APPLIED LEADERSHIP MODEL FOR LEAN CONSTRUCTION: A NEW CONVERSATION

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ABSTRACT

Successful implementation of Lean Construction, on any scale requires effective application of leadership behavior. Many resources about leadership exist, yet there is high variation in the application of leadership, therefore removing much of the opportunity to capture lessons learned and improve the process. The Lean Construction Community[3] (LCC) lacks a concrete and comprehensive model for leadership application that will create a shared understanding among practitioners for a more focused and valuable conversation. This paper offers a starting point for producing a new conversation about leadership in the LCC, supported by the research of some well-known experts. The authors offer a few assessments of the current condition of inconsistencies of leadership application and the opportunities that a model could be useful in resolving. A basic model is introduced that the LCC can use as a starting point for this new conversation to apply leadership methods and capture lessons learned so that systematic continuous improvement of effective leadership application may take place. Leadership is a big topic with many pieces that will require further research and development to finalize a model for applied leadership. The value to practitioners will be as much about the conversation and the iterative loops of learning as it will be about the final model.

KEYWORDS

Lean Construction, Leadership, Applied Leadership

INTRODUCTION

Lean Construction tools such as The Last Planner System® (LPS) have clearly defined and commonly understood components such as "phase schedule," "weekly work plan," and "PPC." Such components are a part of the Lean Construction lexicon. The standardization of the concepts and language of LPS provide a more efficient means for learning and successful application than if no such definitions existed.

As a community, a current conversation about leadership has no such common definition. There is no common model describing the components of leadership or the interaction of those components. There is no shared language for describing leadership application even though leadership is the most commonly stated cause for

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[3] Community: a feeling of fellowship with others; as a result of sharing common attitudes, interests and goals.

failed implementation of Lean Thinking to construction. When asked "What is the major obstacle you face in your Lean transformation?" Lean Champions working both within companies as well as Lean Champions working as external consultants overwhelmingly respond with some form of "lack of leadership."

Strong leadership is necessary for transformational success. "Only leadership can blast through the many sources of corporate inertia. Only leadership can motivate the actions needed to alter behavior in any significant way. Only leadership can get change to stick by anchoring it in the very culture of an organization" (Kotter 1996).

Lean Thinking is a conceptual lens that provides an objective and systematic methodology for assessing how work is done and identifying opportunities for improving the quality of how work is delivered. When using Lean Thinking as a conceptual lens, a leader approaches work with a systems perspective and with care and concern for people while exuding authenticity in their language, actions and behaviors. The same basis should be used for assessing and improving the application of leadership required for successful implementation of Lean, regardless of scale. Leadership behavior should be applied, assessed, and improved with the same rigor and expectations applied to processes and tools. "Comprehending leadership as processes makes it possible to easily identify errors and correct them through the use of standardized work" (Emiliani 2013).

Edward Deming is often quoted, "Uncontrolled variation is the enemy of quality" (Kang and Kvam 2012). Creating consensus on what leadership is and how it is applied and executed, as well as establishing a process for capturing lessons learned for further effective development of leadership will reduce variation of its practice and increase the quality and reliability of its application. Leadership is a practice unique to people. As Stephen Covey suggests: "People are unique: no two are the same…Anything management could do to stabilize the performance of people, empower them to become more consistent, more predictable, would have a dual benefit. The quality of products would become more consistent, but the systems and processes would also become more stable and predictable. We must understand people,…their interaction with each other, and the systems in which they work and learn—their motivations, intrinsic and extrinsic" (1991).

While the process for creating and applying leadership is still largely undefined in the LCC, many pieces and parts are well defined while others require further research. In both cases, pulling together existing concepts of leadership and developing the research to define that which has yet to be defined will serve the LCC well. Liker states, "The right process will produce the right results" (2004).

The goal is not to reduce leadership to simply another tool for lean application, but to properly elevate it as a process and to appropriately recognize leadership behavior that is as critical, if not more, than any of the prominent tools and concepts develop thus far.

The development of a model that both pulls together existing concepts about leadership as well as, through research and testing, develops missing links about leadership, would serve as an anchor point for a new, more valuable conversation for implementing Lean Construction. This model should illustrate and embrace the basic tenants of Lean; Continuous Improvement and Respect for People. The model must clearly define leadership, the purpose of leadership, the components of leadership, the interaction of those components, and include a mechanism for applying Plan-Do-

Check-Act (PDCA) to capture and disseminate lessons learned during the application of leadership.

