Resilient leadership: Exploring the most appropriate leadership style for resilient organizations within the health care sector

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ABSTRACT - For the past 10 years, a multi-disciplined, theoretical approach to risk management and safety has emerged to address the issue of improving safety performance in complex, dynamic-adaptive socio-technical systems. The field is called Resilience Engineering. The health care sector has taken the lead in this initiative to adapt the concepts and methods of this field through conferences, books, and practice to improve patient safety performance through an approach called Resilient Health Care. An important area for this study is the role of leadership as a source of resilience and safety improvement. One could argue that the health care system represents the worst case scenario for leadership innovations in resilient organizations due to its high level of complexity, continuous change, innovation, and multiple levels of human interaction. However, to date, there is very little prescriptive literature addressing the types of leadership styles most appropriate to guide these resilient organizations.

In the current study, I will attempt to identify resilient qualities and traits at several different levels (society, government, organization, group/team, and individual) as described in the academic literature, and align these with traditional and comtemporary organizational leadership theories to propose potential leadership styles that match the needs in resilient organizations, and, in particular, how to improve safety results in the health care sector. The goal is to produce a psychometric tool based on current leadership knowledge to measure the most appropriate traits for leading resilient organizations, and how to improve safety results.

Keywords: Resilient leadership, complex adaptive socio-technical systems, Resilience Engineering, safety

1. Introduction

Resilience Engineering is a multi-disciplinary, theoretical approach to designing and managing complex, dynamic-adaptive socio-technical systems, and has become recognized as an alternative to traditional approaches to safety management (Hollnagel, Braithwaite & Wears, 2013). From its beginning in 2006, Resilience Engineering has expanded its focus on how to make high-risk, socio-technical systems more adaptive to internal and external threats and disruptions to system functioning through the quality of resilience. In 2011, the Resilient Health Care Net was formed to concentrate the growing findings from the Resilience Engineering group into the field of health care with the goal of improving patient safety.

But what is resilience, and what is the meaning of resilience in a system context? Resilience in the health care context has been described as "*the ability of a system to adjust its functioning prior to, during, or following disturbances so that it can sustain required operations under both expected and unexpected conditions*" (Hollnagel, Braithwaite & Wears, 2013, p. xxv). But before we can address this quality of resilience, we must first understand the context within which we view it. And this is particularly relevant in health care where the boundries are often fuzzy. When studying health care, are we looking at an integrated system, a "*system of systems*", or a constellation of overlapping networks sometimes referred to as clinical microsystems (Mohr & Batalden, 2002)? Obviously, how we describe health care, and where we draw the boundries, are important for addressing leadership issues, and addressing the limits to a leader's influence and cross-boundry effects.

In this study, I will draw the boundry initially at the global (society) level since societal demands permeate the entire health care system through governments, regulatory agencies, health care networks, medical suppliers, pharmacuetical companies, hospitals, clinics, wards, doctors, nurses/nurse assistants, technicians, and goes all the way down to the individual patient and the patient's family.

But the health care system is a complex area that suffers from important, and sometimes conflicting, economic, social, organizational, professional, political, and societal forces (Cook, 2013). Studying such a complex arena requires a clear focus and manageable boundries. From a Resilience Engineering perspective, I will focus on patient safety as the key deliverable defined as the absence of harm to the patient (Amalberti, 2013). Important for this study, will be how to achieve improved patient safety through resilient performance of the health care system, and how leadership style can influence and contribute to achieving resilient qualities and traits within the system to improve patient safety. Accordingly, I will argue that resilient qualities (from both a structural and individual perspective), distributed properly within the health care system, will create a safer environment, improve safety performance, and lower safety error rates (patient harms).

But this opens up another area of controversy. What is safety in the health care context, and what are the desired results from a resilient health care system? In 1999, the US government published a report entitled "*To err is human: building a safe health system*." This report estimated that between 44,000 – 98,000 people in the US die each year from medical errors that could have been prevented. Even the lower estimate is higher than the annual mortality from motor vehicle accidents (43,458), breast cancer (42,297) or AIDS (16,516) making medical errors the eighth leading cause of deaths in the United States (Mohr & Batalden, 2002, p. 44).

