2019

Self-Efficacy and Leadership Commitment During Lean Strategy Deployment

Angela Deloise Pearson
Walden University

Walden University

College of Social and Behavioral Sciences

This is to certify that the doctoral dissertation by

Angela D. Pearson

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Barbara Chappell, Committee Chairperson, Psychology Faculty
Dr. Steven Linnville, Committee Member, Psychology Faculty
Dr. Robert Meyer, University Reviewer, Psychology Faculty

The Office of the Provost

Walden University
2019

Abstract

Self-Efficacy and Leadership Commitment During Lean Strategy Deployment

by

Angela D. Pearson

MS, Walden University, 2014

MS, Columbia Southern University, 2010

MBA, American InterContinental University, 2004

BS, Saint Paul's College, 2003

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Psychology

Walden University

November, 2019

Abstract

Lean strategy deployment (LSD) provides a means to create lasting value at reduced cost; yet most LSD efforts fail to attain sustainable improvements. The current study sought to gain an understanding of how leaders in oral healthcare manufacturing setting in the northeastern region of the United States can apply self-efficacy and leadership commitment during an LSD. Using Bandura's theory of self-efficacy this qualitative phenomenological study examined the lived experiences and perceptions of 15 mid-to-senior level managers, concerning the use of self-efficacy and leadership commitment during a lean strategy deployment (LSD). The key findings resulted in 10 emergent themes. The top 3 highly regarded themes that emerged from this study were: (1) committing to a lean strategy deployment, (2) communicating lessons learned/changes, and (3) bringing the best out of employees. LSDs are not easy to implement. Many companies attempt to carry out lean activities and many of these same companies fail to have successful results. To be effective, leaders should focus on creating sound practices and give more attention to the human behaviors and leadership characteristics needed to support eliminating barriers and creating a lean culture.

Self-Efficacy and Leadership Commitment During Lean Strategy Deployment

by

Angela D. Pearson

MS, Walden University, 2014

MS, Columbia Southern University, 2010

MBA, American InterContinental University, 2004

BS, Saint Paul's College, 2003

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Psychology

Walden University

November, 2019

Dedication

I am thankful for all blessings that come from God. His love and grace carried me through this journey. To my children, Jeffery, Sr., Nyeisha, Tobias, Jr., and Chelsea, who have supported me through my academic adventures in higher education for the last two decades. I am humbled by their support and unconditional love for me. I am blessed to be their shero, mom, and number one fan. To my stepfather, James T. Bright, who has always been in my corner, encouraging me to be the best human God has allowed me to be. To my biological parents who are deceased, Andrew Pearson and Shirley Pearson-Bright, I know you both are looking down over me with smiles on your faces as you are so proud of my accomplishments.

Special note: This study is dedicated in memory of Liston Ashton Cyrus, a great leader and extraordinary friend who passed away on June 2, 2019. I will never forget all the conversations we had related to the significance of research and leaving a legacy that is bigger than yourself.

Acknowledgments

I wish to extend a sincere thanks to Dr. Barbara Chappell (committee chair), Dr. Steven Linville (committee member) and Dr. Robert Meyer (URR) for their support as my committee and for mentoring me through the dissertation process. Their feedback was invaluable in providing the direction I needed to stay the course and complete this journey. Through this process, my scholarly writing was enhanced, and the committee challenged my assumptions while continuing to motivate me through the process.

I would also like to thank those who participated in this study. It is because of your lived and vivid experiences that I was able to help fill a gap in lean manufacturing literature and enhance this body of knowledge. I am so appreciative to all my family, friends, and colleagues who supported me through this process. To my work husband and friend Odonnel Jimenez (Ody), I am thankful for your encouragement and supporting our lean team after my long nights of studying before and after work. I am appreciative to Mike Rother and Mark Rosenthal (lean innovators) for championing the use of their literature in my study. I hope that my research will boost new knowledge and promote positive social change.

And, finally, I would like to thank Mr. Garry Peterson who expressed his admiration and support of my doctorate journey from the beginning in 2013.

Table of Contents

iv

List of Tables

List of Figures

Chapter 1: Introduction to the Study

Lean manufacturing (LM) places emphases on waste elimination, consequently enhancing efficiency and profitability within a production system (Wilson, 2010). LM can provide organizations with a means for accomplishing organizational success in an increasingly competitive global economy. In recent years, lean practitioners and researchers have used LM to increase efficiency and enhanced on-time delivery of quality product to customers (Eaton, 2013), but according to Pay (2008), 50% or more of LM implementation efforts are unsuccessful.

This qualitative, phenomenological study will be used to help leaders develop an in-depth look at the application of leader's self-efficacy and the coaching kata (CK) method to commit, coach, motivate and embed a culture of change within their organization to sustain lean implementation success. This research offers leaders of manufacturing organizations additional insights into obtaining and sustaining results from lean execution efforts. Such knowledge is needed as many LM implementation attempts have failed to achieve their expected outcome (Näslund, 2013; Roth, 2006; Zhou, 2016).

Ruiz-de-Arbulo-Lopez, Fortuny-Santos, and Cuatrecasas-Arbós (2013) suggested that failed leadership commitment may also contribute to failed LM implementation. Thus, more knowledge of leader self-efficacy (i.e., leadership commitment) and how it is used along with the CK method could support successful LM (Veech, 2017). In this study, I explored both the CK method and leader self-efficacy.

Background of the Problem

Lean principles are used by organizational leaders to improve quality, improve workflow, and reduce costs (Wackerbarth, Strawser-Srinath, & Conigliaro, 2015). Toyota production executive Taiichi Ohno developed the concept of LM during the early 1940s in response to production issues at his Toyota manufacturing facility in Japan. Lean principles today focus on waste eradication in the form of any non-value-added activities in the value stream process, organization or anything that negatively impacts business cost (Jadhav, Mantha, & Rane, 2014). The behaviors of the leaders involved in the strategy deployment are key motivators for lean success.

Sterling and Boxall (2013) suggested that a lean organization should seek out a degree of self-efficacy from its leaders that fosters a problem-solving and continuous improvement environment. Rother (2015a) stated that when employees practice new behaviors such as the plan-do-check-act (PDCA) cycle, analysis of root causes, and systemic thinking; they create new patterns of thinking that generate new habits and ways of working, which can positively affect an organization's culture. Positive organizational culture could increase productivity, innovation, and job satisfaction and reduce waste, organizational costs, and turnover. LM systems use an approach that supports the efforts of continuous improvement by initiating small incremental process changes to improve efficiency and quality (Bhasin, 2012).

Toyota Motor Car Company is overall the most successful leader of LM in the general and automotive industry. Toyota's lean leadership training program is admirable and difficult to emulate. Toyota uses a training method in which trainers are senseis

(Liker & Convis, 2011). The senseis coach and guide trainees through problem-solving events; they do not take control when a problem occurs. This method is known as the CK method or referred to as PDCA. CK is used to train an improvement kata (IK), which is the repetition of a scientific four-step continuous-improvement routine by which an organization improves and acclimates to daily habits of lean principles (Rother, 2015a).

Because literature does not exist in this industry, this study is needed to identify how toothpaste manufacturing (oral healthcare) senior leaders use the CK method to commit, coach, and motivate their employees, to embed and sustain a culture of change during lean strategy deployment (LSD). The toothpaste industry adopted the CK method because it enables employees to reprogram their minds to think scientifically and critically about every situation. This simple method can be used in any situation.

For organizations mentioned in this study that have failed in LM implementation, researchers revealed some of the tools and methods used to deploy LM in those organizations. Some of the tools or methods used during an LSD were (a) kaizen, (b) the five S (sort, straighten, shine, standardize, and sustain), (c) single-minute exchange of die, (d) first-in, first-out, (e) takt time, (f) poka yoke, (g) total productive maintenance (TPM), (h) value stream mapping (VSM), and (i) standardized work (Bhamu & Singh Sangwan, 2014). According to Ahmad (2013), lean implementation failure has impacted these organizations by increasing changeover time, increasing overall equipment effectiveness, demotivating employees, and decreasing overall reliability performance (Kaplan, Patterson, Ching, & Blackmore, 2014).

CK was used to reinforce IK in the toothpaste industry because many other companies, such as Toyota and Ford, have had success with the method. CK focuses on people development, whereas IK focuses on process improvement (Rother, 2015b). CK emphasizes the basic thinking, mindset, and assumptions that drive LM transformation. Rother, Aulinger, and Wagner (2017) encouraged scientific thinking through the application of practicing and coaching IK as part of an individual's daily management plan.

An iteration of its application in the toothpaste manufacturing industry consisted of defining the organizational goals and establishing a clear strategy; then, top leaders brainstormed specific tactics of the goals addressed as priorities, and then they met with frontline leaders and operational employees to devise how to accomplish the tactics. Once this is completed, IKs are created (see Figure 1). IKs are reinforced with the daily use of CK.

Figure 1. Plan, do, check, act cycle record (reprinted with permission from Mark Rosenthal's *The Lean Thinker*, 2015).

CK is a structured coaching dialog that transpires between coach and learner (Rother et al., 2017) and consists of five questions (read from a kata card), which are asked by the coach to the learner:

1. What is the target condition?

2. What is the actual condition now?

3. What obstacles do you think are preventing you from reaching the target condition? Which one are you addressing now?

4. What is your next step? (Next experiment) What do you expect?

5. How quickly can we Gemba what we have learned from taking that step? (Rother, 2015a)

Figure 2 depicts the stages of the improvement kata cycle.
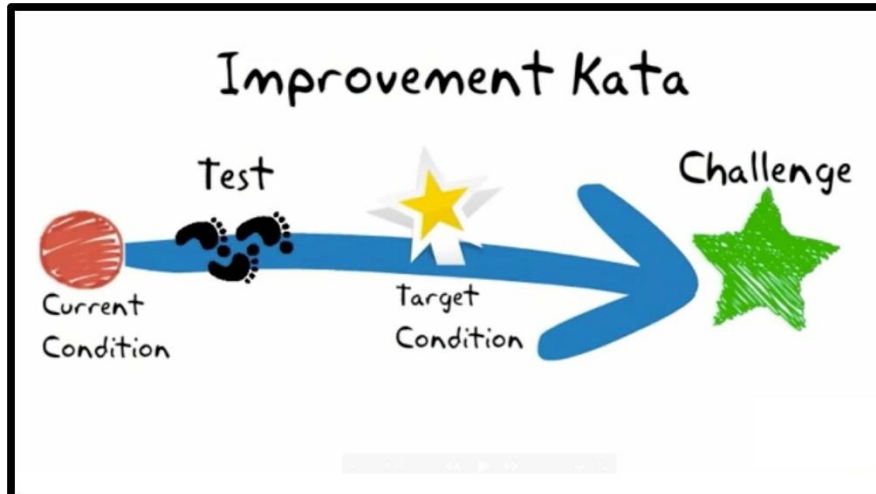
Figure 2. Four steps improvement kata cycle (from Kata in the Classroom, 2015).