The model presented later in this paper offers a starting point while acknowledging and inviting further research and testing. While the production of a "final" model with common definitions of leadership are an end goal proposed by this starting point, like all Lean endeavors, immediate value will be produced simply by elevating and clarifying the conversation about leadership application on a broader and more consistent scale.

LEADERSHIP CURRENT CONDITION: DRIVERS OF INCONSISTENT APPLICATION

There seem to be several major factors that contribute to a large amount of variation in how leadership is thought of and applied, which thereby limit the ability to capitalize from each other's experiences in applying leadership and observing that application in a more systematic way. Those include: leadership as cliché, the sheer volume of research and literature available, and the lack of practice of transparently applying PDCA to the process of leadership. A model which attempts to serve as an anchor point in a new conversation about leadership should attempt to resolve those issues.

Too often, the words 'leader' and 'leadership' are used in an overly generalized way. Leadership has become cliché. As asserted in 1946 by George Orwell in his essay "Politics and the English Language," a popular essay used in Freshman level composition courses, "Never use a metaphor, simile, or other figure of speech which you are used to seeing in print…people who write in this manner usually have a general emotional meaning – they dislike one thing and want to express solidarity in another – but they are not interested in the detail of what they are saying." Using clichés obscures clarity, meaning and concreteness of definition.

John Kotter points out "People use the terms 'management' and 'leadership' interchangeably. This shows that they don't see the crucial difference between the two and the vital functions that each role plays… People use the term 'leadership' to refer to the people at the very top of hierarchies. They then call the people in the layers below them in the organization 'management.' And then all the rest are workers, specialists, and individual contributors. This is also a mistake and very misleading…People often think of 'leadership' in terms of personality characteristics, usually something they call charisma. Since few people have great charisma, this leads logically to the conclusion that few people can provide leadership, which gets us into increasing trouble… There are very, very few organizations today that have sufficient leadership. Until we face this issue, understand exactly what the problem is, we're never going to solve it. Unless we recognize that we're not talking about management when we speak of leadership, all we will try to do when we do need more leadership is work harder to manage" (2013).

The development of a new conversation about leadership, a new model that can be used for the continuous improvement of its application, requires a definition of leadership that can be accepted and commonly embraced by the LCC.

Such a definition must answer what leadership is and what it does in a way that can be distinguished between effective leadership and ineffective leadership and more importantly, identify valuable lessons learned from its application that can be applied

in iterative loops of learning. From there, the general functions and components of leadership must be defined as well as the way those functions interact and relate to one another during application.

The good news is that there is already a large collection of research and materials available that discuss leadership characteristics and traits. Many of these delve deeply into describing the function of various aspects of leadership with remarkable skill and clarity. The volume of available resources itself can be a source of variation in how leadership is interpreted and applied. A model with shared definitions and a clear process incorporating PDCA can help the LCC understand how to best pull in the various leadership research, characteristics and traits in order to flexibly develop the appropriate leadership for each situation. The model can help eliminate some of the random and arbitrary nature in which people often select resources to learn about leadership. Having a structured understanding of the components of leadership creates value in helping people understand which sources to turn to in order to solve specific problems.

Most of the materials that speak about leadership do not include an explicit PDCA process. By incorporating PDCA into the model, leaders can formally assess and purposefully improve their leadership application through learning.

A NEW CONVERSATION ABOUT LEADERSHIP: A FEW PROPOSALS

As a starting point for the new conversation about leadership, this paper expands on the following proposals:

- Leadership defined
- Applied leadership as a process
- Major elements of applied leadership
- Interrelation of the elements within the process
- A conceptual model for Applied Leadership built from above bullets

LEADERSHIP DEFINED

Leadership is not an idealized, abstract set of ideas. It is an objectively applied routine of behaviors aimed at improving or successfully navigating change. "They (leaders) don't make plans; they don't solve problems; they don't even organize people. What leaders really do is prepare organizations for change and help them cope as they struggle through it" (Kotter 2001).