In 2000, President Bill Clinton launched a national health care initiative to address the key issues found in the report, and set a goal of 50% improvement in health care results (reduction in patient harms) over the following 5-year period. The report claimed that errors are not caused by individual recklessness, but instead are caused by faulty systems, processes, and conditions that lead people to make mistakes or fail to prevent them (IOM Report, 1999).

The report goes on to claim that mistakes can best be prevented by designing the health care system at all levels to make it safer—to make it harder for people to do something wrong and easier to them to do it right (p. 2). The report resulted in the creation of several professional groups, regulatory bodies, and mandated several national health care improvement programs but stated that although no single activity can offer a total solution for dealing with medical errors, the combination of activities proposed in "*To Err is Human*" offers a roadmap toward a safer health care system. "*With adequate leadership, attention and resources, improvements can be made*" (IOM Report, 2000, p.6). Surprisingly, the word leadership is only used three times in the report, and only once as a verb without any description of what is meant by "*adequate*" leadership, and the types of leadership actions desired, nor how to create and support these leadership actions.

Ten years after the Clinton health care initiative, a study was conducted using 10 major hospitals in North Carolina. The findings showed that medical care harms remain common with little evidence of widespread improvement from the "*To Err is Human*" initiative, and concluded that further efforts are still needed to translate effective safety interventions into routine practice, and to monitor health care safety, over time (Landrigan et al., 2010).

In this study, I will focus on defining resilient traits on several different levels through a Resilience Engineering lens, and match these with findings from organizational theory on leadership styles best suited to promote resilient traits, and ultimately improve safety performance.

2. Literature review

In this section, I will present a review of the academic literature appropriate to addressing the most important themes relevant for the positioning of this study. In particular, I will try to define resilience and resilient traits from an organizational perspective, including both structural and individual traits. I will also review the current literature stream related to organizational leadership, and how leadership style, in particular, can contribute to creating resilience at both the organizational structural and individual levels. And finally, I will address how these concepts relate to improved performance and patient safety outcomes.

2.1.Resilience

The word resilience comes from the latin word "*resilire,*" and means to "*jump or leap back*" (Fletcher & Sarkar, 2013), and was first introduced by Holling (1973) as the ability of a system to absorb disturbance and maintain stability. Traditionally, resilience has been viewed from two main perspectives. From a physical science perspective, resilience describes how materials resume their shape after movement or alteration, returning to the original equilibrium state (Lazarus, 1993; Luthar, 2003). From a social-ecological perspective, resilience is "*the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks*" (Walker, Holling, Carpenter & Kinzig, 2004, p. 1). In either case, resilience has been traditionally defined and measured through two main concepts: adversity and positive adaptation (Fletcher & Sarkar, 2013; Luthar, 2006; Luthar & Cicchetti, 2000). Adversity, in particular, is controversial in that it is a negative loaded concept that would preclude situations were potential stress, novelty, and impending adversity are possible, but not yet present. From a systems perspective, this requires a new definition of adversity in a complex-adaptive system that will allow the systems to capture the signals of impending danger and adaptation prior to failure.

A newer approach to resilience, closely related the social-ecological definition, is the area of organizational resilience. Organizational resilience addresses improving decision making by encouraging diversification of capacities so that the organization can be responsive to uncertain future events (Bernard, 2004; Suddaby, 2010). This requires several levels of resilience that include: states, traits, processes, and outcomes (Fletcher & Sarkar, 2013). In addition, organizational resilience recognizes organizations as complex, dynamic-adaptive social-technical systems experiencing continous change, and where the new equilibrium state from adaptation is uncertain and variable. Organizations achieve resilient performance by building resilient qualities and traits at both the structural and individual levels.

In this study, I am interested in defining and identifying resilient traits, and how operationalizing these traits at the structural and individual levels can improve safety performance. This includes structural qualities and individual behaviors that can detect and adapt to system degradation prior to collapse/failure. These traits include: local innovations, flexibility, improvization, adaptability, and problem solving.

