CHAPTER 2

Innovation Leadership Behaviors: Starting the Complexity Journey

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CHAPTER OBJECTIVES

Upon completion of this chapter, the reader will be able to:

1. Identify three leadership theory categories and their impact on innovation and evidence-based practice (EBP).
2. Discuss basic foundations of complexity science and complexity leadership.
3. Describe and recognize seven characteristics of innovation leaders.

The creation, implementation, and measurement of innovation backed by evidence requires organizations to reconceptualize the notion of leadership from being embodied and centralized in a single individual to leadership emerging through the interactions among teams. Technology has also enhanced the complexity of the healthcare system and has created a change in the ability of individuals to understand and move the system while operating in silos. The future of healthcare transformation and quality improvement requires innovation practices steeped in evidence-based principles and implemented across silos to improve health outcomes. Change and leadership in complex environments emerge as the result of team behaviors rather than simply the actions of a single administrator or manager working through the hierarchical organizational structure alone. This chapter will describe how leadership emerges from the interactions of team members to move innovation forward in an organization. The chapter will describe organizational pressures impacting innovation and the innovation leadership gap, discuss the inadequacies of antiquated leadership practices in addressing innovation behaviors, and discuss seven behaviors of innovation and how leaders can recognize and apply them to their practice.

ORGANIZATIONAL PRESSURES THAT FACILITATE ADAPTATION

The implementation of an innovation is not a single planned event, but rather the synthesis of multiple interactions and changes that occur as the innovation is introduced into the system (Goldstein, 2008; Hazy, Goldstein & Lichtenstein, 2007; Uhl-Bien & Marion, 2008). This structure affirms that innovation occurs over time as interconnected individuals in the organization adapt, through small changes, to environmental pressures. These pressures may be financial, social, cultural, or market forces that require adaptive changes to the current operating schema of the organization or its workers. According to Plowman and Duchon (2008), these emerging actions are the essence of change: "Change occurs continuously, as minor adaptations, which can accumulate, amplify and become radical" (2008, p. 145).

Organizations are influenced by both external and internal pressures. External pressures occur among industry competitors, systems, and regulatory environments that an organization operates in. For example, federal policy changes, new competitor services or products, and changes in consumer demand, all represent external pressures to the organization that could catalyze changes, innovations, and the need for new evidence to guide practice. Leaders can use external pressures as signposts signaling changes that require their organizations or departments to innovate. One specific example of an external pressure is the consumerism of health care that is sparked by the social–technical revolution of apps, access to data, and fluid user experiences.

Discussion

Health care has traditionally been slow to adopt disruptive technologies, compared to other industries, but consumers are demanding that their experience at the physician's office or hospital mimic their experience at a nice hotel or on Amazon .com. Healthcare teams can look at this consumer shift as a signpost to improve care experiences and interactions with the healthcare system and as a litmus test to decide what work in the organization is no longer needed.

Discuss three consumer-driven shifts you have seen in health care and the leadership behaviors that are driving these shifts. Are the shifts based in evidence or simply a response to consumer demand?

Internal pressures arise from the interactions among people and groups within an organization. Some examples of internal pressures include organizational culture, hierarchy restructuring, employee satisfaction, staffing issues, and budget surplus or deficit. Leaders and teams can facilitate, influence, and impact internal pressures to create conditions for innovation, change, and adaptation to occur. For example, leaders can

impact staffing concerns through facilitating a culture of unit-based teams to enable complex problem solving rather than attempting to only individually address staff concerns. Healthcare systems are complex and networked organizations, and both internal and external pressures can cause varying shifts requiring adaptation and leadership from the frontline caregivers to the executive team.

Case Example

External and internal pressures do not act independently on an organization. Because of the complexity of healthcare organizations, external and internal pressures overlap in multifaceted ways. A large integrated healthcare system provides a good case example of how external and internal pressures impact organizations in complex and unpredictable ways.

External pressures include increased competition in the price of insurance, federal legislation increasing the number of insured people, and the creation of Accountable Care Organizations. These pressures have impacted healthcare providers and insurers throughout the United States and, specifically, have created the conditions and opportunities for the executive team in large integrated health system to articulate a new brand strategy focused on affordable and quality care. This new brand strategy catalyzed multiple parts of the organization to shift their innovation and evidence foci to reduce costs while improving quality care outcomes. It especially catalyzed the frontline nurses, technicians, and other care team members. Unit-based teams across the organization's 30-plus hospitals focused their performance improvement efforts to reduce waste in the system. The teams rallied behind the affordability and quality mantra and began implementing small changes that created large impacts.

In this example, the teams were catalyzed by external pressures and leveraged the internal culture and structures to implement changes that resulted in local improvements that influenced national affordability and quality. The health system recently achieved the highest level of Leapfrog quality recognition (http://www.leapfroggroup.org/tophospitals) for 30 of its 36 hospitals.

INNOVATION AND THE LEADERSHIP GAP

The integration of innovation into healthcare organizations is a social practice focused on developing new processes, products, and services to improve quality and reduce costs (Drucker, 1985; Rosing, Frese, & Bausch, 2011). Innovation processes are full of paradoxes and tensions, yet much of the literature reflects innovation as a uniform or linear process. This dichotomy suggests a gap between the current perceptions of how innovation occurs and how innovation is led. The innovation leadership gap originates

from a difference between traditional notions of leadership that are grounded in command-and-control and linear assumptions, and the idea of complexity or innovation leadership, which is based on assumptions of teams, network effects, and unpredictability. According to Rosing and colleagues (2011), innovation requires leadership that can facilitate nonlinear and emergent social process that lead to improved organizational outcomes. This can be translated to mean that leaders must facilitate teams that can work together to create novel changes. Because innovation is a nonlinear social process that requires complex and nonlinear leadership behaviors, individual-based problem solving, silo-based conversations, and miss-aligned ideation are not behaviors that will lead to successful innovation. Healthcare leaders who hope to drive organizational success must facilitate teams. Innovation requires different leadership behaviors than those that were successful in the past, and leaders and teams must practice differently to facilitate adaptation and change in health care.

Traditional leadership methods, such as command and control (controlling), leader-centric decision making (autocratic), and a one-size-fits-all (standardized) management style, were negatively associated with acceptance of change and the implementation of innovation. Furthermore, Lotrecchiano (2010) found that innovation is more successfully implemented when progressive leadership behaviors, such as engaging the organizational network and proactively seeking out innovations, are practiced. Leadership is an influencing factor in how innovation occurs in organizations, and, more specifically, traditional leadership behaviors appear to limit innovation in organizations (Howell & Avolio, 1993; Rosing et al., 2011). According to Berwick (2003), healthcare workers need to develop competencies for innovation. Leadership theories and subsequent leadership behaviors and tactics that focus on command and control, standardization, and autocratic tactics are incompatible with the emergent, complex, and social characteristics of innovation in organizations. Before innovation leadership characteristics are introduced, it is helpful to understand the theoretical basis of traditional leadership models.

LEADERSHIP RESEARCH

There are four global conceptual frameworks in the study of leadership theory evolution: trait, style, transformation, and complexity (Bass, 2008; Uhl-Bien & Marion, 2008). Each evolutionary stage has informed the development of the next phase. The role of the leader grew from focusing on individuals running entire enterprises to a broader role of facilitator of employee transformation and ultimately to the catalyst, regulator, and meaning maker of change and innovation. Leadership theory progressed from yielding all organizational power to the individual leader to diffusing the power among the followers or team members. These role and power distribution changes provided

Table 2-1 Description of Leadership Theories Pertaining to Innovation and EBP

Leadership Theory	Innovation	EBP
Trait	Initiated by leader, problem focused	Linear process tied to leader
Style	Congruent with team's style, initiated by leader, problem focused	Leader as champion
Transformational	Vision set by leader, leader empowers and motivates followers	Must be part of vision of leader
Complexity	Responsibility of all agents in the system; leaders create conditions to focus innovation	All users consume evidence, interpret it, and adapt based on it

insight into the future role of leadership and the leadership of innovation. This section will present the history and description of four important conceptual frameworks in leadership theory, beginning with the three traditional frameworks, and discuss how they inform future leadership practices and evidence-based innovation (**Table 2-1**).