Leadership serves a specific purpose: to cope with change (Kotter 2001). Through the lens of Lean Thinking, change is approached in a way seeking to create continuous improvement in the flow of value. It is recognized that all systems exist in a continuous state of flux:

- "...a process is either slipping back, or being improved" (Rother 2010).
- "Everything flows, nothing stands still" as attributed to Heraclitus (Plato 501bc).

By definition, in the application of lean to LCC organizations, leadership is the essential behavior for producing satisfactory outcomes in the process of change.

APPLIED LEADERSHIP AS PROCESS

Dr. Glenn Ballard teaches in The Airplane Simulation that all operations are engineered. Lack of a formal process of operation engineering is still a way of engineering a process. The same concept is true of leadership. All efforts to implement Lean to construction include some form of leadership behavior with varying levels of effectiveness. Lack of an explicitly defined and systematic approach to the application of leadership is an ineffective way of applying leadership.

This paper proposes an Applied Leadership Model that builds on concepts developed by Mike Rother in Toyota Kata describing current condition and target condition (Rother, 2010). The model expands on work provided by Hohl and Karinch that considers situational leadership (2003). Specifically the model includes assessing resources, skills, and competencies available for producing change from current condition to target condition within an allotted of time.

The model also addresses the selection of an appropriate leadership style that is effective for facilitating buy-in and aligning the resources to achieve a target condition. The model incorporates PDCA as the element that captures lessons learned and initiates improvement to leadership behavior as change (from current to target conditions) plays out, as well as to capture best practices that can be drawn from in order to support future efforts requiring leadership.

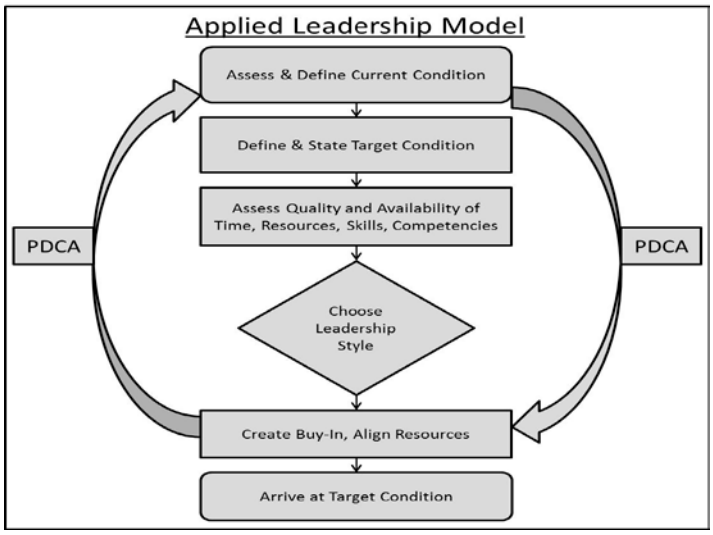

Figure 1: Applied Leadership Model Demonstrating Basic Elements and Common Terms of Applied Leadership.

As the aim of this paper is to initiate the awareness and propose a justification for the need of a new conversation about leadership, the offerings of this paper are merely a few scratches at the dense surface of work that must be done to consider the model "finished" and inclusive of many opportunities. Further research is underway, and additional research is necessary and encouraged for all of the elements to be fully and adequately described.

CURRENT CONDITION, TARGET CONDITION

In Toyota Kata, Mike Rother's presentation of current condition and target condition provides many useful means. The first steps a leader must take to successfully apply leadership are to properly assess the current condition and clearly define a target condition.

"A target condition is developed out of a detailed understanding of the current condition, through direct observation and analysis, coupled with an understanding of the direction, vision, target, or need. You need to adequately understand the current condition in order to define an appropriate target condition" (Rother, 2010). In many cases, lacking a clearly defined target condition or making incorrect assumptions about current condition lead to ineffective leadership behaviors that negatively impact potentially successful outcomes.

Prior to assessing a current condition, a leader should have an understanding of the language/action perspective. This is a perspective that says people act through language (Winograd 1987). In other words, work that is done is done as the result of a commitment, whether explicit and complete or not explicit and incomplete. Winograd states that "Conversations for action form the central fabric of cooperative work." A leader should view work with this perspective.