2.2.Resilience Engineering

The field of Resilience Engineering began in 2006 through an assembly of multi-disciplinary safety experts. The objective was to understand what safety is, and why accidents happen. The focus has expanded over time as a paradigm for safety management in high-risk environments that investigates how to help people cope with complexity under pressure to achieve success (Hollnagel et al., 2006, p. 6). It also focuses on the nature of systems and networks under stress. A key feature of modern, high-risk industries is that they can be defined as complex, dynamic-adaptive social-technical systems, and where people can positively affect outcomes. This includes leadership and culture. But high-risk industries are also highly controlled and regulated both internally and externally due to the potential for disaster. The focus on control creates a problem as static rules, regulations and procedures are not capable of adequately controlling dynamic-adaptive systems under continual evolution. This leads to a gap between safety rules and procedures as imagined and enacted (Hollnagel, 2014). A classic approach to monitoring these industries is to investigate what goes wrong, such as: malfunctions, errors, failures, incidents, accidents, and near-misses in a backward looking fashion to identify the so-called "*root causes*" and, often, human error. This approach has been called Safety-I (Hollnagel, 2014). In effect, safety is measured indirectly through its absence and not its presence (Reason, 1997). But history has shown that we can no longer live by this backward looking focus. Instead, Erik Hollnagel (2014) has introduced Safety-II, where the focus has shifted to what goes right, and how to capture the faint signals of systems evolving towards collapse. This can be done by creating mindfulness within individuals at all levels of the organization that remain sensitive to the possibility of failure (Weick & Sutcliffe, 2006; Sutcliffe & Weick, 2013) while focusing on why things go right. The key is to understand why things go right, how things work, and manage performance variability not just constrain it (Hollnagel, 2014). Yet, understanding how the system works, the desired outcomes, and detecting the signals of system degradation is not enough, there must also exist a structure that supports the means for deviation and adaptation "on the fly."

Important to the field of Resilience Engineering is the understanding of the complex, dynamic-adaptive nature of systems that cannot be precisely described, specified, codified, mechanized, or controlled. This leads to outmoded theories of control and standardization of work, and where each innovation makes the system more complex and less tractable (Hollnagel, 2013, 2014). This is particularly relevant for the health care sector experiencing continual innovation and change. Resilience Engineering addresses the blunt and sharp ends

of the system together, and looks at resilience as resistence to disturbances. Through resilience, we can build systems that are stable, sustainable, robust and can survive unexpected challenges. However, to do this we need the ability of a system that is capable of adjusting its functioning prior to, during, or following changes and disturbances so that it can sustain required operations (performance) under both expected and unexpected conditions (Hollnagel et al., 2006).

2.3.Resilience in Health Care

Amalberti (2013) has described health care as an unstable working environment where the health care system has experienced an evolution of patients, particularly an ageing population, and the transformation of acute patients into chronic patients. In addition, there have been advances in personalized medicine, rapid discharge protocols, and the introduction of non-invasive surgery. *More than 20% of citizens in western countries will be over 65 by 2020 with more pathologies, co-morbidities (diabetes, chronic heart failure, asthma, chronic obstructive pulmonary desease (COPD), needing monitoring (cardiac, renal, diabetes, patients socially isolated), and end of life care* (Amalberti, 2013 p. 28). So the challenge to gain control over the complexity is increasing.

Others, such as Denis et al. (2001), describe "*health care as the classic pluralistic domain involving divergent objectives (individual patient care, population health, and cost control) and multiple actors (professionals, administrators, community groups, and politicians) linked together in fluid and ambiguous power relationships*" (p. 809). It is a system of irreconcilable goals – customer demands, performance pressures, work and workforce stresses, and cost challenges (Hollnagel et al., 2013). Yet society demands care that is safe, cost effective, and of high quality. As a result of these demands we have experienced increasing complexity of care patterns that have resulted in more interfaces and communication problems. Growth in resilience is not by itself the solution for improving health care performance and safety since the level of resilience is already probably too high. Instead, what is needed is more resilience in the right places and less to standard cases. So we need an expanded definition of adverse events, adapting a systems perspective, and a global vision to balance three dimensions: Performance, safety and resilience.