McMahon (2013) noted as many as 50% to 90% of organizations fail to show benefits financially in their initial strategy deployment efforts. The term *failure* in this case refers to not achieving the expected outcome from LSD efforts and having no

difference to the bottom line of a company that is substantial enough to interest a Wall Street investor. When an organization fails at LM implementation, it may experience increased cost, reduced product quality, unstable workflow, and dissatisfied employees. Although the percentage of failures are high, 91% of organizational leaders find the philosophy of LM imperative for operational excellence (Goodridge, Westhorp, Rotter, Dobson, & Bath, 2015).

The general business problem is that manufacturing leaders fail to effectively commit fully to the LM journey through coaching their teams through a successful lean implementation. According to Jadhav et al. (2014), senior leaders lose focus of the lean vision and do not have a physical presence on the shop floor to reinforce the principles to build an LM culture. The shop floor is where products are manufactured by line workers. Many senior leaders believe their time should be spent delegating and pushing LM tools down to production operators or those closest to the work. Senior leaders should focus on removing barriers and using transparency to engage employees in all stages of the LM implementation. To accomplish this, senior leaders should conduct a gemba. A gemba is when leaders go to where the work and problems occur, coach employees on problem-solving techniques, and remove barriers. The specific problem is the inability of senior manufacturing leaders to effectively commit to the LM journey and coach teams using the CK method to motivate, embed, and sustain a culture of change during LSD.

Leaders must believe in and be committed to learning LM principles before teaching those principles to their employees. Leaders must be willing to show employees how to apply LM principles in their daily work routine, monitor their performance, and

initiate a course correction when employees are off track. Once LM principles are taught

to frontline employees, the learnings should be applied to daily activities on the shop

floor to embed work pattern changes (Poksinska, Swartling, & Drotz, 2013).

Understanding people, human motivation, and change are also key success factors for

LM implementation and sustainability (Suresh & Patri, 2017). Recent literature regarding

the application of LM principles focused on many different manufacturing industries. In

healthcare industry research, references are made to healthcare activities in hospitals,

medical treatment offices, medical devices manufacturing, and pharmaceutical

distribution settings.

In 2014, *Global Manufacturing* magazine named Toyota, Ford, Kimberly-Clark

Corporation, Parker Hannifin, Textron, Intel, Caterpillar Inc., Illinois Tool Works, John

Deere, and Nike as the top 10 companies in the world that have been successful in

implementing LM (staff writer, 2014). Toyota coined the CK method which has

contributed to their success within their Lean journey. Ford and the other companies

listed have used Toyota's TPM, which is a system that improves the veracity of

production, safety, and quality systems.

Problem Statement

The LM system has been around for decades in Japan, and the fundamental

philosophies behind it are elimination of waste, reduction of cost, and employee

empowerment (Eaton, 2013). In 1988, Krafcik first coined the term LM in, "Triumph of

the Lean Production System." Womack, Jones, and Roos (1990) popularized lean

concepts in 1990 in their book *The Machine That Changed the World*. LM is derived

from the Toyota production system developed by the Toyota Motor Car Company in

Japan (Lyons, Vidamour, Jain, & Sutherland, 2013). Lean manufacturing not only is a set

of tools and practices, but also is an essential mindset about a process that focuses on

waste elimination and value creation. All employees at every level should be taught lean

thinking to cultivate changes in the attitudes and work habits of the individuals in the

organizations (Zhou, 2016).

  Ruiz-de-Arbulo-Lopez et al. (2013) suggested that many companies implement

LM principles to sustain best practices, increase the efficiency of production processes,

enhance the customer value experience, and eliminate non-value-added activities. LSD is

used to employ the LM process. LSD is a management process that aligns objectives,

measures, actions, timelines, and responsibilities (Shook & Marchwinski, 2014). For

organizations, the lean strategy serves to improve quality and workflow, reduce costs,

and develop people so that desired results can be sustained. LM processes provide value-

added ways to efficiently eliminate waste; LSD is the method that LM is implemented

(Wilson, 2010). Despite what is promised in implementing the lean strategy, researchers

cite numerous reasons that LM implementations fail. Implications of further research

have suggested that studies focus on lean thinking, employee motivation, and culture

transformation during LM implementation.

  Researchers have not yet branded CK as a strategic preemptive measure for

successful implementation of LM. CK generates success by using an interactive and

systematic approach to process optimization and simulation (Uriarte, Moris, Ng, &

Oscarsson, 2015). However, evidence shows that this method develops employees'

competence in problem-solving, which might provide empowerment and drive continuous improvement for sustainability success (Rother & Liker, 2014). One limitation in the literature occurs where LM practices do not address CK as a strategy for LSD in any of the industries that have studied LM or LSD. CK is mentioned as one of many tools within LSD, but not as a direct method of implementing the LSD process.

Although researchers have examined CK as a lean tool, they have not conducted research to identify the effects of LSD on perceived and experienced leadership commitment. Therefore, in this study, I explored the perceptions of leaders' self-efficacy in their strategies to commit to an LSD. According to some researchers, CKs must be carried out in a manner such that a learner feels safe to fail (Soliman, 2015; Dombrowski & Mielke, 2014). In reviewing literature published after 2013, I did not find any studies on the effects, perceptions, or experiences of leaders among these variables. In this study, I focused on how senior leaders in oral healthcare manufacturing use self-efficacy and CK as strategies to commit to LM, motivate employees, and embed a culture of change within their organization to sustain lean implementation success.

Purpose

In this qualitative phenomenological study, I explored how senior leaders in oral healthcare manufacturing used self-efficacy and the CK method to commit, coach, motivate, and embed a culture of change within their organization to sustain lean implementation success. The goal was to gain an understanding of how leaders in any manufacturing industry could apply CK to minimize resistance and increase intrinsic motivation for cultural change during an LSD.

Research Questions

RQ1: How do oral healthcare manufacturing leaders effectively use the CK method to commit to LSD?

RQ2: How do oral healthcare manufacturing leaders use CK to motivate, embed, and sustain a culture of change during LSD?

RQ3: How does self-efficacy play a role in leadership commitment during LSD?

Framework

The primary framework for this study was the Bandura's self-efficacy theory (SET). Bandura (1977) developed SET in the 1960s, and it derived from his social-cognitive theory. Self-efficacy is defined as the belief in one's ability to influence events that affect life and control over the way events are experienced (Bandura, 1997). SET and leadership behaviors go hand in hand. If leaders do not first believe in themselves, true leader motivation will not exist. A leader with good technical skills who lacks confidence created by self-efficacy will struggle to lead others.

During this study, I explored the CK method in depth and used it as the secondary framework. CK is used to apply the IK cycle (see Figure 2), which establishes the continuous improvement habit of this method (Rother, 2015b). IK directs learners through a process of PDCA with emphasis on scientific thinking and cultivating new ways of completing daily tasks, which allows leaders to develop their employees by coaching them through process improvement. Reverol (2012) suggested that a clear vision is needed to deploy continuous improvement; therefore, CK and IK are needed to achieve LSD success.

Nature of the Study

The research study encompassed a qualitative phenomenological approach.

Moustakas (1994) postulated that researchers working in phenomenology intend to

understand the gist of lived experiences through evocative means. According to Yin,

Tserng, Toong, and Ngo (2014), the qualitative research method is suitable when a

researcher is searching for why or how an event happened. Qualitative research is

consistent with understanding how leaders can apply self-efficacy leadership to commit

to an LSD, motivate employees, and influence positive change in an organization. A

qualitative research method was the best choice for this study to attain new learning

through individuals' lived experiences (Seidman, 2006). The quantitative and mixed

methods were rejected as these approaches pursue impartial analysis using statistical

measurements (Pedhazer & Schmelkin, 1991).

The targeted population consisted of 20 leaders from senior and middle

management in a toothpaste manufacturing company in the northeast region of the United

States, who are currently implementing LM principles. An LSD should be customized for

each company according to gaps identified during a lean assessment. This population is

appropriate for this study because unless management and frontline employees are

motivated in using the CK method during an LSD, they may not meet the business

objectives to sustain results.

Even though the specific toothpaste manufacturer under study here has been

successful financially, leadership has failed to gain control of and solve the daily

problems that plague operational excellence. The toothpaste industry began using lean

manufacturing in 2014. IK and CK were introduced in 2016 as organizational managers acknowledged that leadership at all levels needed a unique way to solve daily problems and develop employees to foster organizational improvements.

Definitions

The following terms defined for this study were taken from Glossary of Lean Terminology and Lean Enterprise Institute (Shook & Marchwinski, 2014), All About Lean (AAL, 2017), and the Leanspeak dictionary (Junewick, 2017). They are unique and used in LM and the Toyota production system (TPS):

A3: A problem-solving approach that forces consensus building, unifies culture around a simple, systematic methodology and becomes a communication tool that follows a logical narrative and builds over the years as organization learning. *A3* is metric nomenclature for a paper size equal to 11"x17."

5S: A methodology used for improving the organization of the workplace, the name comes from the six steps required to implement each step: (a) sort, (b) set in order, (c) scrub, (d) standardize, and (e) sustain.

Seven wastes: From the Toyota production system, the seven wastes are identified as (a) overproduction, (b) unnecessary waiting, (c) unnecessary transportation, (d) overprocessing, (e) excess inventory, (f) unnecessary movement, and (g) quality defects. Some approaches add an eighth waste: underutilized people.

Current state: A present set of circumstances. In assessing the value of the business for investment purposes, it is imperative to carefully review its current state concerning its assets, debts, cash flow, and goodwill.