Methods for properly assessing current condition should be grounded in the lean principle "go and see." There are multiple tools that should be used to aid the assessment. One of the simplest yet most impactful tools for this is an Ohno Circle. In the original Ohno Circle one draws a circle on the "shop floor" (or project/company equivalent) and stands observing, for an entire eight hours. This opportunity allows one to go into deep observation, thinking for oneself about what they are seeing, to question, analyze and evaluate what's going on (Liker 2004). To observe through the conceptual lens of Lean Construction, one must view what is being seen as a system rather than numerous parts and pieces (Howell 1999). The parts and pieces that make up the system work together through commitments, to make up the whole and to produce flow. Where disconnects are seen, there are opportunities. The perspective used for observation should be one that offers generosity and grace in the interpretation and assessment of human behaviors.

Of course, leadership needs to be exhibited often and in various circumstances, so not every situation allows for an Ohno Circle, but still should be grounded in real personal assessment through the appropriate lens rather than hearsay or other information. Some of the other tools often used include A3s from prior situations, After Action Reviews, Lessons Learned, and various other implements. It is important to remember that carrying lessons forward to a new situation should be treated much like a bonsai tree. "Without proper adaptations to the environment, a bonsai tree transplanted to a new soil may die. Toyota calls this yokoten which is horizontal learning, not copying" (Liker Leadership Institute 2013). Hence, it is important for the leader to make an assessment on the current condition as they apply lessons from the past.

Establishing target conditions should be situation or process specific, but always linked to the broader vision or mission of the job or organization within which the leader is working (Rother 2010).

Improvement in the way one assesses current conditions and improvement in the creation, communication, and delivery of target conditions are direct examples of

improving and developing leadership capacity. Improve one's ability to accurately assess current conditions, and you've improved one's ability to lead. In any team working at any scale on lean implementation, current condition assessment should be explicitly identified as a requirement of leadership used to effectively navigate change.

ASSESSING TIME, RESOURCES, SKILLS, AND COMPETENCIES

Creating an effective strategy for achieving a target condition requires accurate assessment of available or required time, resources, skills, and competencies as well as selecting the appropriate characteristics of leadership (style of leadership) required to best align and utilize resources and people.

There are many personality traits and styles of behavior that people recognize as characteristics of leadership. Some characteristics of leadership are required at all times, like honesty and respect for others. However; not all characteristics or styles of leadership are appropriate or effective in all conditions.

If a worker is about to fall or be injured by an impending safety hazard a participative characteristic of leadership like teaching is likely not effective for saving the worker. In this case, a more directive style of leadership may be required such as "move now!" (Note that many may not perceive this as leadership, but by definition a condition needs to change, and someone yelling "move now!" is taking action to create change from one condition to another).

Conversely, for a team that is working on a phase schedule aimed at reducing a project schedule from 6 months to 3 months, a directive style of leadership will not produce the creativity and innovation required to achieve the target. A more participative style of leadership will produce significantly better results.

Building on the decision-making continuum (Hohl and Karinch 2003), the choice of leadership characteristics to pull from, what style to employ, is directly related to the situation; specifically how much time, how many resources, and how well developed the skills and competencies of other team members are. Situations in which there is zero time and zero resources as well as zero skill and zero competencies likely require more directive characteristics, at least initially. Higher skill and competency can compensate for lower time and resources, and vice versa.

On the other hand, infinite time and infinite resource or infinite skill and infinite competency require more participative characteristics of leadership. Again, large amounts of time and resources can compensate for low skill low resource, and vice versa. The leadership style that is most likely to deliver effective results is 'pulled' by whatever time, resources, skills and competencies are available to navigate from the current condition to target condition. The appropriate style of leadership slides on a scale between directive and participative.

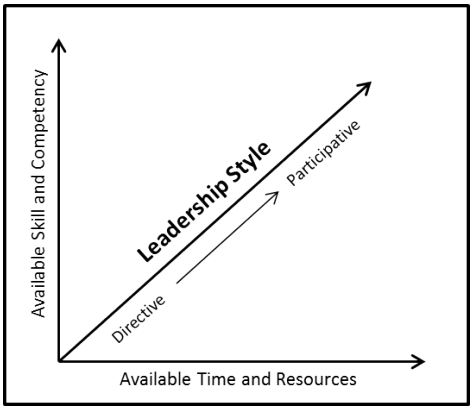

Figure 2: Appropriate choice of leadership style is a function of available time and resources and available skills and competencies.