TRAIT LEADERSHIP THEORIES

Early leadership theories that focused on individual leaders were called "great man" theories. The great man theories assumed that a leader was born to lead and held traits that were universally tied to good leadership (Bass, 2008). The great man concept, which dominated leadership from 1904 until 1970, was developed during a time of industrial revolution in which the goal of organizations was to increase production and quantity. The leaders' actions focused on productivity, motivating employees to work, and contingent rewards (Bass, 2008).

Nursing and healthcare literature continues to reflect traits as a part of leadership definitions. Yoder-Wise (2007) and Kelly (2008) discussed nursing leadership as one individual using traits and styles to influence others toward goal achievement. These definitions do not account for other factors that may influence goal attainment in organizations, such as collaboration and emergent leadership. Crosby and Shields (2010) attempted to identify effective nurse leader traits and found that behaviors that facilitated collaboration were more prevalent than any innate traits.

The foundations of change and innovation for trait-based leaders were ensconced within the individual leaders, not teams. The goal of organizations was to control resources, avoid uncertainty, and control change (Poole & Van de Ven, 2004). Innovation,

under trait-focused leadership, occurred only when embedded routines were broken and novel solutions were implemented by the leader in a problem-focused approach. However, Howell and Avolio (1993) found that leaders who made unilateral decisions were much less successful than collaborative leaders in creating innovation within their organizations. This highlights the fact that individual leaders are less likely to create novel solutions to problems if they act alone.

Equally important is the impact of trait leadership ideals on EBP. Trait leadership theories can manifest EBP as a linear process with a single unidirectional answer that originated from the leader with little input from the team. Examples of this type of EBP practice can be found in outdated clinician-centered models of care in which questioning the expert on care interventions was heavily discouraged and could result in a formal reprimand or humiliation. This type of culture does not support evidence or team-based care and can create organizational cultures that lead to poor quality, uncoordinated care, and cost increases (Wong, Cummings, & Ducharme, 2013).

Trait theories have several limitations. There is a lack of research on women and minority leaders, which created a gap that limits the understanding of the traits of successful leaders (Bass, 2008). Additionally, no universal traits have been linked to a significant number of successful leaders. The lack of cultural discernment creates assumptions and values that center on mechanistic work flow and productivity. Motivation of staff is assumed to be driven by the leader and supported by the organizational operational theories of command and control.

The trait era identified certain aspects the leader needed to achieve success. Anderson, Manno, O'Connor, and Gallagher (2010) linked several traits, such as approachability, conflict management, and honesty, among others, to the improvement of quality measures on nursing units. These studies focused only on the individual leader actions, and the researchers did not investigate the influence of other nurses and health professionals in the system. The lack of evidence confirming a set of universal leader traits that was independent of cultural context led researchers and theorists to change focus from universal traits to leadership style (Northouse, 2015).

STYLE LEADERSHIP THEORIES

As the industrial revolution gave way to more complex organizational forms, and because trait theories did not adequately explain all the facets of leadership, a new group of leadership theories emerged. The style theories contended that leaders emerge when their style fits that of the group from which they are emerging (Bass, 2008; Northouse, 2015). For example, a leader might have an autocratic or democratic style of leadership rather than universal leadership traits. According to the style theory, leaders were successful when their pattern of behavior had a goodness of fit with the group they were

leading (Bass, 2008). To maintain power, leaders select followers that fit best with the leader's personal style.

Leadership style theories did not account for all the factors that impacted innovation. Cummings, Midodzi, Wong, and Estabrooks (2010) found that leadership style alone is not connected to patient mortality. Rather, the researchers found that when the organization had a connected and consistent organizational culture, patient mortality was lower. Cummings and colleagues (2010) found that regardless of style, leaders who used relational and transformational styles have better quality outcomes than those who practice autocracy.

In style leadership, innovation typically occurs in response to an identified issue or problem. The leader's approach to innovation is limited based on the style of leadership he or she displays and will be successfully implemented only as long as the approach and solution is congruent with that of the whole team. Leaders that utilize assumptions of style theories as the predominant base of their leadership practice may limit innovation in organizations. Style leaders may have the tendency to select teams of followers based on similarity to the leader's view. This creates homogeneous teams with less diversity, which thus limits the amount of divergent thinking that is a proven catalyst to innovation. Additionally, certain styles of leadership can lead to poor innovation sustainability. For example, teams led by charismatic leaders may have early innovation success, but when the charismatic leader is not present, an innovation void is created because the followers are reliant on the leader for direction and inspiration.

In similar ways, style leadership theory assumptions can also impact EBP. Much like innovation, the sustainability of the EBP interventions may be reliant on the individual leader supporting the process. For example, a charismatic physician champion may support and manage the organizational dynamics to implement a complex fall intervention, but when that physician is absent, the organization moves back to old practices. Other styles, such as autocratic leadership, can support the leader in demanding certain practices, which may cause resentment, rebellion, and frustration in the followers who must implement a practice in which they were not involved in creating (Aarons & Sommerfeld, 2012; Bass, 2008; Porter-O'Grady & Malloch, 2015).

Leaders that practice only a single leadership style or set of assumptions may not be successful in innovation because there are several styles of leadership that were found to be successful depending on the context of the group goals and organizational structure (Cooper & Brady, 1981). The practice of one leadership style places the leader at risk for stagnation and poor adaptability to the constantly changing organizational environment. The discovery of successful styles led other leadership scholars to shift the focus of leadership research to the idea of contextually based leadership. In contextually based leadership theories, leaders change their style to meet the immediate needs of the followers and the organization (Cooper & Brady, 1981; Northouse, 2015). Leadership theories that grew from the contextual assumption are transformational and charismatic leadership (Bass, 2008).

TRANSFORMATIONAL LEADERSHIP THEORIES

The third conceptual framework of leadership theory development includes transformational leadership. Transformational leadership elevated the leader from planner and motivator to a role that lay at the boundaries of the organization (Bass, 2008). No longer did the organizational leader work as a planner and productivity manager, but rather as a vision setter and boundary manager. This elevation of the leader role left a gap between the leader and the point of production in hierarchy-based organizations. To fill this gap, the role of the manager emerged (Bass, 2008). The manager was expected to assume the role of motivator, productivity controller, planner, and supervisor, and it perpetuated the industrial idea of productivity management (Bass, 2008). With the creation of the manager role in the organization, the leader was freed from the day-to-day work and could focus attention on the relationships among organizational stakeholders and followers. The leader, as opposed to the manager, now focused on external pressures, while the manager was left to manage internal pressures. Networking among organizations quickly became the locus of the competitive advantage and was a valued skill for the individual leader.

Transformational leadership theories conceptualize the locus of control originating from the followers rather than the individual leader. This conceptual shift changed the focus of leadership research to focus on the relationships leaders had with their followers and their organization. Networking and relationships became the main focus of the leader role.

Significant research has been conducted on the impact of transactional (trait and style) and transformational leadership styles on organizational quality, innovation, and cost (Avolio & Bass, 2002; Failla & Stichler, 2008; Nielsen, Yarker, Randall, & Munir, 2009; Stordeur, D'hoore, & Vandernberghe, 2001). Gowan, Henegan, and McFadden (2009) found that transformational leadership, when combined with quality management, improved knowledge acquisition in healthcare organizations. Saint and colleagues (2010) studied healthcare leaders around the country and discovered that those with more transformational behaviors fostered cultures that had a lower incidence of hospital-acquired infections. Transformational leadership was found to be preferable and generally to have a more positive impact in terms of staff satisfaction, employee retention, innovation implementation, and organizational success (Failla & Stichler, 2008). These studies also conceptualized the leader as an individual and demonstrated that the main responsibility of the transformational leader was to motivate staff, which is a hierarchal approach to leadership.