Cycle time: The period required to complete one cycle of operation or to complete a function, job, or task from start to finish. Cycle time is used in differentiating total duration of a process from its runtime.

Defect: A product/part that deviates from specifications or does not meet internal/external customer expectations. All defects are created by errors.

Flow: The period required to complete one cycle of operation or to complete a function, job, or task from start to finish. Cycle time is used in differentiating total duration of a process from its runtime.

Gemba: A Japanese word that means "the real place," used in business process improvement contexts to refer to the place where the value is added, such as a manufacturing area or a workshop. A related term, *gemba kaizen*, is used in Japanese process improvement initiatives to mean "continuous improvement on the shop floor," where production takes place.

Kaizen: A Japanese term meaning "change for the better." Applied to business organizations, it implies continuing improvement involving everyone.

Kanban: A card or sheet used to authorize production or movement of an item.

Kata coaching (KC): Originally a choreographed movement in martial arts to teach students behavioral reflexes. In LM, it is an approach coined by Mike Rother, sometimes also called *improvement kata*. The four steps are (a) understand the challenge/define the long-term target, (b) understand the current condition, (c) define the short-term target, and (d) move toward the short-term target. This approach should be used for every problem; its repeated usage is the equivalent of the martial arts kata. A set

of questions has been developed to reinforce this approach. The method is loosely based on Training Within Industry (AAL, 2017).

Key performance indicators (KPIs): A method of tracking or monitoring the progress of existing daily management systems.

Lean manufacturing (LM):   Both generic term for and based on the Toyota Production System (TPS). Usually used synonymous with Lean Production, although lean manufacturing is more common. The term was coined by John Krafcik. Sometimes also called lean production, and also often abbreviated to Lean (AAL, 2017).

Lean strategy deployment (LSD): A management process that aligns, both vertically and horizontally, an organization's functions and activities with its strategic objectives. A specific plan, typically annual, is developed with precise goals, actions, timelines, responsibilities, and measures (Shook & Marchwinski, 2014).

Nonvalue-added activity: Those process steps in a value stream that take time, resources, or space but do not transform or shape the product or service to meet the needs of the customer.

Paradigm: A fundamental idea about reality, frequently unquestioned and challenging to change, that conditions thinking and physical perceptions of the world or some aspect of experience.

Pareto principle: Also known as the 80/20 rule, this theory maintains that 80% of the output from a given situation or system is determined by 20% of the input.

Plan-do-check-act cycle (PDCA): An iterative four-step problem-solving process typically used in quality control.

Process: Sequence of interdependent and linked procedures that, at every stage, consume one or more resources (employee time, energy, machines, money) to convert inputs (data, material, parts, etc.) into outputs. These outputs then serve as inputs for the next stage until a known goal or end result is reached.

Self-efficacy: Beliefs about ability and capacity to accomplish a task or deal with the challenges of life.

Standard work: An agreed upon set of work procedures that effectively combines people, materials, and machines to maintain quality, efficiency, safety, and predictability; establishes a routine for repetitive tasks, provides a basis for improvement by defining the normal and highlighting the abnormal, and prohibits backsliding.

Takt time: The rate at which a product must be turned out to satisfy market demand. It is determined by dividing the available production time by the rate of customer demand (Junewick, 2017).

Value: When a product or service has been perceived or appraised to fulfill a need or desire—as defined by the customer—the product or service may be said to have value or worth. Components of value may include quality, utility, functionality, capacity, aesthetics, timeliness or availability, price, etc.

Value-added activity: Activity that generates a positive return on the investment of resources and cannot be eliminated without impairing a process.

Value stream: All the activities (both value-added and nonvalue-added) required within an organization to deliver a specific service; everything that goes into creating and delivering the value to the end-customer.

Value stream mapping: The identification of the specific activities occurring along the value stream, represented pictorially in a value stream map, i.e., waste, unevenness, and overburden, seize the opportunity, share a vision, communicate visually, permission to change, predict results.

Waste: Activity that consumes resources but adds no value. Called *muda* in Japanese; wastes are divided into seven types, one of which is overproduction or producing something more than the demand or before it is needed.

Assumptions

This research study is comprised of three assumptions. The first assumption is that participants will recollect comprehensive information of LSD implementation. This assumption is binding as the participants of this research will have been engaged in their LM implementation for a minimum of 2 years. The second assumption is that participants will be openly honest in their responses to interview questions. The third assumption is that the interview questions posed will truthfully reflect the phenomenon and will allow the researcher to provoke rich qualitative data to address the research question.

Scope and Delimitations

The scope of this research study is the successful tactics and barriers to a sustainable LSD that senior to middle management leaders experienced in a toothpaste manufacturing company in the northeast region of the United States. These leaders were in the middle of their lean manufacturing implementation efforts (Womack & Jones, 1996). Participants for this study held titles of site director, functional head directors, and leads. There were two delimitations in the study. The first delimitation was the choice of

contributing manufacturing organization based on the timeframe of their LSD

implementation exertions. Research from Womack et al. (1990) support this, signifying

culture change is an essential component for LSD.

The second delimitation was the size and type of manufacturing organization

included in the study. This type of organization is critical to global competitiveness and

economic achievement. Over 90% of manufacturing businesses and over 50% of

manufacturing jobs come from small-to-medium–sized manufacturing organizations

(Bonvillian, 2013).

Limitations

It was anticipated that direct interaction between researcher and participants

would be a limitation to this research. According to Creswell (2015), when direct

interaction between researcher and participants occurs, it can unintentionally affect the

outcome of how participants respond to questions because of the potential for influenced

dialogue. To prevent unintentionally influenced dialogue, researchers must conduct

objective interviewing and keep their views and feelings separate from the interview; a

field journal can be used to support this process (Creswell, 2015).

Another anticipated limitation was the leaders' lean capability and exposure time

to previous LSD implementation attempts. Leaders with less than 3 years of lean

exposure may present interview answers that could skew study results. To prevent

skewed study results, I inquired about experience and exposure to LSD implementation

through the participant identification demographics survey (Appendix C). Potential

participants with less than 3 years of experience or exposure to lean were not eligible to participate in this study.

Significance of the Study

The importance of this study to the field of LM is that the results may provide invaluable information on how to apply the CK method for leaders of oral healthcare manufacturing and similar organizations, assisting them in effective employee motivational strategies and sustainable tactics for change during the implementation of lean principles. The study's results also present the opportunity to improve leader-follower relationships by understanding if self-efficacy exists, increasing job performance, and reducing overall occupational stress related to implementing an LSD. Furthermore, leaders considering LSD may apply the CK technique for culture transition to inspire the potential for social change.

Summary

In Chapter 1, I provided a synopsis of this research study that included an introduction to and background and statement of the problem as it relates to LM implementation. I conferred the assertion that LM provides a means to create lasting value (Womack & Jones, 1996); yet most LSD efforts fail to attain sustainable improvements (Bhasin, 2012; Dombrowski & Mielke, 2014; Mann, 2010; Worley & Doolen, 2006).

Chapter 1 identified the problem and purpose statement. The specific problem was the inability of senior manufacturing leaders to effectively commit to an LM journey and coach teams using the CK method and use self-efficacy to motivate, embed, and

sustain a culture of change during LSD. The purpose of the study was to gain an understanding of how leaders in any manufacturing industry can apply CK and self-efficacy to minimize resistance and increase intrinsic motivation for cultural change during an LSD. The population for this qualitative phenomenological study consisted of leaders from senior and middle management in a toothpaste manufacturing company in the northeast region of the United States, who were implementing LM principles.

The significance of the study is to comprehend the application of the CK method and the use of self-efficacy for leaders in manufacturing organizations, supporting effective employee motivational strategies, and sustainable tactics for change during the implementation of lean principles (Bandura, 1997; Rother et al., 2017; Rother & Liker, 2014). In this chapter, I reviewed SET and the CK method as the theoretical frameworks for this study. Chapter 2 will include the existing literature with information on keyword searches and a historical viewpoint of LM, LSD, and CK. Also included will be current findings on strategies related to self-efficacy and leadership commitment during LSD.

Chapter 2: Literature Review

Introduction

This chapter includes a review of information related to the history of LM, IK, CK, and leader self-efficacy. The terms LM, LSD, and lean implementation will be used interchangeably throughout this chapter. IK and CK will be reviewed together (Rother, 2015a). In this section, I begin with the seven types of waste, the history of LM and its principles, and then I explore the concept of lean in the manufacturing industry along with the critical factors in an LSD.

The seven types of waste are (a) transportation, (b) inventory, (c) motion, (d) wait time, (e) overproduction, (f) overprocessing, and (g) waste (Kulkarni, Kshire, & Chandratre, 2014). During the early 1940s, Taiichi Ohno developed the concept of LM in response to production problems at his Toyota manufacturing facility in Japan. When used appropriately, LM is a dynamic process of creating customer value through waste elimination. The term *lean* was initially coined by Krafcik in 1998 and later popularized by Womack et al. (1990) in *The Machine That Changed the World*.

LM uses only the necessary workforce to manufacture a new product in half the time, resulting in fewer defects, higher product quality, and enough inventory to meet customer demand (Womack et al., 1990). The lean model is similar to the TPS house shown in Figure 3. For an organization to hold a competitive advantage, the lean mission must have the optimum level of stockpile inventory, shortest possible lead time, lowest defect rates, lowest possible waste, and highest practical customer service levels (Juran &

Defeo, 2016). Synchronizing the workflow internally and externally to the rhythm of the

customer's demands supports accomplishing the lean mission.

Figure 3. Lean house, the Mosby Group, 2009. (This work is licensed under a creative common attribution-noncommercial-share alike 4.0 international license.)

      Lean continuously focuses on the elimination of waste. Elimination of waste is

achieved by identifying and resolving any deviations in the manufacturing processes

(Lyons et al., 2013). Deviations are anything that deviates from the standard operational

processes, and they are considered waste. Lean thinking aims to influence how

employees view waste by using Womack and Jones' (2003) five lean principles:

1. Identify customer value—can only be defined by the customer,

2. Understand value stream mapping—exposes waste and sources of waste,

3. Create flow—reduces work in progress,

4. Establish pull—only make what the customer has requested, and

5. Seek perfection—continuously improve product quality and reduce waste.

Lean principles have a significant duty in guiding a lean implementation in manufacturing sectors. Ruiz-de-Arbulo-Lopez et al. (2013) acknowledged that LM is implemented using a specific goals translation process. LM is not only a holistic process, but also a mindset that affects behaviors. The change management portion of an LSD is driven by leader self-efficacy and the CK methods (Wilson, 2010).