For a leader to maintain effectiveness in different situations, he or she must exhibit a style of leadership that is appropriate for, and flexible to, a given situation. Consistently effective leaders must be flexible and may need to apply remarkably different styles of leadership depending on the situation. In some cases leaders may have to adjust those styles from one moment to the next.

Understanding the different characteristics of leadership and where they fit on the spectrum between directive and participative, as well as understanding when directive or participative styles are required, is an effective and practical means for improving leadership. Improve one's ability to assess or utilize time, resources, skills, and competencies, and you improve one's ability to lead. Leadership style, as directive or participative depending on the availability of time, resources, skill and competency, should be explicitly stated and explained in any implementation effort.

More research on this topic is required. The decisions that drive leadership styles and/or the availability of time, resources, skills, and competencies and the power to align those resources effectively do not occur in a vacuum. In fact, the entire model, as a description of a situational dependent and autonomous set of events that occur during a process of change from current condition to target condition, i.e. applied leadership, does not occur decoupled from the outside world.

Most leaders work on different problems at different levels. Some may spend a portion of their day leading a strategic level situation while spending the next part of their day leading a tactical level situation. Both situations require assessments of current condition, etc. as described by the model, but require different types of approaches dependent on the situation.

Further, the effect of outside influences or the very nature of the problem being worked on likely contribute to behaviors the model attempts to describe.

For example, consider the observation by James D. Thompson in *Organizations in Action*: "In all but the simplest organizations, …a position may also enhance or threaten the action spheres of others in nearby positions. When an organization attains any significant degree of complexity, it also contains a considerable amount of interdependence among its highly discretionary jobs; i.e., decisions in each can have consequences for the action spheres of others in the group" (Thompson, 2008). Research and perspectives on how interrelatedness between spheres within

organizations as complex as those in the LCC need to be developed and understood as they relate to leadership decision making.

Another example of considerations that need to be made to fully understand the exercise of applied leadership is described by Robert Keidel in *Gameplans*: "Few things have greater impact on corporate performance than organizational design: literally the way a company is put together….What kind of teamwork is required?" (1985).

Such considerations will no doubt shed light on influencing factors to the quality of how individual leaders or leadership teams behave as they assess conditions, create target conditions, assess resources, apply behavior, attempt to build buy-in, etc. We believe that research will show that these, along with other important topics such as communication and motivation will not change the mechanics of the model, but will bring a much broader conversation that reveals valuable information in distinguishing between effectively applied and ineffectively applied leadership.

FACILITATING BUY-IN, ALIGNING RESOURCES

Facilitating buy-in is the process of creating effective participation among interrelated team members so that they utilize their skills and competencies effectively toward achieving the target condition. The specific methods a leader uses to effectively achieve buy-in depends on their style of leadership- i.e. their assessment of the skill and competency and the time and resources they have available to get that skill and competency bought in and aligned.

As highly situational as creating buy-in can be, there are some common factors that apply in all situations such as trust, empowerment, and respect. When buy-in is achieved, individuals possess ownership in delivering the process and take initiative in improving the delivery. In the best cases, direct participation in the formulation of the target condition and building of the strategy to achieve the target condition occur.

Aligning resources marks the transition from assessment, gathering all the facts, to planning and action and requires a high level of buy-in from team members to be effective. No one can do it alone. Alignment also requires the leader to possess some degree of influence within an organization in order to flow across the boundaries of a conventional management structure.

Again, further research and conversation is required to fully describe the processes of creating buy-in and aligning resources.

CONCLUSION

Leadership is an essential component of Lean Construction, from in the transformation stage in board room, strategic initiative to tactical application. Reducing variation in how learning about leadership is approached as well as reducing variation in how the application of leadership is conducted will provide value to the process of implementing Lean Thinking in the A/E/C community. Systematically evaluating, capturing, and sharing lessons learned from practitioners across the community will provide more focus in attempts to apply and develop leadership that is capable of sustaining successful transformation efforts.

Conceptual models that are developed through the rigor of theory and testing have proven to be invaluable in developing understanding and application in other aspects of Lean Construction. A new conversation about leadership that is aimed at

developing a conceptual model useful to LCC practitioners will be just as valuable and may prove necessary to overcome the apparent constraints that lack of leadership present to current efforts.

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