Transformational leadership theory purports that the individual leader must help their followers transcend to become extraordinary organizational teams (Northouse, 2015). The impact of transformational leaders on innovation can be

mixed. Although transformational leaders focus on empowering their followers to become more adaptable, the underlying assumption of transformational leadership is that followers are powerless to become intrinsically motivated, initiate change themselves, or lead themselves. These assumptions can cause the leader to reject innovations that originate from the front lines because it might not align or represent the vision of the transformational leader. Additionally, leaders who practice transformational leadership might also spend a disproportionate amount of time on setting an organizational vision where the vision can become restrictive and reflective of the individual leader's vision, not that of the organization or the other members of the organization. As we will discuss later in this chapter, misaligned or individual-focused visions actually restrict innovation in organizations. One thing is clear: transformational leadership will create more innovation opportunities than simply practicing reward and punishment styles, such as transactional leadership behaviors (Weberg, 2013).

Transformational leadership has been linked to positive outcomes for the implementation of EBP frameworks in health care (Aarons & Sommerfeld, 2012). The assumptions that transformational leaders appeal to the higher moral values and ethics of the followers may be one reason why transformational leaders can accomplish EBP more effectively, although studies have also shown that transactional leadership has improved EBP adoption (Aarons, 2006). This may suggest that any leadership that focuses on EBP will improve adoption in the short term. Because organizational growth and development are not short-term goals, the focus of innovation and EBP leadership shifts to determine what type of leadership will sustain the practice of EBP and allow the organization to enculturate it rather than treat it as yet another transformational initiative.

OUTCOMES OF TRADITIONAL LEADERSHIP MODELS

Traditional leadership theories and models are limited in their description of leadership behaviors (Plowman & Duchon, 2008). Historically, leadership theory focused on special traits of leaders, situational demands, the interaction of leader traits and situational context, and the dyadic relationship between leader and follower (Bass, 2008). Traditional leadership studies, according to Cherulnik, Donley, Wiewel, and Miller (2001), have studied only two outcomes: how leaders are chosen, and how well leaders function. These research traditions have defined a leader only as an individual who can influence followers through motivation, manipulation, action, reward, or punishment (Bass, 2008). For example, one limitation of transformational leadership research is that the leader is conceptualized as an individual, and the organizational culture and emergence of unpredictable leadership within followers and teams in the organization

is ignored. Ignoring organizational culture leads to narrow conclusions regarding why the organizational change occurred (Lord, 2008).

Leadership in the traditional sense is a role rather than a set of behaviors, and it places power in the position rather than in relationships (Plowman & Duchon, 2008). Conger (1998) stated that leaders who assume command-and-control behaviors and operate from the traditional paradigm of leadership damage organizations by creating inefficient and broken systems. Health care has been directly impacted by these leadership traditions.

Boonstra and Broekhuis (2010) cited risk-averse and innovation-naive leadership and resistance to change as major reasons for the slow adoption of electronic medical records (EMR) and possibly EBP. Further, traditional models of leadership are associated with high staff burnout, poor patient care outcomes, high turnover of staff, and negative impact on cost and outcomes (Failla & Stichler, 2008; Kanste, 2008; Kleinman, 2004). Losada (1999) found teams that focused on personal agendas were lower performing than teams that allowed for emergent leadership. Additionally, nursing homes whose managers practiced command-and-control behaviors had worse patient outcomes than facilities whose managers facilitated interconnectedness and open communication (Andersen, Issel, & McDaniel, 2003).

The leader's role from the traditional perspective was developed in an age in which the world was focused on industrialization and production quotas (Bass, 2008). Two of the problems associated with poor quality and traditional leadership assumptions are top-down linear thinking and a focus on individuals.

Traditional Leaders as Top–Down Linear Thinkers

Leadership theories that were developed during the industrial era, on the basis of which many current healthcare leaders were trained, focused on maximizing production through linear processes (Bass, 2008; Porter-O'Grady & Malloch, 2015). Linear models assume that the input to the system will yield a proportional and predictable output. For example, a leader who attempts to reduce budget overruns by simply cutting supplies, staff, or hours is employing linear leadership without taking unpredictable system impacts into account. A focus on linear processes removes the capacity for the system to effectively change and innovate because effective change and innovation take place through relationship building, nonlinear processes, and coevolution (Plowman & Duchon, 2008). The notion of relationships, nonlinearity, and coevolution leading to positive innovation has been empirically confirmed (Losada, 1999; Lotrecchiano, 2010; Wu, Yang, & Chiang, 2011). When interaction and connections are removed from the system, the system becomes weaker and less able to translate information into knowledge for change

(Delia, 2010). According to Uhl-Bien and Marion (2008), leaders who facilitate team members to make strong and meaningful connections within the system can create organizations that can adapt, innovate, and remain sustainable in a complex environment.

By reducing the number and quality of relationships within the organization, the organization voids its alignment with the complexity level of the environment, making the organization reactive rather than proactive (Goldstein, 2008). Leaders can reduce relationships, and consequently the power of the network, by limiting interactions among team members. This may be through leader-focused problem solving, reducing interactions or meetings to discuss department needs, or repeatedly dismissing staff concerns or ideas. The reduction in relationships can take place because of impediments to information flow, poor relationships among team members or departments, lack of diversity in the system, and ineffective communication patterns, among others (Goldstein, 2008; Lord, 2008). Howell and Avolio (1993) found that innovation was successful when leadership engaged the organizational network rather than prescribing solutions through the hierarchy. Therefore, the gap in practice and understanding of leadership behaviors that lead to innovation in healthcare organizations remains a high priority for leaders and scholars.

Leaders using linear thinking contribute to the system inefficiencies in health care today. For example, EMR implementation is now a core concern to healthcare organizations and leaders, yet the first EMR was planned back in 1970 and was launched as a free application by the U.S. Department of Veterans Affairs in 1997 (Kumar & Aldrich, 2010). Now, nearly 20 years later, organizations are scrambling to implement electronic records in massive rollout campaigns that cost millions of dollars and result in years of work in post implementation to optimize the system. Innovations like EMRs require complex systems leadership and adaptive behaviors to be successful. Leading in top–down and linear methodologies results in missing key complexities in implementation, such as training, adoption, user interfaces, and nuances in practice that can result in major inefficiencies in the system.

Leaders as Individuals

Stacey (2007) suggested that leaders who are disconnected from the organizational culture and create visions and plans without input from the team can push the system away from its desired state and thus increase organizational anxiety. Leaders can become disconnected from the organization if they conceptualize leadership as an individual endeavor. All of the leadership theories discussed thus far in this chapter have conceptualized leaders and leadership as originating from individuals instead of from the interactions of groups and teams. Although organizations can be influenced by

individuals, leadership that results in organizations adopting new work or adapting to environmental pressures results from many more sources, including the organizational interactions that make up culture.

Schein (2004) suggested that organizational culture is made up of deep assumptions that drive behavior at the subconscious level, values that influence day-to-day work, and physical rituals or objects that define the work, called artifacts. By understanding the impact of leadership behaviors within the organizational culture, the leader can better work with the complex variables of personality, and other people in the system can aid in the development of appropriate solutions and trajectories for the organization.

Box 2-1 What Are Artifacts, Values, and Deep Assumptions?

Artifacts are physical representations of the organization's culture. Signs, banners, decorations, unit setups, and trinkets in a unit or department can give the leader clues about the values of the organizational culture. For example, at the start of each shift, nurses may place yellow sticky notes with their names on mobile computer workstations to claim them as theirs. If others use the claimed workstation, the associated nurse may reprimand the violator and proceed to discuss the many ways the person had disrupted her work flow. This example provides insights into the values of the unit, including poor adaptability to work flow disruption, individual nurse-centered care practices, and potentially a lack of computer resources to carry out work. Just as leaders can use artifacts to gather information about a culture, leaders can also use artifacts to begin to change culture. For example, leaders can post innovation quotes in the break room to support innovation thinking. A more active intervention would be to set up meeting space in a way that enables discussion and discourse rather than classroom-style seating charts.

Values and deep assumptions also underlie an organization's culture. Unlike artifacts, values and deep assumptions are shared by actions, interactions, and discussions among the members of the culture. For example, a care team that is unwelcoming to new or inexperienced staff may signal a value placed on years of service over competency of care. To explore values and deep assumptions, the leader must walk in the shoes of the culture and spend time reflecting and interpreting actions, clarifying their meaning with the members, and experiencing the behaviors of the culture to understand and intervene.