It is projected that more than 50% of LM implementation efforts fail (Albliwi, Antony, Abdul Halim Lim, & van der Wiele, 2014; Pay, 2008). Lean strategy implementation was recognized internationally in the early 1990s in the automobile industry. Lean principles, practices, tools, and techniques to drive continuous improvement have since been accepted in several industries (i.e., information technology, healthcare, pharmaceutical, and construction).

For this study, the general business problem was that manufacturing leaders fail to fully commit to the LM journey in coaching their teams through a successful lean implementation. The specific problem is the inability of senior manufacturing leaders to commit to the LM journey and coach teams using the CK method to motivate, embed, and sustain a culture of change during an LSD. The implementation of lean strategies is a journey because it requires a long-time view, firm commitment, and organizational transformation. The purpose of this qualitative phenomenological study was to examine how senior leaders in an oral healthcare manufacturing company use self-efficacy and the CK method to commit, coach, motivate, and embed a culture of change within their organization to sustain lean implementation success.

The goal of this literature review was to reflect on the literature from the field of lean manufacturing approaches and leader self-efficacy to have a successful and sustainable implementation of LM. Leaders and employees must wholeheartedly support a culture of continuous improvement because LM is a set of multifaceted processes (Bhasin, 2012; Ramakrishnan & Testani, 2012). The concepts of this qualitative phenomenological study will be examined in this chapter.

The literature review included peer-reviewed journal articles and books by leading theorists in the field and influential leaders who know of or who have implemented lean manufacturing programs in the past. The literature review is used to emphasize the basics of the lean manufacturing field related to each part of the study. The qualitative phenomenological research method will allow for an accurate review of the literature and semi-structured interviews to advance the understanding of the leadership strategies used by leaders to commit to a successful LM implementation (Flinchbaugh, Carlino, Pawley, & Society of Manufacturing Engineers, 2006).

Objectives and Scope of Research

All major online databases were examined extensively for this review to identify pertinent research documents; I used various keywords and phrases for a search period from 2013 to 2018. Nearly 80 documents from numerous journals were included in this study. A set of keywords were framed and used for the articles title search, such as *lean strategy deployment, lean manufacturing, Toyota production systems, leader efficacy, self-efficacy theory, lean principles, lean leadership commitment, failed lean*

implementations, lean six sigma tools, gemba walks, critical success factors for lean, lean culture, improvement kata, coaching kata, and *lean organizational performance*.

I developed the search strategy by classifying the appropriate databases and keywords. The databases used were Science Direct, ProQuest, SAGE, Springer, Emerald, Taylor and Francis, Elsevier, and Inderscience. The bibliographies of related articles were separated in addition to online searches to discover articles associated with the research objectives specified for cross-checking. I used Google Scholar and EBSCO to search the keywords *lean strategy deployment, strategy implementation, lean manufacturing strategies, and lean strategy and produced articles on lean strategies, strategy deployment,* and *implementation literature*. My evaluation of the current literature exposed widespread emphasis on the practice of lean tools and processes (Sayer & Williams, 2012; Taylor, Taylor, & McSweeney, 2013; Womack & Jones, 2003).

This literature highlighted the application of many lean practices and their outcomes on operational/organizational performance improvement. Although empirical support for this claim has remained inconclusive, academics and practitioners alike shared substantial agreement on the effect of the lean strategy on organizational performance improvement. Moreover, consideration of lean strategy implementation from an organizational perspective has received limited empirical research support.

Lean Strategy in Manufacturing

The industrial revolution generated mass production during the late 18th and early 19th centuries, which allowed the economy to standardize the production processes. The process of manufacturing takes inputs in the form of materials, energy, labor, and capital

to create the transformation of raw materials into a final product. No company was better at mass production than Toyota. The Toyota Motor Company created this historical perspective with the foundation of LM (Burton, 2014), and out of this historical development came the TPS. Womack and Jones (1996) noted that lean is used as a process for producing customer value while eliminating waste and inefficiency. Waste is anything that does not add value in making the final product. LM is an alternative term for the TPS (Lander & Liker, 2007). Before 1990, LM was expressed as TPS. LM, as a term, was not conceptualized until 1990 by Womack et al. (1990); therefore, only actions and explorations after 1990 are referenced as LM.

According to Rother and Liker (2014), the philosophy of just-in-time production was developed by Kiichiro Toyoda and provided a critical contribution to TPS. At Ford's Dearborn plant, Toyota executives made assembly-line observations that resulted in the creation of TPS and LM (Wilson, 2010; Liker & Meier, 2013). The concept to pull materials based on customer consumption rather than not to push materials to the next production process was one of the critical observations identified by Toyota executives (Krafcik, 1988). This idea of pulling material is essential to product flow and means materials are only pulled when needed for production (Allen, Robinson, & Stewart, 2001; Eaton, 2013; Liker & Convis, 2011; Soliman, 2015). The idea of pulling materials improves harmonization of material flow to in-process and final assembly.

William E. Deming presented and encouraged Japanese leaders to use the PDCA method for quality improvement (Rother & Liker, 2014). Lectures between Deming and Joseph Juran led to quality training for Toyota's leaders and engineers (Lander & Liker,

2007). As a result, training within industry (TWI) was constructed and has three vital

details: (a) job instruction, (b) job methods, and (c) job relations (Huntzinger, 2002).

Other benefits of TWI included ways to eliminate unnecessary work tasks, creation of a

more efficient system of operations, and the storage of needed materials in the area where

they are used.

The combination of job relations (JR), CK, and IK complement one another; JR

supports results through people and IK/CK supports cultivating results through people

(Soltero & Boutier, 2012). There is a JR line between the coach, the learners, and those

affected by the striving for a new state. The stronger, straighter, and more correct a JR is,

the quicker target conditions (TC) can be reached. Leaders wanted to find the best way to

produce quality products using only the essential materials when needed with the

minimum amount of space, equipment, materials, and labor. Doing so allowed for

standardization in the production processes and improved chances of sustainment in lean

implementation efforts.

Researchers reported that LM implementations failed the majority of the time, and

the rate of failure was documented at 70%, but even as high as 98% in many cases

(Kotter, 1995; McMahon, 2013; Pay, 2008). Lean success has several contributing

factors, but it is essential for an organization's culture to transform along with the

implementation of lean tools (Mann, 2010; Netland, Schloetzer, & Ferdows, 2015). Good

market share and better flexibility are a few of the many benefits of a company applying

LM. The guiding principles of lean are to (a) empower people, (b) make things visual, (c)

eliminate waste, (d) simplify, (e) address one issue at a time, (f) keep products flowing,

and (g) build in safety, quality, delivery, and cost (TMG, 2009). With this new knowledge, practitioners can understand how replenishment of items in a retail supermarket led to the Kanban supermarkets restocking parts using the TPS (Holweg, 2007).

The LM process is comprised of five steps: (a) understanding and defining customer value, (b) defining value stream, (c) making the value stream flow, (d) establishing a pull system, and (e) striving for operational excellence (Womack & Jones, 1996). All these elements are essential to successful LM implementation. Several decades ago, companies would not have considered changing from mass production (auto industry) setting to a lean production environment (Liker & Meier, 2013). Mass production is the manufacture of more products than the actual demand, and unlike LM, this causes waste. On the other hand, lean uses customer demand as a production pacer and only manufactures what the customer demands.

Effective LM implementation and leader self-efficacy are interrelated. According to Karim and Arif-Uz-Zaman (2013), leaders' ability to communicate change within an organization is related to implementing successful LM implementations. To comprehend essential aspects supporting and deterring LSD implementation, the value of lean in attaining organizational performance must be understood (Lande, Shrivastava, & Seth, 2016). Next, the LSD journey will be discussed in detail.

Lean Strategy Deployment

Every goal must have a means of execution. Strategy deployment, also known as *hoshin kanri*, is used to employ the strategic goals of an organization, enabling

employees to empower growth and action at every level of the organization. LSD attempts to have every employee moving in the same direction at the same time. The approach aims to ensure that the corporate objectives (strategy), management plans (tactics), and the tasks accomplished by all employees (operations) are tight alignment. It serves as a feedback loop with goals and progress indicators coming from the top down, with results coming from the bottom up. Each goal should have someone responsible for it. They will not do all the work, of course, but they will serve to eliminate roadblocks, communicate progress, and organize the team. It is essential to know how to set up a strategy deployment. The setup should include (a) writing out the strategy, (b) developing tactics, (c) taking actions, and (d) reviewing and adjusting as needed. There are several essentials of LSD, and they will be discussed in the next sections.

Essentials of Lean Strategy Deployment

Alignment With Lean Thinking

The lean process starts with understanding and showing respect for people, which is the beginning of lean thinking. Womack and Jones (1996) describe the five basic principles of lean thinking as (a) value, (b) the value stream, (c) flow, (d) pull, and (e) perfection. Increasing customer value and eliminating waste has become the primary focus of most organizations. Value is determined by understanding how much a customer is willing to pay for products and services (Saurin, Marodin, & Ribeiro, 2011). Customer costs are determined by what the customer values. An organization is responsible for ensuring the best cost for the customer and how this can be attained at a high return to the business (Lande et al., 2016).

The entire flow of a product's life cycle—from the origin of the raw materials used to make the product through the customer's cost of using and ultimately disposing of the product—is the value stream. Value stream mapping is used to help identify processes within the value stream that do not add value to the production process and provide continuous improvement opportunities (Rother, Shook, & Lean Enterprise Institute, 2009). Flow is the synchronized movement of materials through the value stream process. The key to flow is to ensure the process does not stop. If the process stops, lack of movement creates waste.

The efforts of flow lead us to the pull system. In a "pull" system, the idea is to make product upon customer demand. Many manufacturing entities push product and inventory sits in a warehouse until the customer needs it (Jadhav et al., 2014). Any product the customer does not receive after it is produced is considered waste. Perfection is considered the attitude of relentlessly reducing or eliminating waste. The use of lean thinking is essential when companies are expected to do more with less. To remain competitive, the difficulties for competence and efficiency in our processes and product delivery challenging, but necessary (Sayer & Williams, 2012). Debatably, employees who have experienced the negative aspects of lean or heard of unsuccessful implementations are not likely to be committed to a manufacturing approach that they believe could impend their working conditions and job security.