2.4.Clinical Microsystems

A recent approach to improving safety performance is to limit the scope of concentration down to the unit level. This approach, called Clinical Microsystems, focuses on small, organized groups of providers and staff caring for a defined population of patients. These include: emergency rooms, trauma centers, primary care clinics, neonatal intensive care units, renal dialysis units, diabetes care clinics, etc. "*The clinical microsystem puts medical error and harm reduction into the broader context of safety and quality of care by providing a framework to assess and evaluate the structure, process, and outcomes of care*" (Mohr & Batalden, 2002, p.45). The microsystem concept is based on an understanding of systems theory coupled with James Brian Quinn's theory of a smallest replicable unit (Mohr & Batalden, 2002). But this is not new, and was first addressed in the health care sector by focusing on "*segmentation*" where different parts of the organization would act autonomously with minimal linkages (Thompson, 1967; Weick, 1976). But Cohen and March (1986) argued that local incremental adaptiveness does not necessarily facilitate

concerted collective action and does not address cross-boundry interfaces. And this is particularly problematic from an organizational leadership perspective.

Nelson et al. (1998) have described the essential elements of a microsystem as: (a) a core team of healthcare professionals; (b) the defined population they care for; (c) an information environment to support the work of caregivers and patients; and (d) support staff, equipment, and a work environment. Surprisingly, there is no mention of the leadership role as an essential element. Mohr & Batalden (2002) argue that focusing on the microsystem level is a way to provide: (1) greater standardization of common activities and customization of care to individual patients; (2) greater use and analysis of information to support daily work; (3) consistent measured improvement in performance; (4) extensive cooperation and teamwork across disciplines and specialties within the microsystem; and (5) an opportunity for spread of best practices across microsystems within their larger organizations (p. 46). Again, no mention of the role of leadership.

Initiating the improvement of the safety of care for patients and populations in clinical microsystems involves increasing the work unit's "*awareness*" of its functioning as a microsystem and a "mindfulness" of its reliability that invokes consideration of team performance and the relationship of individuals within teams. The idea of high reliability organizations (Rochlin et al., 1987; Weick & Roberts, 1993) suggests that team and individual performance depends on the development of certain organizational norms. *In considering this possible relationship between a "mindful" microsystem and a dysfunctional organization, it is important to recognize the importance of the larger system to the success or failure of the microsystem* (Mohr & Batalden, 2002, p. 46).

The role of leaders in the clinical microsystems context is not clear, both within the microsystem boundries, and more importantly, across boundries. There is perscription that senior leaders should mandate that each microsystem should have a "*tight*" alignment of its mission, vision, and strategies with the organization's mission, vision, and strategies. At the same time, senior leadership also must give each microsystem the flexibility needed to achieve its mission (Mohr & Batalden, 2002). There is no mention of the relationship between senior leadership and leaders at other levels, nor how these interaction should take place. In addition, shared leadership is expected at all levels of the organization to enable multiple simultaneous changes while dispersing and accentuating improvement across the organization (Nelsen et al., 2008). But it is unclear how this is done. Nelsen et al. (2008) goes further to describe the larger system as a collection of interrelated microsystems that provide care to a shared population of patients (for example, cancer, cardiovascular, obstetrics), and this is referred to as a mesosystem. The role of leadership from the mesosystem level is to actively guide the dialogue between related microsystems to achieve desired out-comes for patients. But again, no discussion regarding how this is done. And finally, at the mesosystem level, leaders need to link strategy, operations, and people needed for successful execution, using cultural support and changes required to become a health care system capable of measurably improving the quality, reliability, and value of care at the front lines (Nelsen et al., 2008).