DISCUSSION: What artifacts, values, or deep assumptions exist in your place of work, and what do they tell you about the culture of the department or organization? How do these artifacts, values, or deep assumptions assist or inhibit innovation leadership behaviors?

SUMMARY OF TRADITIONAL LEADERSHIP THEORIES

The progression of leadership theories demonstrates the evolution of the role of the leader from command and control, to transforming followers, to networking and relationships. This progression of theory also moves from simple to more complex ideas regarding what influences leadership. According to trait theory, inborn traits alone create good leaders. As the concept of transformational leadership became more widely studied, the idea of leadership as a dynamic relationship among culture, followers, self, and organization became increasingly accepted. Although transformational leadership began to better explain leadership in organizations, there was still a gap between the individual stakeholders and the emergent leadership that was being seen in organizational culture research (Hatch, 2000; Schein, 2004). Practicing leadership using traditional notions also led to specific problems in healthcare organizations.

A gap also exists between the ways in which leadership scholars and organizational culture scholars conceptualize the creation of innovation and organizational life. Complexity leadership theory provides a lens through which this gap narrows by combining leadership and culture as a dynamic that influences one another rather than being discrete. That having a different lens will lend further insight into the realities of organizational life, something Lord (2008) suggested, was not addressed through existing leadership methodologies.

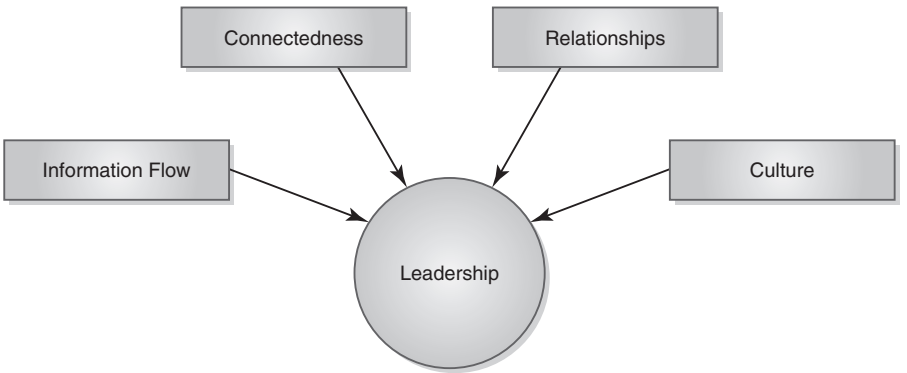
Discussion

Think about the leadership in your current organization or past organizations. What types of leadership (trait, style, transformational) were practiced? Provide a few examples of behaviors you witnessed to support your answer. How did they impact your practice?

COMPLEXITY LEADERSHIP

Leaders are realizing that the world is filled with uncertainty, interrelationships, and self-organizing that does not align well with the linear thinking of trait and style leadership assumptions. In contrast, complexity leadership challenges the long-held assumptions of linear thinking, emerging as a new paradigm of organizational leadership. Complexity leadership behaviors have been shown to improve team performance, increase the ability of the organization to adapt and innovate, and promote quality outcomes (Losada 1999; Shipton, Armstrong, West, & Dawson, 2008; Uhl-Bien & Marion, 2008). For example, Losada (1999) found that teams displaying complexity leadership behaviors performed better than teams that demonstrated command-and-control characteristics. Additionally, Leykum and colleagues (2007) discovered that organizational

Figure 2-1 Elements of complexity leadership



interventions to improve the care of type II diabetes that displayed more complexity characteristics led to better patient outcomes than interventions that were more linear.

The characteristics of complexity leadership theory (CLT) include leadership recognition of interrelationships, emergence, and fostering innovation (Uhl-Bien & Marion, 2008). CLT recognizes the dynamic interactions that take place within organizations as they change, create innovation, and evolve with a focus on complex relationships and network interaction rather than controlling, standardizing, and autocracy (Uhl-Bien & Marion, 2008) (**Figure 2-1**).

For healthcare organizations to accommodate innovations, and EBP to increase quality and shift from volume to value services, leadership must focus on collaboration, self-organization, and construction of strong networks among agents in the system (Uhl-Bien & Marion, 2008).

CLT was developed to address the shortcomings of traditional leadership theory in explaining the way organizations evolve through leadership in the knowledge era (Uhl-Bien & Marion, 2008). CLT focuses on leadership rather than the leader. Leaders are individuals who influence others toward an outcome, and leadership is the process by which agents of a system learn their way out of problems toward adaptive outcomes (Uhl-Bien & Marion, 2008). There are three leadership behaviors within CLT: administrative, adaptive, and enabling.

Administrative leadership is conceptualized as the formal hierarchy of the organization, including the chief executive officer, directors, managers, and other formalized leadership positions (Uhl-Bien & Marion, 2008). The administrative leadership behavior is closely related to the traditional leadership ideas presented earlier in this chapter. Administrative leadership is conceptualized in CLT because of the underlying assumption that organizations cannot exist without some formal structure (Uhl-Bien & Marion, 2008).

Although this framework is similar to traditional notions of leadership, CLT describes administrative leadership as being only one piece of leadership rather than the predominant function of leadership within organizations. Administrative leadership in CLT improves applicability to current organizations by acknowledging their existing structures as a relevant part of leadership and innovation.

The second leadership component is the adaptive leader. According to Uhl-Bien and Marion (2008), adaptive leadership is "an emergent, interactive dynamic that produces adaptive outcomes in a social system" (2008, p. 200). Adaptive leadership differs from administrative leadership in that adaptive leadership is the collective action that emerges from interactive exchanges among agents in the system (Delia, 2010). Uhl-Bien and Marion (2008) argued that adaptive leadership is the source of change in an organization and arises from the diverse opinions, conflict, and heterogeneity of the system.

The third leadership dynamic is enabling leadership. Enabling leadership is a person or group that brings together diverse agents in a system and creates a catalyst for the self-organization and emergent action of adaptive leadership to take place. Enabling leadership is connected to the system in an intimate way and can provide a spark for innovation (Uhl-Bien & Marion, 2008). All three leadership dynamics are entangled and cannot be separated and studied alone (Uhl-Bien & Marion, 2008). As the three complexity leadership behaviors arise in an organization, they shape the complex adaptive system, and in return the complex adaptive system shapes the leadership behaviors.

Burns (2001) surveyed healthcare leaders on their acceptance of the core underpinnings of complexity leadership in relation to creating successful organizations. The results suggested that leaders had intuitive support for the concepts but were uncomfortable with the concepts that required them to give up some control over processes. Specifically, 41% disagreed with the complexity leadership concept that advised leaders to "build a good-enough vision and provide minimum specifications, rather than trying to plan out every little detail" (2001, p. 480). This result suggests that although leaders intuit that complexity leadership is a good practice, they have trouble accepting a loss of direct control that accompanies complexity leadership behaviors.

A study by Hanson and Ford (2010) that used dynamic network analysis, a quantitative complexity analysis tool, demonstrated that the core leaders in a hospital laboratory setting were not formal directors or administrators, but rather customer services representatives—workers on the front line. The study showed through social network analysis methods that the customer service core played an important role in conducting information flow to all others in the lab and had heavy influence among other lab sections. These findings are contrary to what a traditional leader might expect, but from the complexity perspective, to get work done in the lab, an employee would have to interact with customer service workers due to their high influence and information. Hanson and Ford suggested that the assumption that formal leaders hold the core

information for operation of the organization is not accurate. Instead, the network of the department was able to accomplish work through distributed power networks rather than strong administrative leadership. Complexity leadership suggests that the network contains significantly more influence, power to change, and capability to accomplish outcomes than any one individual, regardless of that individual's expertise. Departments in which the reliance of work is on one or two individuals have very weak network strength and are at risk of poor adaptability and ultimately failure. For example, if a department relies on a manager to make all decisions—from staffing to supplies to change management—the capability of the unit to function without that manager is very low. This puts the entire unit at risk for chaos when that leader departs. Complexity leaders should focus energy on building strong networks that are able to nimbly adapt to departures, crises, and environmental pressures.