Value Stream Planning and Forecasting

Planning and forecasting are critical in delivering expected on-time results to customers. Planning and historical forecasting data are imperative in driving company

demand. There must be a collaborative effort in creating a statistically sound process

across the planning, sales, marketing, product, and financial departments to know what

the customer values. One harmonized assessment of demand allows the organization to

transition from a push-system to a pull-system with customer demand, customer orders

and accurate forecasting driving the process. It is vital to include financial management in

all lean initiatives. Financial consideration for continuous improvement efforts is

beneficial for the synergy of the value stream's information flow, prominence,

transparency, critical decision-making, and problem-solving processes.

Catchball Process

The idea of catchball accomplishes decision making and policy development

during lean implementation. The catchball method includes passing information from one

person, team or organizational level to another (Nicholas, 2016). This process forms a bi-

directional feedback loop and supports a win-win commitment. Catchball helps those

involved to know who has accountability for what actions. Traditionally in most

organizations, lean strategy tactics are delivered top-down. The catchball process changes

the way this dynamic occurs (Masai, Parrend, & Zanni-Merk, 2015).

The delivery of strategies and goals requires input from lower levels of the

organization. The format that tactics are communicated at each level of organization are

passed back and forth like a ball is passed in a game of catchball. According to Giordani

da Silveira, Pinheiro de Lima, Deschamps, and Gouvea da Costa (2018), lean culture is

neither entirely top-down nor entirely bottom-up (Atkinson & Nicholls, 2013). Each

organization can fine-tune the notion of catchball suitable to their requirements. Below are some simple guidelines to follow when implementing a catchball session:

- All individuals must show respect for one another

- All individuals involved should have an opportunity to "hold" the ball (provide information)

- All individuals will brainstorm, discuss, and decide on data providing feedback during the session before passing the ball (information) back to the leader or other team members.

- Ownership and accountability are assigned to the person or team that has the ball.

The awareness of catchball in lean strategy deployment seems simple, but by no means easy. This process is meant to get buy-in from all levels of the organization for strategy alignment (Barnabè & Giorgino, 2017). The catchball process, if appropriately implemented, should improve communication, performance, and increase likelihoods of achieving operational excellence (Melander, Löfving, Andersson, Elgh, & Thulin, 2016; Stoller, 2015). Once the catchball process is complete, leaders should ensure a review and adjust the process as needed.

Figure 4. Hoshin Kanri alignment. (This work is licensed under a creative commons attribution-noncommercial-share alike 4.0 international license.)

Review and Adjust Process (Continuous Improvement)

When the organizational and departmental goals are defined, these goals should be communicated to everyone within the organization. A communication and change management plan should be developed to assist the organization with the change that will come from the lean strategy deployment (Jaros, 2010). Humans are creatures of habit. Resistance and pushback may be a result of any previous ingrained practices (Motwani, 2003). There is a specific tool that can be helpful in communicating and managing change within an organization. This study will only address training within industry job relations but be mindful that there are many other tools that can be used to accomplish change management.

Training within industry job relations training "*foundations for good job relations*" is a handy change tool. In the early 1940s, Training within industry job relations training was developed by the US government to support leaders of war to achieve better job relations through the application proactive problem-solving methods in their strategic pursuits (Robinson & Schroeder, 1993). Critical points of the job are taught to ensure a focus on increased productivity. TWI's job relations training supplements any lean strategy deployment teaching the essential task for a lean change.

Identification and Eradication of Waste

A facet of continuous improvement includes identifying parts of the process that does not create value for the outcome of production. The term waste is used to categorize the processes that are non-value added and to determine ways to eliminate this waste to become more resourceful. If waste is not identified and eliminated, production cost will increase, and product value will be lost in the process. McBride (2003) described the seven deadly wastes adapted from the book, *The Seven Wastes in Manufacturing.* The removal of waste is a key focus of Lean principles are trained as a part of Lean principles. The researcher will review the seven wastes below in detail.

Transportation. Transportation is the trickiest of all the waste mentioned. There are some elements of transportation that are needed to transport and deliver the product. There are also non-value-added elements of transportation of products between steps of production that increases cost, workforce needed, and time allotted to complete the process. There are specific processes that require transportation. Many lean practitioners use a mapping process to effectively build flow and a strategy to identify excessive

transportation between steps and how to reduce excessive transportation in the production process.

Inventory. When inventory is produced and does not reach the customer, is very costly and excessive waste. As a result of excessive inventory, there is an increased lead time, takes up needed space to store the inventory, and contributes to the difficulty in identifying product defects. Excessive inventory can be avoided by using the just-in-time lean method to create a unified workflow system.

Motion. Motion is a waste that is strictly related to the movement of the employees contributing to the production process. Excessive forms of bending, stretching, walking, lifting, and reaching by the employees while conducting work are considered excessive motion. The idea is to review and redesign jobs on the production line that are identified as having excessive motion. Doing this will support positive worker health and make the work more ergonomically.

Wait time. Anytime products are stationary and are not being handled, processed or moved, can result in wait time. Wait time occurs while employees "wait" for each step in the process to occur and this action can create an unnecessary process bottleneck. By ensuring that each process of production feeds into the next process, wait time can be reduced or eliminated.

Overproduction. Overproduction occurs when products are produced before they are needed. As a result, lead times are increased, costs to store overproduced product are high, and the probability of identifying defects is decreased. The use of the just-in-time

methods decreases the frequency of overproduction by only producing a product when it is needed.

Overprocessing. Many manufacturing facilities that have implemented, so form of Lean, TPS, or TPM has older equipment that has been restored to the original condition. Over-processing is involving the use of excessive overusing new/larger equipment to complete a job. This waste can be eliminated by using smaller, more straightforward equipment and combining steps in the production process.

Defects. Defects are considered quality waste. This type of waste has a direct association with the organizational bottom-line. A reworking of the product and inventory loss increase costs are results of defects. If an employee identifies defects early on in the production process, it will be easier to decrease defects.

There are seven types of lean wastes as mentioned above; however, there is an eighth waste, "waste of human potential" that does not receive the focus it deserves (Lacerda, Xambre, & Alvelos, 2016). Understanding what types of waste are present within the organization and how to reduce or eliminate them is crucial to lean management. Waste elimination can be explored through the use of improvement and coaching katas.

Improvement and Coaching Katas

Kata in the Japanese culture is a pattern, routine or habit (Rother, 2015b). This term originated from martial arts. It is about training the mind and body to respond in a precise manner automatically. One can create new neurological pathways that reinforce the behavior by practicing the routine (Fauchier & Alves, 2013). When the paths in the

brain are remapped, neuroplasticity occurs. Therefore, by practicing the improvement

kata every day, a person can change his or her thinking which changes the behavior

(Atkinson & Wilson, 2016).

A person will progress through three levels of competence whenever a new skill

is learned. These three levels include being aware of it, being able to do it, and being able

to teach it. A person must be competent in the improvement kata before start coaching it.

Once competency has been obtained in the improvement kata, the coaching kata develops

a leader's skill for teaching the scientific work pattern of the improvement kata in daily

tasks. The goal of the leader is to embed the improvement kata into the daily work of

managers and their subordinates for continuous improvement. The Toyota Kata has been

used for decades to accomplish routine coaching of work behavior. Let us discuss the

Toyota Kata and its uses.

Continuous improvement habits are taught using the Toyota Kata. This method is

a useful way to practice and teach leaders how to navigate unknown territory throughout

every level of the organization. This method is accomplished by understanding the

problems of the organization and taking scientific steps to solve these problems.

Furthermore, daily use of the improvement kata supports skill development and assurance

in the continuous improvement advancement, moving the organization ahead faster.

The Coaching Kata card (Figure 5) is used to guide a leader through coaching the

improvement kata. The organization must have an end goal (target condition) in mind

when understanding what direction to go in solving the organization's problems. To find

the end goal, the coach or leader will ask the coach or learner about the target and actual

conditions of the improvement. Grasping the "Current Condition" is about getting

information about the current problems of a process, so an individual can then outline an

appropriate next "Target Condition."

Figure 5. Coaching kata card (reprinted with permission from Mark Rosenthal, *The Lean Thinker*, 2015).

These five questions are misleadingly unpretentious. When applied to the

intricacies of any process, they can blossom into a complex array of activities that both

the coach and the learner must process through to provide significance of the target-

condition. Even though the coach's role in this process is simple, it is also very crucial.

For adequate progress, the coach must ask the learner the five Improvement Kata

questions on a daily basis and course correct or guide the learner as towards the needed

steps to achieve the target condition. Next, we will review a leader's self-efficacy and

how this is relevant to achieving a successful lean strategy deployment.

Self-Efficacy Theory and Leader Self-Efficacy

SET has long proposed the awareness one has of his or her behavior when there is

a firm belief in oneself. Bandura (1977) addressed the theoretical perspectives on how

behavior is developed and controlled. People's views regarding their abilities to exercise

influence over events that affect their lives and regulate their performance is known as

perceived self-efficacy (Bandura, 1986). These beliefs regulate people's feelings,

thoughts, motivation, and behavior. These beliefs generate diverse effects through

cognitive, motivational, affective and selection processes.

A strong sense of efficacy supports well-being and human accomplishments.

Bandura (1997) suggested that people with high self-efficacy approached tough tasks as

challenges. People with low self-efficacy tend to see tough challenges as threats to avoid

instead of opportunities to learn. If an individual with high self-efficacy has an

efficacious outlook on life, this attitude can foster natural curiosity and stir up deep

motivation in engaging in activities (Schwarzer, 2014).

A deep intimacy with efficacy allows an individual to continuously challenge

themselves through high goal-setting and commitment (Cherian & Jacob, 2013). In most

cases, failure is not an option for a person with high efficacy. They can face failure with

an increased level of optimism and resilience (Zhou, 2016). High self-efficacy allows

rapid recovery after disappointments or adverse events. These individuals can point

failure to poor effort or lack of knowledge which are attainable. Their ability to exercise

control of threatening situations enable an efficacious outlook on life to reduce everyday

stressors (Mesterova, Prochazka, Vaculik, & Smutny, 2015).

