggest that personal diminishment erodes spirituality – that it reduces an individual's sense of self, sense of mission and purpose in life, and meaningfulness of work.

Spirituality and administrative styles

We further suggest that the newtonian style of administration does not acknowledge spirituality whereas the quantum approach fortifies it. The reasons include the following.

First, the newtonian paradigm deals with people as objects, interchangeable parts. This militates against a sense of belonging. The quantum paradigm emphasizes relationships and strives to improve how people relate to one another. This fosters sense of community, inclusiveness.

Second, the newtonian paradigm acknowledges and rewards only those aspects of an individual that are useful in the work of an organization. The quantum paradigm is holistic in that it values both the professional self and the private self; it values not only the individual's work-relevant technical attributes but also his or her emotional and values dimensions.

Third, the newtonian paradigm tends to focus on rewards that at best satisfy, do not inspire.

Given that human beings are hardwired psychologically to focus on what is wrong and what is missing, we almost always concentrate on the inequities and dysfunctional aspects of rewards. Thus extrinsic reward systems deteriorate as a source of motivation and become the source of grievances. ... In fact, many studies have shown that rewards actually diminish employees' interest in larger goals. (Pascale, Millemann, & Gioja, 2000, p. 160)

With a quantum orientation, leaders do not ignore the standard rewards but also sensitize members of the organization to "strange attractors" (Fullan, 2001, pp. 114-116; Pascale Millemann, & Gioja, pp. 170-173). A strange attractor is a nebulous set of dispersed experiences, factors, and forces that provide an imperative to change. Quantum leaders draw attention to those factors, then encourage and assist the members as they co-create ways of addressing those factors in service to fulfillment of the greater good. The quantum approach contributes to engagement and spirituality.

Fourth, when administrators adopt a newtonian orientation, they strive to develop the individual attributes that relate to the work those individuals perform. This is desirable, of course, because the members of the organization will then be able to achieve the organization's goals more efficiently and effectively. But other aspects of the worker's person are not of immediate concern unless they interfere with achievement of organizational objectives. On the other hand, when administrators adopt the quantum thought-frame, they strive to create conditions that acknowledge expression and development of both the professional and private selves – including such dimensions as the technical, intellectual, affective, conative, psychic, political, religious, and so on. Amongst other things, this contributes to a sense of being valued as a person, and militates against personal diminishment.

CONCLUSION

At the beginning of this paper we cameod Steve Camden, the troubled leader in Bolman and Deals' *Leading with soul* (2001), and suggested that his sudden ineffectiveness wasn't due to losing his leadership skills but an erosion of his spirituality. We also suggested that this had come about because he had relied on systems thinking, to the neglect of "right brain" thinking and spirituality. To support this explanation we described and contrasted two thought frames that are available to administrators, the newtonian and the quantum. The newtonian, of course, is the familiar systems lens for viewing events in nature and organizations. The quantum thought frame is a relatively new lens, derived from quantum physics, chaos theory, and complexity science. We proposed that using the metaphors of both paradigms provides administrators with more complete explanations of what happens in organizations.

In the fictitious case of Steve Camden, Bolman and Deal posit that their character and the people he is supposed to lead will regain effectiveness and contentment once Steve can again provide the four gifts that are essential to leadership:

Love – extending caring and compassion.

Power – giving others autonomy and influence.

Authorship – enabling accomplishment and craftsmanship.

Significance – weaving hearts and souls into a sense of shared destiny, and celebrating successes (Bolman & Deal, 2001, pp. 74-75 and 100).

We can now see that these metaphoric "gifts" parallel the metaphors of the quantum perspective. Table 4 shows the parallels.

Table 4

Leadership "Gifts" and Quantum Dimensions of Leadership

Leader's Gifts	Quantum beliefs, principles
<p><u>Love</u></p> <p style="padding-left: 40px;">Extending caring and compassion.</p>	<ul style="list-style-type: none"> • Pluralism, diversity. • Inclusiveness.

	<ul style="list-style-type: none"> • Buffering against personal diminishment. • Build an ethos of cooperation and integration.
<p><u>Power</u></p> <p>Giving others autonomy and influence.</p>	<ul style="list-style-type: none"> • Entities have both particle and wave properties – are both separate and connected. • Individual and group are mutually defining in dialogue with experience. • Guide change • Self-organization, emergence.
<p><u>Authorship</u></p> <p>Enabling accomplishment and craftsmanship.</p>	<ul style="list-style-type: none"> • Believe in the power of the quantum field, quantum thinking. • Facilitate self-organization, emergence. • Eschew control, embrace choreography. • Guide, don't steer; discover, don't dictate • Expose strange attractors. • Surf the edge of chaos.
<p><u>Significance</u></p> <p>Weaving hearts and souls into a sense of shared destiny, and celebrating successes.</p>	<ul style="list-style-type: none"> • Foster spirituality. • Enrich networks – Increase nodes, increase the quality of connections. • Protect against personal diminishment. • Capitalize on strange attractors.

In conclusion, we want to emphasize three things about the two paradigms and their usefulness to administrators.

First, administrators should not fall into the trap of thinking that the quantum paradigm should or will replace the venerable and well-proven newtonian paradigm. Instead they need to appreciate that each lens explains different aspects of life in organizations and administrators would be wise to become adept at putting them on when appropriate. The quantum and newtonian paradigms are complementary.

Second, the newtonian metaphors are useful in the analysis of relatively simple organizations that are in equilibrium (or changing only incrementally) and in relatively stable environments. It lends itself to situations that are predictable and subject to control by managers. The quantum paradigm, on the other hand is useful for understanding unfamiliar events in complex living systems that are in turbulent environments. It lends itself to situations where there are strong pressures to change, events seem to be chaotic, objectives have become ambiguous, and order seems to emerge of its own accord.

Third and finally, the two paradigms have a very significant point of intersection. Both include the belief that all members of an organization, whether it be simple or complex, are truly motivated when they perceive that “they are evaluated correctly in proportion to their worth” (Fukuyama, 1992, p. 165). In other words, individuals will be most *humane* when they are protected against personal diminishment and when administrators make their spirituality “job one.”

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