Rowe and Hogarth (2005) used a complex adaptive systems metaphors intervention to facilitate change in public health nursing. The study examined pilot sites that instituted a complex adaptive system tool that was a vehicle for discussion of the strengths and weaknesses of organizational change. This tool was used to facilitate change in behavior and service among public health nurses. According to the researchers, when the formal leaders, from administrators to the nurses on the front line, embraced the movement of decision making and policy setting, an increase in experimentation and innovation arose that led to new service delivery models and to higher levels of responsibility and decision making for the practitioners. This means that when operating under complexity principles, practitioners are more autonomous, make better decisions, and innovate more.

Sweetman (2010) used surveys and social network analysis and found that the characteristics of leadership, innovation, and creativity in organizations were much more decentralized than previously thought. The sample consisted of a 60-person nonprofit that provided a leadership development program to high school and college students. The participants constituted a diverse group: managers, financial services representatives, engineers, and educators. Sweetman (2010) found that innovation was highly correlated with adaptive function (.59, $p < 0.001$), collective creativity (.67, $p < 0.001$), and shared leadership (.59, $p < 0.001$). All three must be present for innovation to occur. Additionally, Sweetman (2010) concluded that one individual is not primarily involved in all innovations and that numerous actors innovate, with innovation occurring across the organization. This finding supports the complexity leadership concept that leadership and innovation can occur at any level and between any individuals in the organization. Sweetman's work was limited to describing specific behaviors of leaders in the decentralized leadership role, or how these behaviors connected with innovation implementation.

Complexity leadership provides a foundation for conceptualizing leaders and leadership differently to facilitate innovation. Additionally, complexity leadership

characteristics are congruent with healthcare leaders' ideas of ideal leadership behaviors (self-organizations, emergence, etc.) and improve creativity, lead to more innovation, and engage care providers (Delia, 2010; Rowe & Hogarth, 2005; Sweetman, 2010). The results of these early studies provide evidence that further understanding of the characteristics of complexity leadership in healthcare organizations may provide a new framework to increase innovation, reduce costs, and improve quality.

Innovation in CLT

Complexity leadership suggests that interactions among all agents shape the organizational context and thus deviant or abnormal agents are the result of deeper assumptions in the organization (Uhl-Bien & Marion, 2008). For example, agents in the system may test outdated or irrelevant polices through positive deviant behavior. Positive deviance is behavior that challenges organizational norms to find better ways of working (Jaramillo et al., 2008). When faced with positive deviant behavior, the complexity leader reviews organizational incongruence that may signal needed change (Jaramillo et al., 2008). Behavior that is not consistent with past assumptions may be a sign that innovation is needed rather than considered negative or a threat to stability. The role of leadership as seen through the complexity lens is to help shape a context that is adaptive and evolving and whose energy is focused toward the trajectory of the organization (Marion, 2008). Schwandt (2008) suggested that human actions and interactions are the basis for the emergence of leadership roles.

EBP in CLT

Data and evidence are part of the information flow of the organization and influence how agents in the system act and interact. The role of the leader is to ensure that the information flowing through the system is based on the best evidence and not on rumor, past practices, linear sources, or misinterpretations. It is important that information is not shared without regarding its validity, source, or reliability. In the absence of validated information, agents will begin to make assumptions based on the information at hand. Instilling a culture of EBP in the organization will help remove gaps in information and support more informed adaptations.

Complexity provides a different lens to view interactions and leadership in organizations. Innovation is a core behavior as people adapt based on information flow, interactions, relationships, and organizational culture. Evidence is generated, interpreted, and acted upon across all areas of the system. Leaders should work to build cultures that support interactions, build relationships, and improve information flow to all areas of the organization.

HEALTHCARE QUALITY AND A LACK OF INNOVATION

Traditional and less adequate leadership practices in healthcare systems that lead to practice variation and poor innovation implementation include autocratic, standardized, controlled, and profit-driven behaviors as the means to achieve organizational outcomes. Recent leadership scholars have proposed that the pathway to improving organizational outcomes, and ultimately patient outcomes, may indeed be found in a different leadership model (Delia, 2010; Lord, 2008; Uhl-Bien & Marion, 2008). A leadership practice that is shared among employees, where uncertainty is normative, mutual goals are facilitated, and innovation behaviors are foundational characteristics will support organizations to radically change to meet the challenges of healthcare reform and improved quality (Uhl-Bien & Marion, 2008). In essence, a model in which teams of nurses, physicians, administrators, and other healthcare workers demonstrate leadership behaviors that facilitate change and innovation supported by data and evidence is essential.

Quality issues such as inappropriate variations in care, consumer dissatisfaction, adverse events, medication errors, falls, and surgery mistakes have plagued the United States healthcare system for decades (Nembhard, Alexander, Hoff, & Ramanujam, 2009). Substantial arguments have been made claiming that the lack of improvement in healthcare quality is due to failed innovation implementation and inadequate leadership (Bazzoli, Dynan, Burns, & Yap, 2004; Berwick, 2003; Nembhard et al., 2009). Solutions to many quality issues have been found through innovation in practice supported by evidence, yet implementing, spreading, and sustaining these solutions in practice has been difficult. There is a need to better understand and utilize specific innovation leadership behaviors to improve health care.

Discussion

Lack of innovation leadership is one reason we have a gap in quality health care. Describe one failed implementation you have witnessed and the leadership characteristics that may have hindered the innovation or evidence-based intervention.

LEADERSHIP AS A TEAM DYNAMIC

As information, globalization, and technology continue to grow and impact organizations, the traditional conceptualization of the leader as an individual is no longer adequate. The volume and vastness of evidence available create conditions in which the administrative leaders or healthcare organizations can no longer possess or access enough information to make well-informed decisions (McKelvey, 2008). The same is true not only for administrative leaders, but also for frontline clinicians, managers, directors, and physician leaders.

Table 2-2 New Models of Care

	Old Approach	New Approach
Care	Episodic care	Continuous relationship
Management	Clinician	Clinical team
Decision making	Training and experience	Evidence
Control	Care system	Patient
Variability	Clinician autonomy	Patients preferences, needs
Information flow	Restricted	Encouraged
Safety	Responsibility of the clinician	Responsibility of system
Needs	System reacts	System anticipates
Financial goals	Reduce cost	Reduce waste
Process visibility	Secrecy	Transparency

Data from Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (Eds.). (2000). *To err human: Building a safer health system*. Washington, DC: National Academy Press.

Clinical teams and organizations that rely on a disconnected group of individuals to guide evidence and innovation will, over time, fail to meet the dynamic changes that are present in health care. **Table 2-2** demonstrates the dynamic shift in expectations and deliverables present in the healthcare system. Only a small percentage of hospitals, health plans, and physician groups have been able to fully embrace these transitions in transparency, evidence generation, patient-centered care, and innovation despite the national shift to embrace Accountable Care Organization models. The reason only a few organizations have been able to fully adapt is that the majority of organizational leadership and clinical practice is guided by individuals working in silos rather than leveraging the collective knowledge of the larger system.

SEVEN CHARACTERISTICS OF INNOVATION LEADERSHIP

In many cases, the implementation of innovation or EBP is not a single planned event, but rather the synthesis of multiple interactions and changes that occur as the innovation is introduced. This structure is consistent with the work of Goldstein (2008),

Uhl-Bien and Marion (2008), and Hazy and colleagues (2007), who noted that innovation occurs over time as interconnected individuals in the organization adapt, through small changes, to pressures internally and externally by displaying leadership behaviors. Plowman and Duchon (2008) described these emerging actions as the essence of change: "Change occurs continuously, as minor adaptations, which can accumulate, amplify and become radical" (2008, p. 145). The innovation in organizations occurs as information flows through the organization, is processed, and disrupts or shifts the normal operating procedures. These disruptions are reflected as team members challenge their assumptions of how to best complete work and interact, and the organization changes its structure to accommodate the innovation. These structural changes can be in culture, the hierarchical organization, or care delivery.