On the contrary, individuals with low self-efficacy doubt their abilities and do not

see challenges as opportunities for positive performance. They do not inspire to set high

goals and have very little commitment in pursuing their goals. When difficult tasks arise,

the use of deficiencies become a defense mechanism rather than focusing on how to perform those tasks efficiently. Their ability to remain resilient is decreased, thus fostering an attitude of failure and ultimately lose faith in their abilities.

People's beliefs in their efficacy are developed by several sources of influence including- mastery experiences, self-reflection through others abilities, social persuasion, and inferences from physical and emotional states (Huang, Krasikova, & Liu, 2016). Ordinary realities are scattered with obstacles, setbacks, disappointments, and injustices. People should, subsequently, have a dynamic awareness of efficacy to preserve the effort necessary to thrive in life. Succeeding intervals of everyday life introduce new forms of aptitude that necessitates further development of personal efficacy for prosperous functioning.

Leadership and self-efficacy are essential for developing employee creativity and motivation (Carmeli, Gelbard, & Reiter-Palmon, 2013). High levels of empowerment for people and teams are required to have successful lean manufacturing. Although respect for people and collaboration are central characteristics of lean principles, the benefits of implementing a lean leadership approach could be supported significantly by developing an engaging culture across the organization (Sterling & Boxall, 2013). Trust, commitment, situational awareness, a trained and empowered workforce are vital factors in lean organization stability (Veech, 2017).

Summary

Chapter 2 reviewed literature related to the history of lean manufacturing, improvement and coaching katas, and leader self-efficacy. While many lean

manufacturing efforts fail, there have also been many successful implementations.

Changes in the design and processes with lean manufacturing brings leaders and

employees together through strategic forces. Everyone is affected by culture and

organizational change efforts (Nordin, Deros, Wahab, & Rahman, 2012). Implementation

of new systems and processes requires effective change management through leadership

efficacy. Coaching the improvement kata supports the change process during a lean

Strategy deployment. The relationship of change management and leadership with lean

manufacturing will require future discussion and analysis for achieving innovation

excellence and continuous process improvements, which can be sustained for the long-

term (Downton, 1973; Pakdil & Leonard, 2017). Leader commitment is demonstrated by

supporting and improving the communication of clear goals to the organization.

Chapter 3: Research Method

Introduction

This phenomenological study's purpose is to discover the lived experiences of leaders and their behaviors to commit, coach, motivate, and embed a culture change within their organization to sustain lean implementation success. The objective is to explore whether their lived experiences contribute to a successful LSD. In this study, I will use a phenomenological design to capture the lived experiences of senior leaders in an oral healthcare setting. I will seek thick, rich descriptions of participants who provide the stories of their experiences in the specific exploration of successful lean initiatives (van Manen, 2016; van Manen, 2017).

This chapter encompasses the research design and rationale, research questions, role of the researcher, research methodology, participant selection logic, sample strategy, saturation, and instrumentation. The chapter also covers the data collection and analysis procedures, including the approaches used to deliver credibility, transferability, dependability, and confirmability to the research. The chapter concludes with a description of ethical procedures and protection of participant data throughout and after the study is complete.

Research Design and Rationale

A qualitative, phenomenological research strategy was used for this study. Before selecting the qualitative design for this study, I reviewed several other research designs. There are several qualitative designs, including case study, narrative, grounded theory, phenomenology, and ethnography. I found that a qualitative, phenomenological study

was best suited to answer the research questions. Doing so made it imperative that I capture the vivid, lived experiences from first-person accounts of how leaders commit, coach, motivate, and embed a culture of change with their followers (Gill, 2014; Van Manen, 2016).

The rationale for selecting a qualitative design was that it would allow participants to integrate personal significance and understanding of their lived experiences into the research by using factual accounts of how they experienced the process of implementing an LSD in their manufacturing organizations. The qualitative phenomenological method allowed for an expansion of knowledge on leadership approaches for committing, coaching, motivating, and embedding change during LSD (Van Manen, 2016; Sloan & Bowe, 2014).

Open-ended and follow-up questions were used as interview techniques with participants to gain a better understanding of their lived experiences. Giorgi (2012) suggested that data collection and data analysis become a single, unified process when the phenomenological research method is used. Participants' lived experiences can be differentiated by their answers to each interview question, generating rich, expressive data with a detailed understanding of the phenomena exposed. The traditional aspects of the phenomenological design provide ways for this study to explore and identify leadership approaches for success in LSD implementation in manufacturing organizations.

Research Questions

The central research questions are:

RQ1: How do oral healthcare manufacturing leaders effectively use the CK method to commit to LSD?

RQ2: How do oral healthcare manufacturing leaders use IK to motivate, embed, and sustain a culture of change during LSD?

RQ3: How does self-efficacy play a role in leadership commitment during LSD?

Role of Researcher

During the study, I observed and recorded the participants. I am familiar with the language used in LM and I understand the requirements and frameworks required by LM programs. Any potential participant who has less than 3 years of lean experience was not accepted into the study. I had no personal relationships with any of the participants. Additionally, I promoted data collection transparency to help ensure study credibility (Patton, 1999).

The observational process enabled me to capture the participants' activities and their experiences through the events as they transpired. Each answer to the interview questions was recorded using audio and text data. The events recollected by all participants were pieced together to recreate the strategy deployment implementation using notes, interview questions, audio recordings, and the coding process. Each question was displayed in a column heading with the answer directly below that column. NVivo 10 software was used to capture formats, trends, and themes from the data entered into the database. This allowed themes of the phenomena to emerge.

A researcher may inadvertently introduce bias in data sampling and collection by analyzing data in a manner that offers partiality to the conclusions in the research

hypothesis (Simundic, 2013). There were clear processes established in participant selection and data preservation to avoid bias in this study. I used a structured interview process to distinguish objective themes and patterns from participants' responses that others may also identify. A researcher's presence may bias participant responses, which is a limitation of conducting in-depth interviews (Smith & Noble, 2014). To avoid this type of bias, I established trustworthiness with participants by ensuring that interview questions were clear, concise, and written in a manner that would not lead participant responses.

Methodology

Participant Selection Logic

I met with senior leaders in an oral healthcare manufacturing facility in a northeastern state after institutional review board (IRB) approval was obtained. The human resources manager provided a letter of approval for study to be conducted at the location. Before conducting the study, I presented a proposal to highlight the study and its purpose. The senior leadership team was interested in the independent research results of this study because the findings would be presented to the leadership council. Participants were recruited by e-mail invitation. Participation was voluntary for everyone in management, and participation was open until data saturation was reached (Fusch & Ness, 2015). The senior leadership team informed me that all management staff had three or more years of lean experience and/or exposure to lean implementation. I knew data saturation was reached when no new codes or themes were present in the data collected.

Latham (2013) advised that data saturation frequently transpires around 12 contributors in homogeneous groups.

Qualitative sampling methods use participants who provide thorough evidence around a specific research topic. Purposive sampling is based on sampling a population due to their characteristics and the knowledge of the phenomena of a study (Etikan, Musa, & Alkassim, 2016). Purposive sampling attracts participants who have information related to a study, which supports cost and time efficiency. Purposive sampling was used to select 20 participants for this study. The participants' ability to connect experiences and views in an articulate, communicative, and philosophical manner supports this sampling method. This sampling technique has a disadvantage of requiring extensive knowledge to obtain an appropriate sample. I had the expert knowledge required to appropriately select the sample for this study. All the participants worked in oral healthcare manufacturing in a northeastern state. The selected facility was undergoing an LSD, which presents an opportunity to conduct research on their exposure to LM and their processes at this stage of their lean implementation.

The viability of this study was influenced by the availability of key participants who were willing to participate and be open and honest during the interviews. The participants' information remained confidential through the informed consent process. Participants were labeled as Participant A, Participant B, and so on. The names of participants or the organization involved in the study were not used during the interview or in any transcription of data. The interviews were scheduled for approximately 45 minutes or less to provide adequate time for thoughtful responses. All interviews were

conducted in conducive environments of the participants' choosing, such as a private

focus room, a conference room, or empty unused offices at the facility.

Instrumentation

In qualitative research, researchers usually do not use pre-established instruments.

Semi-structured open-ended interview questions led the instrumentation for this study.

The interview process was the primary data collection instrument used for obtaining

themes, patterns, and trends in the data collected, and the interviews were audiotaped

(Alshenqeeti, 2014).

Data Sources and Collection

The participants were sent an invitation to participate in the study via e-mail. The

e-mail described the importance of participating in the study and how their answers

would support the outcome of the study. Participant interviews were arranged face-to-

face and during working hours to the extent that this process did not interrupt the normal

operations of the business. Participants reviewed and signed a consent form before

conducting the interview. It was vital to ensure all participants at that point in the study

understood their role.

The interview process included a prewritten explanation of the study that was read

before the beginning of the interview. The questions covered the leaders' experiences of

strategies they use to commit, coach, motivate, and embed a culture of change with their

followers during an LSD. A digital audio recorder was used to document the interviews.

Once all interviews were conducted, they were transcribed using speech-to-text

translation software from www.temi.com. If any discrepancies were noted, they were corrected at the time of discovery.

The interview questions were designed to examine the participants' lived experiences of leading their employees through lean implementation. To remain cognizant of bias, I inquired of the participants if they had any concerns or questions before the audio taping started. To ensure transparency, I reiterated to participants that information provided for the research would remain confidential per the informed consent form.

I verified correct participant information, conducted interviews, performed respondent validation, transcribed data verbatim with a transcription service within 3 days of the interviews, and requested the participants to review the transcribed data for accuracy. Participants exited the interview with a debriefing of next steps. Once the overall study was complete, participants received information regarding specific findings for lessons learned purposes and future application of reoccurring themes. No information from a sensitive topic or from a vulnerable population was used in this study. All information was kept confidential and will continue to be kept confidential.

Data Analysis Plan

The data analysis plan was used to show how the research design and research methods are to be carried out. NVivo 10 was used for coding emerging themes, Dragon NaturallySpeaking 13 speech recognition software, and Microsoft Office 2016 applications software was used to organize, manage, analyze, and present the outcomes

of this study. The categorization of the data created during the data analysis phase is contained in the appendices.