2.5.Leadership

There are no universally agreed definitions of leadership. Leadership can be viewed as both a noun (as in the different roles), and as a verb (as in what leaders do). As a verb, leadership is the "*art*" or "behavior" of the leader, and involves an individual who leads others through some form of leadership actions that influence others toward a common goal. It is through interactions with individuals that leaders promote resilient traits, and this

includes leaders at every level of an organization, and can greatly influence organizational results. But the concept of leadership is difficult to define, and has evolved continuously over the past 50+ years. This has resulted in a virtual explosion of leadership concepts and associated behaviors, such as: theory X/theory Y (McGregor, 1960), shared/distributed leadership (Argyris, 1964; Likert, 1967), instrumental leadership (House, 1971), Leader Member Exchange (LMX) (Dansereau et al., 1975; Graen & Cashman, 1975), charismatic leadership (House, 1977), transformational/transactional leadership (Burns, 1978), super leadership (Manz and Sims, 1989), self leadership (Mantz, 1991), strategic leadership (Cannella & Monroe, 1997; Denis, Lamothe & Langley, 2001), authentic-leadership (George, 2003; Avolio et al., 2004; Gardner et al., 2005; Ilies et al., 2005), entreprenurial leadership (Fernald, et al., 2005), administrative/adaptive/enabling leadership (Uhl-Bein et al., 2007), participative leadership (Yukl, 2013), ethical leadership (Yukl, 2013), collective-leadership (Denis, Lamothe, & Langley, 2001; Contractor et al., 2012; West et al., 2014), and the list is not exhaustive.

Essentially, each of the types of leadership above can be broken into two main categories: control-based leadership and relationship-based leadership, and each works through different psychological mechanisms, and have varying levels of effect depending upon context. What is important, is how each approach promotes performance-enhancing results through psychological stimulus, and for this study, resilient traits and behaviors. Mediating and moderating factors that affect individual attitudes are also important, and include such factors as: autonomy, intrinsic vs. extrinsic motivation, involvement, self-determination, psychological empowerment, self-efficacy, ownership, belonging, social capital, organizational commitment, work satisfaction, etc.

As mentioned above, the role of leadership, and its effectiveness, is context dependent and dynamic. From a processual perspective, leadership is what leaders do to "*mobilize*" others in a system of interrelationships (Denis, Lamothe & Langley, 2001). It can also be "*supraorganizational*" in that it extends outside the focal organization in response to external demands. Leadership has been viewed as an emergent, collectively enacted phenomenon (Contractor et al., 2012). This focus has led to the concept of collective leadership focusing on the key players: people (leaders, followers, & their relationships), roles (i.e., leadership functions), and the dynamics between them (Contractor et al., 2012). In modern, high-risk organizations, leadership is "*broadly distributed instead of centralized in the hands of a single individual*" (Pearce & Conger, 2003, p. 1). In the health care sector, the role of the leader seems rather ambiguous, where there exists a large divide between administrative and operative leadership. The friction between these different sources of leadership need to be resolved if resilience is to be achieved.

2.6.Safety

Safety, as a concept, is difficult to define and even more difficult to measure (Lofquist, 2008; 2010). Safety performance is measured most often through the occurrence of undesired outcomes or failures, usually with some form of adverse consequence. These are described as incidents, accidents, near-misses, etc. However, undesired events are normal outcomes allowed by system design or evolution (Perrow, 1999). There are two main reasons for undesired outcomes. The first is due to "*bounded rationality*" (Simon, 1957), and the nature of dynamic, complex-adaptive systems. Systems are designed with the best intentions for desired results, however, we are limited in our ability to understand every possible outcome of the designed system. And whether through "*loose*" or "*tight*" coupling, or simply through system evolution, adverse outcomes are possible though unexpected. And even if we could

understand every possible outcome (good and bad), the system will evolve, over time, allowing unexpected outcomes that are also undesirable. That is the reason that we need to engineer resilience into systems. Resilience is the ability to absorb the evolution/degradation toward failure (undesired outcomes) in a proactive manner, to adapt and return to some new level of temporary equilibrium (organizatonal resilience) in a systems context prior to failure. This can be achieved resilient structural design (robustness), and/or through the adaptive capacty of the human element.