Leadership behaviors are exhibited by all members of the organization and are not solely expressed by individuals acting alone or those with formal leadership roles. Leadership behaviors are displayed when opportunities are presented in the internal and external environment of the organization. The seven innovation leadership characteristics described in the following sections have been identified as influencing the movement of the organization toward adaption to the changing conditions: boundary spanning, risk taking, visioning, leveraging opportunity, adaptation, coordination of information flow, and facilitation. Each of these seven characteristics will be summarized and discussed in the context of innovation leadership.

Boundary Spanning

In traditional leadership, boundary spanning is reserved for top levels of the organizational hierarchy (Bass, 2008; Poole & Van de Ven, 2004). Boundary spanning is the process of agents in a system making connections to otherwise unconnected groups. Boundary spanning is usually demonstrated by multiple team members regardless of their formal titles. Boundary spanners look for outside guidance, ideas, and relationships to secure resources and increase knowledge within the organization. Boundary spanning activities increase the information flow into the organization and provide other team members with vital data that influences their leadership behaviors and subsequent actions. Boundary spanning also increases the connections and relationships of the organization, effectively building a larger network through which information could be exchanged and used to continually shift the work of the organization.

Boundary spanning is a behavior demonstrated by multiple individuals in the organization. This characteristic emerges as a team recognizes its deficits in knowledge about an innovation or organizational shift. Team members with connections external to the organization seek out information from these sources and introduce this information to the rest of the team to facilitate decision making and innovation integration.

Recognizing Boundary Spanning

CLT provides a framework to better understand boundary spanning by categorizing the administrative, enabling, and adaptive leadership behaviors (Schreiber, 2006; Uhl-Bien & Marion, 2008). Boundary spanning is demonstrated by multiple agents at different times in the innovation process, which is inconsistent with traditional notions of individual-focused leadership (Schreiber, 2006). Recognizing how boundary spanning occurs in organizations may inform how other teams gather external information to facilitate innovation implementation.

Administrative leadership behaviors include boundary spanning across disciplines and individuals to support funding, planning, and space allocations that help introduce resources needed for innovation to enter the system. Administrative leadership is demonstrated by both formal leaders and informal leaders within the system (Uhl-Bien & Marion, 2008).

Enabling leadership behaviors can occur in both formal and informal leaders as they gather external expertise to consult on ideas or projects in which internal capacity was limited. User design experts, technology experts, and even frontline administrative assistants can provide information to build a futuristic innovations and EBP rather than having a single leader plan and design the innovation with his or her individual expertise.

Enabling and administrative behaviors facilitate adaptive leadership behaviors. Adaptive leadership is reflected as team members process the new information gained by the boundary-spanning behaviors and integrate this information into decisions that result in new buildings, new techniques, and shifts in values. For example, team members may process information gathered through boundary spanning and begin to shift their value of their current organizational practices to new, possibly better, practices learned from outside entities. Thus, boundary spanning facilitates allowing team members in the organization to gather enough information to begin challenging assumptions and start taking risks.

Risk Taking

Risk taking is reflected as individuals begin experimenting with untested technologies or practices and gather information about them. Risk taking is dependent on team members actively identifying internal and external pressures and processing the impact and fit with organizational practices and context. A lack of fit creates tension or chaos and provides the needed push to trial new ways of work. This process is congruent with the notion that innovation occurs when organizations are near chaos (Porter-O'Grady & Malloch, 2015; Stacey, 2007; Uhl-Bien & Marion, 2008). Fit finding and testing activities reflect risk-taking behaviors because innovation practices that are tested usually have little evidence supporting them, and there is no blueprint for implementing innovation into the organization. Many risk-taking behaviors focus on

trial-and-error efforts that test different technologies and implementation strategies to find the goodness of fit with the organization. The trial-and-error activities challenge the assumption that current practices or methods are adequate and introduce complex technologies and practices to individuals who were not previously comfortable with those technologies and practices. Trial-and-error activity generates information about the innovation that allows team members to assess its value, learn about the functionality, and better understand how to integrate it into the day-to-day activity of workers. Leaders must create a safe environment to support risk taking by using course correction rather than punishment as the norm in dealing with failures. Risk taking also increases the visibility, trialability, and usability of the innovation, which allows others to experience the innovation and create their own assessments of it (Rogers, 2003).

Recognizing Risk Taking

The behaviors of risk taking can also be explained using CLT. Administrative leadership behaviors describe how team members experiment with innovation by remaining open to new teaching modalities and feedback from individuals who are internal and external to the system to help create the future movement of the department. In other words, leaders in the organization should remain open and supportive of risk-taking behaviors.

Enabling leadership behaviors reflects experimentation with an innovation after that innovation was introduced into the organization and its practice was supported through feedback and information flow. Adaptive leadership is demonstrated as the individuals evolve over time, testing the innovation and practice against previous operating schemas and remaining open to adaptive outcomes that differ from the traditional methodology. The adaptive function is a result of the agent's ability to process information and make decisions at the point of service and integrate new practices into his or her work.

Risk-taking behaviors reflect a decision by a team to gather more information about the innovation. Individuals challenge current organizational assumptions, which creates opportunity for change in the organization. Risk taking disrupts the context of the organization and provides an opportunity for other team members to observe the innovation and develop their own assessments of its usefulness. This behavior seems to emerge from the risk taker's focus on maintaining quality of care while adapting to the stresses and opportunities presented by the environment. Risk takers seek out opportunities to test innovations to achieve high-level outcomes based on their professional values and their desire to improve work environments and outcomes.

Visioning

Groups of interconnected agents display the characteristic of visioning in organizations. Visioning is not an individual or isolated activity, and if practiced in a silo, it will lead to dysfunctional and fragmented organizational work. One example occurred in a

case study in which faculty members adopted a simulation program into their college. The individual faculty members described their leadership roles as informal, but when these same faculty members described the faculty group as a whole, they described a decision-making body with inherent power. Axelrod and Cohen (2000) suggested that the coevolutionary process of organizations is reflected in the combination of the individual strategy decisions made at the agent level. Uhl-Bien and Marion (2008) suggested that networks of agents work together to create the future. Some decisions may be made in cooperation with other agents, while others are made to further an individual agenda. Both types of decision making—group and individual—occur in organizations and influence the outcomes of the team and the larger departments. The innovative leader must recognize this and learn how to facilitate either process to advance practice and innovation. The visioning process is reflective of the coevolutionary process in which individuals collaborate as a group to create the vision for the team, department, or organization. This dynamic contrasts with many traditional leadership theories that suggest the formal leader must create and vision the future (Bass, 2008). Formal leaders should provide input and suggestions but not create the vision in isolation.

Recognizing Visioning

Visioning reflects the notions of macro-level strategy as described by Dooley and Lichtenstein (2008). Macro leadership behaviors include strategic planning, resource support, gathering funding, and moral support. Leaders who display macro influence and thinking have a disproportionate impact on the organizational trajectory (Dooley & Lichtenstein, 2008; Hazy et al., 2007). For example, agents in a network whose roles are frontline in nature can, through their actions and interactions, create change in the mission of the organization even though leading such change is not within their formal job descriptions. Individuals are able to adjust their behaviors and relationships to translate their day-to-day work to the long-range planning and strategy of the organization as they meet in groups, teams, and cohorts both in formal and informal ways. Collaborative leadership occurs through group interaction and dialogue. Macro leadership behaviors occur through connections and information flow between agents, not through individual decision making and control (Uhl-Bien & Marion, 2008). Leaders and frontline workers, who individually may not carry out strategic planning, come together as a group and exercise macro-level leadership influences that build strategy and inform the organizations vision.

Many professions describe autonomy of decision making as a core value of the professional practice model. This value allows for the professionals to combine autonomous efforts, and create robust strategy and operational standards that are important to the success of the innovation. The traditional notion of managers and directors as planning, leading, and controlling the change process is challenged by recent evidence and complexity research (Weberg, 2013). Rather, formal leaders should view their role

as facilitator and influencer. The absence of command-and-control leadership allows for individuals and teams in the organization to develop strategy by connecting the day-to-day work and resulting innovations to the desired outcomes of professional practice, patient outcomes, and organizational success.