Data was analyzed, and verification took place after completion of the first interview, and last interview data is accepted. Data was entered into NVivo 10 to establish a well-documented coding process to enable data integrity (Crouch & McKenzie, 2006). While there was no set numerical value for attaining data saturation, data saturation was reached when no new information or no further coding could be obtained (Guest, Bunce, & Johnson, 2006).

Issues of Trustworthiness

The issues of trustworthiness in qualitative research are credibility, transferability, dependability, and confirmability. Communication between the participants and the researcher fostered trustworthiness in this study. Chan, Fung, and Chien (2013) stated bracketing is a method used in qualitative research that suspends judgment about the natural world to focus on the exploration of experience. The bracketing method allowed me to put aside my beliefs and values regarding the phenomena of the study. Bracketing was used before and throughout the study for research validity.

Credibility

Credibility is the researcher's belief in the truth of data results. Respondent validation and triangulation are the main ways to address credibility (Cope, 2014). The internal and external credibility of a qualitative study to provide comparable and accurate answers about the study. Internal credibility was used for the accuracy and trustworthiness of all individuals of the study with diverse partialities and strengths

support common themes in the data. To add to the credibility of the qualitative

phenomenological study, I documented rich, vivid data from the information collected

(Connelly, 2016).

Transferability

Qualitative researchers can use thick description to show that the research study's

findings can apply to other contexts, circumstances, and situations (Anney, 2014). The

senior leadership team will be provided a general summary of the study results. I sought

to pull thick descriptions from the participants regarding their experiences.

Dependability

Dependability is the ability for research to be applied in the same manner, to the

same population and achieve the same results (Lishner, 2015). The elements of

dependability and credibility of this study will be established through a robust adherence

to the elements of Walden University's IRB process. The consistency of the data that it

can be or is repeatable and remain stable is dependability (Cope, 2014). In this study, I

looked for themes and codes that are consistent throughout the interview answers to

establish dependability. If data saturation is not reached, there is an available pool of 45

management personnel to solicit.

Data integrity is a crucial component of dependability. I developed a consistent

set of procedures to safeguard the data obtained. I stored and locked all paper files, field

notes and digital recorders in a file cabinet at my place of business. Any information that

was digital such as audio files, flash drives, emails, was safeguarded through password

protected devices that had regular updates. Data to be destroyed in accordance with Walden University's document retention policy.

Confirmability

Confirmability is the degree of neutrality in the research study's findings. Doing this means that any potential bias or personal motivations of the researcher does not skew the findings. Confirmability is established by keeping an audit trail to capture each step of data analysis that will offer a rationale for the conclusions made (Shenton, 2004). I checked and rechecked with participants to ensure the interviews, transcripts, and respondent validation were accurate. Lastly, it is difficult to duplicate a qualitative study because of personal interviews which allow views to change over time.

Ethical Procedures

When conducting research, the researcher must take every effort to protect the rights of each participant. I used the Code of Federal Regulations Title 45 Part 46 to adhere to all procedures to protect human rights by obtaining formal approval from Walden University IRB to conduct this study. The number of interview questions will be limited to allow each participant acceptable time to construct their responses and will not be personal, but conceptual. Participants will receive the invitation to the study, the purpose of the study, and how the information will be used once the results are concluded. The participant's information will be confidential, and they will be informed about how the data collected will be used and stored until destruction.

Summary

In conclusion, this chapter reviewed the qualitative research method design and rationale, research questions, the role of the researcher, research methodology, participant selection logic, sample strategy, saturation, and instrumentation. The chapter also covered the data sources, collection and analysis procedures including the approaches used to deliver credibility, transferability, dependability, and confirmability to the research. The description of ethical procedures and protection of participants' data throughout and after the study is complete were discussed in minor detail to encourage participants a safe space to share their experiences related to strategies on leadership approaches for committing, coaching, motivating, and embedding change during the LSD.

Chapter 4: Results

Introduction

In Chapter 4, I explored the research methods used to categorize themes and examine the phenomenon of leadership efficacy and approaches used for coaching, motivating, committing, and embedding change during LSD. Criteria for recruiting research participants, qualitative interview procedures, data collection, and data analysis processes are examined. The goal of this phenomenological study was to explore the vivid recollections of leaders' strategies used to embed change during an LSD implementation. This chapter includes the data analysis and results from the research interviews relative to the purpose of this study.

The sample population initially comprised of 20 skilled leaders as potential participants from an oral healthcare manufacturing facility in the northeastern region of the United States; however, five dropped out of the recruitment process for various reasons. The participants were required to have a minimum of 3 years of lean or six sigma-type experience with knowledge or having partaken in lean strategy implementation. This chapter includes the results of the participants' qualitative interviews. I clarify any unusual findings, patterns, themes, and relationships in the results.

Research Questions

The following questions guided this study:

RQ1: How do oral healthcare manufacturing leaders effectively use the CK method to commit to LSD?

RQ2: How do oral healthcare manufacturing leaders use CK to motivate, embed, and sustain a culture of change during LSD?

RQ3: How does self-efficacy play a role in leadership commitment during LSD?

Eleven open-ended, semi-structured interview questions were created from the three research questions directing this study. The interview questions were intended to obtain data from the research participants regarding the study phenomenon. The interview questions were used to examine the intense lived experiences of leaders in LM and understand their strategies used to commit to LSD.

Setting

A qualitative phenomenological method to collect data was used for this study. With written permission from the site human resources lead, an introduction e-mail invite (Appendix B) was sent to 20 individuals. Twenty potential participants were invited, but only 15 consented to participate. Five of the potential participants withdrew from the recruitment process due to the lack of desire to expose problems or any information related to unsuccessful LSD, fear of being audio recorded, or workload obligations that would not permit them to contribute. The 15 consenting individuals met the demographic identification criteria for the research (Appendix C).

Each participant was scheduled for a preliminary meeting to review the study criteria and complete the consent form and participant identification demographics form. All participant interviews were scheduled for an hour interview within working hours. It was established that each participant had signed the confidentiality form and understood the interview process. I also created a protocol to record audio in the interview process.

Participants were instructed before recording to speak slowly and comfortably, allowing for audio clarity. Only the participant and I were present for the actual interview process in a private office setting. To thwart deviations in the communication exchange, the audio recording conducted through Dragon Naturally Speaking software version 13 of the interview was e-mailed to the participant within 24 hours of recording so they could verify its accuracy.

Demographics

In this section I discuss the 15 participants and their lean or six sigma experience, job title, business industry, gender, time in service, degrees, and certifications. The participants identified as individuals who work in oral consumer healthcare. The average lean or six sigma-type experience was 3 to 26 years. All participants shared their experiences about their perception of leadership characteristics, traits, commitment, motivation, embedding change, and sustaining behaviors during an LSD. Ten males and five females participated in the study.

Participants had multiple types of certifications from project management professional, lean six sigma green belt, master trainer, lean six sigma black belt, professional in human resources, certified scrum master, professional engineer to no certifications (see Table 1). All participants had experience supporting one or more types of lean implementations.

Table 1

Demographics of the Participants

Participant	Gender	Education Level	Leadership Level	Years of Lean Experience	Certifications
Participant 01	Male	none	Senior	26	none
Participant 02	Male	Bachelors	Mid	4	LSSBB
Participant 03	Male	none	Mid	6	none
Participant 04	Male	Masters	Senior	23	LSSGB
Participant 05	Female	Bachelors	Mid	10	none
Participant 06	Male	Bachelors	Mid	3	PHR/Master Trainer
Participant 07	Female	Masters	Senior	6	LSSBB/PMP/CSM
Participant 08	Male	Associates	Mid	3	none
Participant 09	Male	Masters	Mid	10	PMP/PE
Participant 10	Female	Bachelors	Senior	17	none
Participant 11	Male	Masters	Senior	10	LSSBB/PMP
Participant 12	Female	Doctorate	Senior	3	none
Participant 13	Male	none	Mid	4	none
Participant 14	Male	Bachelors	Mid	3	LSSGB
Participant 15	Female	Bachelors	Senior	22	none

Data Collection

Before collecting data, I took steps to clear my thought processes in order to start with a positive and new perspective. The act of clearing the thought process ensured there were no underlying feelings or preconceived biases of the research topic. The primary step employed in the data collection process was the selection of participants. Fifteen oral healthcare manufacturing mid-to-senior leaders in the northeastern region of the United States was the population for this study. To produce generalizable results and recruit a sample representative of the general population, I employed purposeful sampling.

The interview process included questions regarding the extent of participants' involvement in the lean program implementation, the nature of participants' positions in the lean program implementation, leadership characteristics, and aspects encouraging or

preventing the implementation. Participants were questioned specifically about the use of lean tools, employee motivation, leadership strategies used to embed change, and distinct experiences with lean strategy implementation. The interview process encompassed the quality aspect of the current LM program attributes to the organization.

I was mindful of and sensitive to any biases that may limit the judgments, views, opinions, and values of the participants. The participants were reminded at the beginning of the interview that the study was voluntary. Participants were interviewed on dates and times that were mutually convenient and agreed upon in advance to accommodate schedules.

Data Analysis

Glesne (2006) suggested that analysis should begin with the identification of emerging themes from raw data. There were a variety of open-ended, semi-structured interview questions regarding leadership traits and strategies interviews used during an LSD. To ensure theme emergence was detectable, I used data-driven coding (or open coding) data coding to support the process. To ensure findings were close to the participants' viewpoints, I had participating members check the written transcript from the recorded session (Thomas, 2017).

The audio was uploaded into software at www.temi.com for a small fee to produce transcriptions. The transcriptions were downloaded into a file, and I compared the audio to the transcription to make corrections and ensure the written document was verbatim. To start the member checking process, the modified version of the transcriptions was resent to the participants within 48 hours for their review.

Participants evaluated the member checking to determine whether I had correctly documented their experiences and if I correctly provided impartiality to their recorded experiences. The member checking process also allowed for discrepancy resolution while providing a clear description of interview responses. This validation process was imperative before these data were input into the coding software. All identifiable information was excluded and removed from the transcription data before the interview transcription was complete.

Coding the Data

My intent was to use NVivo10 data analysis software for the coding process as a more efficient method than pencil and paper theme coding. However, I purchased the software months before the study was complete, and it had expired; the reinstallment fee outweighed the initial investment in the software. Therefore, I searched and found a similar commercial product at a reasonable price. I obtained ATLAS.ti Version 8 software to code the data for this study. When the data was entered, the software identified the collection of words, expressions, and events formulating the themes. There was no evidence of discrepant cases during this coding process.