Safety, in a health care context, usually focuses on patient safety, and the avoidance of patient harms. This is, unfortunately, often controlled in a reactive manner based on adverse events described as Safety I thinking (Hollnagel, 2013). Instead, Hollnagel suggests a Safety II approach where we accept that our understanding of systems is incomplete, and evolving, and that we should view the human actors as assets to ensure that things go right. This requires a proactive safety management approach.

So without a clear definition of safety, operationalizing safety measures directly, is difficult. Instead, in this study we will have to rely on individual perceptions of various structural and resilient individual traits on safety from an organizational perspective.

2.7.Research questions

In reviewing the literature related to improving health care safety performance, it is clear that it is a difficult and challenging task. Until now, most initiatives have contributed through structural changes that have not significantly changed performance, and environmental pressures that are working against improved safety performance. The role of leadership has mostly been focused on control-based approaches, both internally and externally driven. More control, in the form of rules, regulations, protocols, procedures, targets, goals, etc., have failed to improve safety performance and reduce patient harms. In fact, the field of health care is becoming more complex at all levels, and the demands from society for better, faster, safer results are making improvements to safety more difficult to achieve.

One area that has not had enough focus is the role of leaders and the "*act*" of leadership. Here we are addressing leadership styles that can promote resilient behaviors through mediating/moderating constructs such as: autonomy, participation, self-determination, self-efficacy, organizational commitment, etc. This leads to the focus of this study in the form of two research questions:

1. *What do leaders need to understand about the nature of complex, dynamic-adaptive socio-technical systems to create a resilient organization to improve safety performance?*
2. *What leadership styles are best suited to promote resilient behavior on both the structural and individual levels?*

2.8.Summary

Creating resilience in health care requires a broad knowledge and understanding of the nature of complex-adaptive socio-technical systems. This has been the main focus of the Resilience Engineering paradigm since its inception. The Resilient Health Care Net, a specialized sub-group, has used the knowledge gained through the efforts of Resilience Engineering to enhance and improve health care performance, and specifically, patient safety.

This study will add to the knowledge by identifying resilient traits, and how to best promote these traits through leadership actions.

3. Methodology

In this section, I will briefly describe the scientific methodology and research design that I plan to use for gathering data for this study. Intially, I plan to use a combination of both inductive and deductive approaches. Inductively, I have already started with a extensive review of the literature to identify the academic knowledge available in the area of organizational resilience. I have also devised a conceptual research model that loosely depicts how the important concepts for this study are related without any firm hypotheses.

I now need to observe and learn more about the field of interest, specifically, the health care system by involving those closest to the problem. As described in the literature review, the health care sector is a complex area with many levels of structural and individual interaction both internally and externally. It is important to understand the context of these interactions, and the different actors involved to properly dimension the boundries of the study.

Through initial site visits, observations and key informant discussions, I intend to fine-tune the theoretical model addressing the relationships between leadership styles and the effects on individual resilient traits through appropriate mediator and moderator effects. Figure 1 below, is a first draft conceptual model depicting the theorized relationships between leadership style, attitudes, and resilient behaviors that produce improved safety performance.

Figure 1

Once the initial site surveys are complete, I plan to refine the final conceptual model for testing using a compilation of validated psychometric tools for administration.

3.1.Research design

This study is taking place in conjunction with a one year research sabbatical. I have taken contact with organizational and academic experts in the field, both to discuss the project and to find collaboration partners within specific areas of the model. The first contact with the local health care system in Norway (Helse Vest and Haukeland regional hospital) took place in June. At this meeting, we discussed the key issues related to resilient health care, and the background of the study. A follow-up meeting is planned for late August to discuss the results of the RHCN meeting in Middelfart, Denmark, and the way ahead. In addition, a local focus group meeting will be conducted using various leaders within the system to identify the most interesting concepts to focus upon within the conceptional model. Further site visits include:

Sep 2016 Jacksonville, Florida (University of Florida Science Center).
Oct 2016 Ohio State University/Michigan State University
Dec 2016 Sydney, Australia (Australian Institute of Health Innovation – University of New South Wales).

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