Leveraging Opportunity

Leveraging opportunity is a characteristic that is demonstrated by all individuals in an organization. The behavior of leveraging opportunity is reflected in the actions of individuals who look for creative solutions to opportunities that presented themselves in the organization and in the environment. This may be looking for creative funding for innovations, linking current initiatives to support needed changes, or connecting teams working on similar projects to build stronger efforts. For example, the risk-taking behaviors that are adopted in an effort to find a new way to complete work demonstrates a focus on the opportunity rather than on the problem. More specifically, work-arounds, adaptations to EMR templates, and adopting new EBP in complex situations with unclear answers are ways that healthcare workers demonstrate leveraging opportunity.

Recognizing Leveraging Opportunity

Much of the traditional leadership literature highlights problem solving as a key characteristic of formal leaders (Bass, 2008; Plowman & Duchon, 2008; Poole & Van de Ven, 2004). Complexity literature reflects a different focus of leaders in that formal leaders themselves are not equipped to solve all organizational issues and are more effective leaders when they facilitate the team to tackle these issues. Thus, formal leaders should help create and identify the opportunities that teams can leverage in order to innovate. Plowman and Duchon (2008) proposed that conflict and divergence are the first steps in a change process. Further, leaders must be aware of conflict, look for patterns in the disruption, and see the opportunities these disruptions provide for innovation. Leaders who leveraged opportunity displayed enabling and adaptive leadership behaviors (Uhl-Bien & Marion, 2008). Enabling behaviors are reflected in the way opportunities are presented to the others in the organization. Instead of framing the external pressures as problems requiring cuts and reductions, leaders can frame external pressures as opportunities requiring novel solutions. Adaptive behaviors are reflected in the way teams self-adapt and begin implementing new work strategies in response to opportunity and shifts.

Adaptation

The interconnectedness among agents continually restructures as innovation adoption spreads. This is evident as individuals in the organization adapt their roles depending

on the opportunities presented by innovation or EBP implementation. For example, in an EMR implementation, some nurses shifted roles from bedside care to solving technology issues and troubleshooting with their colleagues. The technology support role was not part of the formal job expectations, but it was required by the organization to maintain member buy-in for the EMR implementation. These role changes reflect the ability of agents to adapt based on information and need, without requiring a formal hierarchal change or command decision. Many adaptations are based on the drive to implement innovation and more individual-focused human behaviors. Stacey (2007) suggested that complex systems are not predictable because they are impacted by unpredictable human behavior.

Recognizing Adaptation

Individual team members consistently assess their own value to the organization and the need to adapt behavior. When individuals adapt their behaviors from facilitating connections (nursing care) to more managerial work (solving technology issues), the network strength is impacted, resulting in changes to innovation adoption and success. Teams and leaders must recognize the need for coordination in the system and adapt new roles and leadership behaviors to continue the innovation trajectory of the organization.

Usually innovation work ebbs and flows with the connections of the network over time; reduced network coordination results in fragmented innovation. Schreiber and Carley (2008) stated that the collective action of change agents is a source of learning and adaptive response in the system. Further, they described collective change as being fostered by decentralized decision making and strong learning cultures. Both decentralized decision making, in the form of autonomous practice, and a learning culture may help explain how organizations are able to adopt innovation successfully.

Coordination of Information Flow

Individuals and teams in the innovation process should be able to influence how information is shared and interpreted and how agents in the system related to each other in order to implement successful innovation through coordination of information flow. This leadership characteristic helps to evolve the organizational context by using connections and relationships to share new information while making it relevant to the work of the organization. For example, innovation champions may express the successes of innovation to other departments through meetings, one-on-one conversations, and stories. These leadership actions reflect enabling behaviors (Uhl-Bien & Marion, 2008).

Enabling leadership behaviors are demonstrated as the individual team members influence one another by changing how artifacts and values are communicated and by shifting information flow in the organization to influence how other team members

perceive an innovation. Strategy documents may be written, and innovation adopters may praise the use of the technique in open forums. Leaders should challenge their own assumptions about the current work and shift their actions and language to convey more positive outcomes of a change in work if there are possible or perceived benefits. This activity gathers buy-in and adds other agents to the network to begin to adapt to the innovation implementation. The actions of value shifting and adaptation align with the work of scholars who described the coevolution of systems toward adaptive outcomes (Axelrod & Cohen, 2000; Hatch, 2000; Hazy et al., 2007; Schein 2004; Uhl-Bien & Marion, 2008; Van de Ven & Hargrave, 2004).

Recognizing Coordination of Information Flow

Leaders can recognize messengers of innovation by looking for evangelists who promote the innovation, examine documents that reflect the underlying response to the innovation, and assess the information that is created about the innovation. For example, innovation champions may promote the use of the innovation and communicate the successes through connections and relationships. Strategy documents can reflect the desire to grow the innovation and to continue to refine and coordinate the efforts when using the innovation. Additionally, formal leaders should continue to assess the organizational context to determine if and when resources or administrative influence is needed to overcome stagnated processes.

Healthcare organizations are complex systems that contain subsystems of a large organization, and leaders must navigate through the bureaucracy by catalyzing change through resource allocation and facilitating a context that values agent autonomy and decentralized decision making. Formal processes such as shared governance, administrative approval processes, and bureaucracy are a normal part of organizational life, but formal leaders can help reduce the restricting impact of these structures on the innovation at the front line of the organization by promoting shared decision making by the end user. As Uhl-Bien and Marion (2008) suggested, leaders can overcome stagnating structures by becoming catalysts and resource gatherers for change. Stacey (2007) described these processes as balancing negative and positive feedback loops in the system to keep it moving at the edge of chaos. Messaging innovation reflects targeted information flow through the organization and results in improving interest in the new techniques.

Facilitation

The role of leaders in influencing information flow centers on helping organizational members to see an innovation as relevant to their work through the characteristic of facilitation. Complexity research shifts the focus of the leader from controlling actions of individuals to influencing and facilitating the information those individuals get and

use in the process of decision making. These behaviors influence the system to consider new ways of operating by allowing for professional decision making and innovation. The leadership actions should not be aimed at directing the work of nurses, for example; there should be, instead, a high degree of value placed on professional autonomy. Leaders in the system facilitate and coordinate opportunities for the agents to build connections and relationships with one another and experience the innovation firsthand. Facilitation is displayed in gathering information, making sense of it, and allowing the autonomous agents to integrate it through resource allocation and relationships rather than through command-and-control tactics. In fact, many times, formal leaders may feel they have little direct-line authority to force change on the professional. Their only option is to facilitate and influence innovation.

Recognizing Facilitation

By fostering interactions, facilitating information, and understanding that leadership is a system behavior, leaders can look for the points in the system where their influence is most needed and valued. Developing and facilitating these network interactions helps to build the organizational context that sets the rules of engagement that can lead to emergent displays of leadership without requiring or depending on formal leader input to the system. Facilitation is reflected in practice as team members adopting an innovation aid others to use the new technique through trial and error rather than initially creating perfectly working systems. This process creates a context of ownership around the innovation and allows the team members to develop new skill through utilization of the new technology or practice. Additionally, facilitation allows the team members to customize the innovation to their objectives, which allows them to find the fit between the new technique and their own practice philosophies. This customization improves buy-in to using an innovation and reflects enabling leadership behaviors (Uhl-Bien & Marion, 2008).

Summary of Leadership Characteristics

No one individual reflects the risk taker or the boundary spanner, as is suggested in traditional leadership literature (Bass, 2008). Instead, boundary spanning, risk taking, and the other five leadership characteristics are reflected and practiced through the complex interaction of leadership behaviors by multiple individuals in response to emergent opportunities in the internal and the external environments. Boundary spanning and risk taking reflect the ability of the team to recognize knowledge deficits and seek out external information sources and bring them into the system for processing by other members. Visioning and leveraging opportunities reflect the ability of the team to process information, look for opportunities to integrate the new technique into the organization's context, and create desired outcomes from the information. Adaptation,

coordinating information flow, and facilitating reflect the ability of the team to adapt to changing conditions by creating internal emergent structures such as new roles, strategies, and information sharing that facilitate the adoption of the innovation. These characteristics reflect a new framework from which to understand leadership of an innovation—not through the direction of an individual formal leader, but rather as a team focused on achieving the shared outcome of student success.

Leadership of innovation emerges from individual and group interactions. Formal and informal leaders influence information flow by boundary spanning, risk taking, visioning, leveraging opportunity, adaptation, coordination, and facilitation. The system then processes the information through autonomous decision making, collaboration, and formal structures that resulted in an organizational context that guided the implementation of the innovation. Leaders in health care should work to remove barriers to interaction and collaboration, create opportunities to catalyze innovation, and gather resources to further the innovation agenda. Leadership occurs at all levels and ranks in the organization, and the role of leaders of teams and leaders of innovation is that of building alignment and relationships rather than implementing command-and-control tactics.

IMPLICATIONS

The seven behaviors of innovation leadership provide a new understanding of how leaders in health care can facilitate innovation in their organizations. Groups that will benefit most from these implications include nurses and other healthcare professionals, healthcare organizations, healthcare leaders, and researchers. The data and concepts support a new lens to view leadership, organizations, and innovation.

Implications for Nursing and Health Professionals

The seven behaviors of innovation leadership and the underlying CLT framework has several implications for the nursing profession and provides a new lens through which nurses and nursing leaders can facilitate innovation and EBP. Nurses in all roles of the profession can use this framework to begin to build innovation teams to respond to the changing healthcare landscape and align new care innovations with new and existing organizations. Nurses are uniquely positioned to lead the next revolution in health care because they are the hub of care coordination.

Nursing and healthcare leaders can use boundary spanning, risk taking, and messaging to improve information flow into their organizations. Nursing leaders must span beyond their nursing colleagues and the healthcare industry to find novel approaches and technologies to solve the problems of cost and quality facing today's healthcare organizations and nursing workforce. Healthcare professionals at all levels should use

risk-taking characteristics to continually test new work flows, technologies, and patient care interventions using early evidence and clinical judgment. This can be done only if information about the changing healthcare landscape, organizational quality metrics, budget, and mission flows to the frontline nursing staff. Without this information, innovation may be restricted or fragmented.

Professional leaders can take risks by helping to recognize the innovative potential of work-arounds and new practices that are unproven but show promise in improving patient care. Leaders can also provide resources and support; additionally, they can facilitate cross-discipline interactions to build these new innovations. Most importantly, formal healthcare leaders can help coordinate the innovation occurring across the organization and facilitate alignment of these innovations with the trajectory of the organization.

Nurses are traditionally the hub of care for patients in hospitals and other places of care. Nurses connect multiple disciplines and coordinate care with a holistic patient focus. Nurses must leverage these connections to build strong collaborative relationships among team members and to design new models of care that are both patient centric and cost effective. They can do so by facilitating learning, exposing the care team to new innovations, and adopting risk-taking behaviors in regard to technology and care innovations.

The proposed leadership behaviors focus on organizational context, which, for nurses, may be of paramount importance. Cultures of nursing, as well as other professions, that are guided by punishment for error, negative attitudes toward young innovators, and the worship of ineffective past practices may lead to stagnated care and worsening quality. This chapter suggests that a culture in which trial and error is welcomed and learning is facilitated leads to new models of work that are more effective than past practices. It is imperative that nursing leaders and frontline nurses take note of the large impact that organizational context has on innovation and change.

Nursing and healthcare professionals have an obligation to the patient to continue to improve care and reduce cost while maintaining the highest ethical principles. Similarly, innovative change can be achieved while maintaining the core values of patient safety and professionalism. This endeavor requires new ways of leading and new definitions of leaders.

Implications for Healthcare Organizations

The described leadership behaviors challenge the traditional hierarchical structures and leadership methodologies present in many healthcare organizations. These traditional structures may be restricting innovation by limiting information flow, restricting connections among agents, and limiting diverse relationships, potentially resulting in fragmented organizational cultures and innovation.

Organizations need to consider restructuring their reporting hierarchy to mimic network relationships and promote information flow to the front line. Additionally, healthcare organizations have to refocus their organizational cultures to promote and support innovation competencies, such as risk taking and boundary spanning, to gain new insights to solve cost and quality problems. Similarly, organizations must focus resources on aligning new ideas with the work of the organization by intentionally crafting innovation messages, facilitating learning about innovations, and creating flexible roles that can adapt to shifting conditions. Proactively seeking innovations to overcome external pressures and working to align the innovation internally with the core mission of the organization are proposed new organizational competencies that are needed to navigate the changing healthcare landscape by facilitating innovation.

Implications for Healthcare Leaders

Healthcare leaders may stand to benefit significantly from the reframing of leadership and leadership behaviors presented in this chapter. The term *leader* refers to all individuals in the organization who administer, enable, and adapt novel solutions to complex situations. Burns (2001) found that healthcare leaders approved of the concepts of complexity leadership and, with the preliminary findings of the proposed framework of this case study, a new leadership framework presents tangible behaviors and characteristics of complexity leadership that healthcare leaders can use to build innovation competency in teams across an organization.

Most importantly, research suggests that formal leaders may be ill equipped to individually promote innovation. Instead, leaders should focus on building teams with the characteristics described in this study to create novel solutions. The focus of leadership should not be on controlling the process, but rather on facilitating the optimization of leadership behaviors across the organization.

Information flow allows the group to have access to and gather needed information to make decisions concerning problem solving and innovation alignment with the organization. Formal leaders can facilitate this process by sharing data and explicating its relevance to the organizational mission. Additionally, formal leaders can eliminate traditional structures that dilute or restrict the sharing of information across groups in the organization. They may do so by reducing the focus on hierarchal reporting structures and individul-focused leadership practices. Adopting a focus on facilitating shared leadership structures may be more advantageous in terms of implementing innovations. All members of an organization can practice risk taking, boundary spanning, and visioning behaviors that aid in challenging less adequate organizational norms, build connections and relationships beyond the walls of the group or organization, and

create compelling visions of the future. These behaviors are reflective of complexity leadership and facilitate the recognition of opportunities, improve information flow through the organization, and translate that information into a relevant trajectory for the organization.

Connections and relationships allow a group to access information and share it effectively. Connections without strong relationships reduce information flow and reduce innovation capacity and relevancy. These connections must also be easily changeable as internal and external pressures dictate. This case demonstrates that if resources are not available to solve management-type problems, such as technical issues, the innovation process may stagnate or stop altogether. Leaders in healthcare organizations can reduce this effect by building diverse connections and relationships among teams to leverage unique skill sets as issues arise. For example, if a team is working to implement a technological innovation, building relationships with information technology and electronic media teams may be necessary. Simply connecting these teams is not enough. The teams working toward innovation implementation need to have strong collaborative relationships as well. This means they must be able to move toward a common goal, freely exchange relevant information, and make coordinated decisions to advance the innovation. These relationships can be influenced by leaders in the organization through facilitating shared leadership, improving information flow, and helping build an organizational context that is supportive of teamwork and collaboration.

Organizational context is another factor that influences innovation implementation. Healthcare leaders need to recognize the role this factor plays in facilitating or limiting innovation in organizations. Cultures in which one group dominates decision making, collaboration is not facilitated, and trial and error is punished may be less likely to innovate. For example, a healthcare organization that values only physician leadership without input from nursing and ancillary care providers may result in a culture that restricts information flow about core business practices. This restriction in information flow limits the possible decision options and makes the implemented decisions less relevant to the nonincluded groups. This result leads to maladaptive behaviors and promotes a context of stagnation rather than innovation. An organization that values autonomy of decision making and has a context focused on organizational outcomes can collaborate across specialties to implement an innovation that meets the needs of several different groups.

Formal and informal leaders must recognize the impact and interrelatedness of information flow, connections, relationships, and culture on the innovation work of an organization. By developing new competencies for leadership, removing restrictive organizational context and structures, and facilitating rather than controlling, leaders can build an innovative organization that is ready to adapt and evolve to meet the cost and quality issues that continue to impact the U.S. healthcare system.

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