Research Question 1

RQ1: How do oral healthcare manufacturing leaders effectively use the CK method to commit to LSD?

From this research question, four conclusive themes emerged: (a) committing to a lean strategy deployment, (b) communicating lessons learned/changes, (c)

successful/unsuccessful lean deployments, and (d) training before or after lean deployment

Research Question 2

RQ2: How do oral healthcare manufacturing leaders use CK to motivate, embed, and sustain a culture of change during LSD?

From this research question, three conclusive themes emerged: (a) engaging to embed change, (b) managing change for motivation, and (c) benefits gained from lean strategy deployment.

Research Question 3

RQ3: How does self-efficacy play a role in leadership commitment during LSD?

From this research question, three conclusive themes emerged: (a) bringing the best out of employees, (b) leadership characteristics for high performance, and (c) leadership traits-motivating others.

Evidence of Trustworthiness

According to Chan et al. (2013), the evidence of trustworthiness is as simply as can the research be trusted? Trustworthiness is about establishing credibility, transferability, dependability, and confirmability. Trustworthiness also demonstrates its true value and provide the basis for applying it. The thoroughness of the data collection method supported the validity of this study. Let us review the credibility, transferability, dependability, and confirmability of this qualitative phenomenological study.

Credibility

Credibility is the researcher's belief in the truth of data results. Respondent validation and triangulation are the main ways to address credibility (Cope, 2014). The technique of triangulation was used to gather feelings, perceptions, and experiences of participants represented in the demographics (see Table 1) of this study. To maximize the results, open-ended, semi-structured interview questions were helpful to conduct the formal participant interviews.

The purpose of using this approach was to apply a combination of approaches that enhanced the degree of internal validity but also exhibited different opportunities and strengths of responses. To strengthen the member checking process, the researcher shared the data with the participants within 48 to 96 hours after interviews occurred for a better degree of trust in the descriptions of their experiences.

Bracketing was used to help the researcher diminish judgment and biases to focus on the experience of the phenomena. The use of bracketing enables the researcher to remove personal viewpoints while interviewing participants and collecting research data (Sorsa, Kiikkala, & Åstedt-Kurki, 2015).

Transferability

Transferability, according to Englander (2012), refers to the ability to apply the results of a study from one setting to another. Transferability of all interviews happened immediately after recruitment activities were finalized. The literature research reinforced the leadership strategies of committing to, motivating, and embedding change during an LSD. A purposeful sampling of participants was used to define the scope and boundaries

of this study for proper transferability to ensure the participants met the requirements of this study (Appendix D, Participant Identification Demographics). Where possible, all efforts were made to ensure that adequate details were provided for replication purposes.

Dependability

Dependability is the ability for research to be reapplied to the same population and achieve the same results (Lishner, 2015). During this study, dependability was established the participant's responses as they were similar in nature. Chapter 3 describes the research design and implementation strategy for how the data was collected and the effectiveness of the processes used in the study. An audit trail of digital output, voice recordings, and documented files are obtainable to support and replicate the results of the study.

Conformability

The researcher checked and verified with participants to ensure their interviews, transcripts, and respondent validation was accurate. To specifically address conformability, the collection of data results occurred independently to reduce the potential for different opinions and avoid the study of inter and intra code reliability.

The use of reflexivity and conformability enabled a rigorous sense of self-awareness during the data collection and results compilation. The questions used were open-ended to ensure there was a limited amount of inconsistency in the analysis of data due to extraneous reactions during interview sessions. Eleven demographic questions used in the recruitment email captured participant demographic variables such as gender, education level, years of lean experience, and management level in the organization.

Results

The results of the study provided a systematic review of the comprehensive transcriptions obtained during the data analysis stage. Examining the emerging themes and grouping them according to conceptual similarities proved to be an advantageous approach. The thick and rich recollections addressed the research questions, explored the participant lived experiences, and supported developing themes of the phenomena. From this research question, 10 conclusive themes emerged:

1. Committing to a lean strategy deployment

2. Communicating lessons learned/changes

3. Successful/unsuccessful lean deployments

4. Training-before or after lean deployment

5. Engaging to embed change

6. Managing change for motivation

7. Benefits gained from lean strategy deployment

8. Bringing the best out of employees

9. Leadership characteristics for high performance

10. Leadership traits-motivating others

Theme 1: Committing to a Lean Strategy Deployment

Participants shared some of the strategies they use to commit to an LSD. Many of the perspectives identified related to this theme were leaders/employee alignment, the catchball process, and understanding the business objectives. Gaining buy-in early from leadership to commit to the LSD may determine the success of the implementation

(Alagaraja & Egan, 2013). Participant 2 applied this theme in his response to question number one, "Please tell me what leadership strategies you have used to commit to a lean strategy deployment?"

> I would say one of the main strategies that I've used for lean strategy deployment was more getting everybody in one room. It was to create a catchball session between site leaders and their direct reports. Um, a big part that's how in the past is that they weren't in the same room so this strategy kind of came into place when a lot of goals weren't being cascaded all the way through or weren't being communicated.

Participant 4 added additional insight:

> It's a matter of having the leader committing to this by two things because if he's committed or she is committed, he will have the right people, the right resources, the right capability, the right audience, and the right strategy to the entire organization.

> All participants identified that there were multiple elements that support

leadership commitment to an LSD. For leaders to commit to change, there must be a substantial leadership presence with a high level of visibility (Steed, 2012).

Theme 2: Communicating Lessons Learned/Changes

All participants observed communication as a crucial component to understanding the lean strategy process and ensuring sustainment of change from top-down levels of the organization. Researching what lessons have been cultivated from other companies support organizations who are planning or going through a lean implementation

comprehend what potential barriers may exist (Sisson & Elshennawy, 2015). All

participants mimicked that communication at their current company could be improved

for lessons learned/changes regarding lean strategy updates. Participant 5 shared:

> So it's critical to have both one on one conversations to group conversations and
>
> actually pulling the people in to the problem solving portion of the change also
>
> helps because if people feel like their voice has been heard, even if their solution
>
> isn't the one that in the end is used, it gives them ownership in the whole process.

Participant 1 provided additional insight stating, "What eventually worked, what didn't

work, putting those in a very simple format which is available then posting those either

on video type of boards or at your tier meeting."

Theme 3: Successful/Unsuccessful Lean Deployments

All participants had an idea of what they felt a successful or unsuccessful lean

strategy deployments entailed. Participants listed aspects such as leader involvement,

employee engagement, effective goals translation, leadership commitment, and an

educated lean coach. Worley and Doolen (2015) proposed organization culture and

leadership commitment of crucial to the success and sustainability of lean strategy

deployment. Not all lean implementations are successful. Some of the participant's

thoughts related to unsuccessful lean implementation were lack of communication, poor

leadership commitment, leader egos, and forced participation. Participant 1 shared:

> So, I think like many new things that are shiny and new, and it sounds exciting,
>
> and you try to get everyone involved. Some people will. Be on board right away
>
> other people will be very leery other people be kind of in between. Yeah, it's the

next thing to do what can happen is like anything else. It can be perishable if

you're not cultivating it, taking care of it, modifying it is necessary. And I think

what is crucial for its success is to understand that it's a tool to allow you to make

your business better. It's just these are the things that that help identify areas of

improvement and how to try things to make it better, and you are empowered to

use those tools. No one's forcing you to use them in a certain manner.

Participant 7 added additional insight:

Accountability. Uh, it's a big one. Uh, you know, being willing to challenge

people who are delivering on what they promised, you know? So, if you're not

willing to performance manage or you know, you know, performance manage

when things aren't going the way that they're designed, uh, that both, that'll break

it, that'll break a deployment very quickly.

Theme 4: Training Before or After Lean Deployment

Most of the participants expressed training is needed for employees exposed to an

LSD. The training would consist of understanding the basics of the company's

production system (like TPS). The six basic standards for the company production system

are Performance Management, Leader Standard Work, Operator Standard Work, 5S,

Zoning, and Problem Solving. Additional training that would be imperative to success is

training to teach the change curve and the value of what lean is.

Managers who would lead team should have formal training on new ways of

working, knowledge gaps, and employee motivation (Jadhav et al., 2014). There were a

few participants who felt no training was needed as LSD was a journey, and all

employees would share the experience. Other participants suggested ensuring the lean

Coaches have extensive training to lead employees through a successful implementation.

Participant 4 shared:

> I think that training needs to be understanding the value of what lean is. Because
>
> from a concept or word, it sounds like lean. What exactly does that mean? I think
>
> that needs to be training to link the activities to decide to, to what lean is. There
>
> needs to be training on some of the basic tools of lean that is not anything
>
> complex is just again just basic common sense. So, they need to be based training
>
> for the population, but the core training it needs to be. What is your role in this
>
> process and trained on what are you going to get out of it and what is it going to
>
> look like?

Participant 15 provided additional insight:

> I'm not really sure. Um, but I don't really feel like we haven't 100% embedded, so
>
> we probably need to continue to mentor people to try to identify I problems and
>
> then work through that improvement cycle and try to get people, you know,
>
> embracing it.

Theme 5: Engaging to Embed Change

Engaging to embed change was a heartfelt touchpoint for most participants.

Various responses referred to a leader's specific behavior that either motivate or

demotivate the participant to sustain practices that were learned during an LSD. All

participants agreed if the leader model the behavior they desired to see it was easier to

follow the leader's guidance. Buckley, Prewette, Byrd, and Harrison (2017) stated that

people are the most important element in lean implementation. It is critical to understand

people and how to bring them along on the change journey. Participant 11 shared:

> So, to embed a change, it really means that the people who are going to be doing
>
> the day to day tasks with that change, they have to be engaged. So that means that
>
> to embed change, you really have to have the individuals own the change that are
>
> going to truly be the ones acting out to change.

Participant 15 provided additional insight stating, "I think involvement is the biggest

thing. So, giving them a stake in it, here's what I'd like you to do, here's what I'd like you

to do. And then holding them accountable."

Theme 6: Managing Change for Motivation

All participants felt seeking small wins supports keeping employees motivated

and mentally engaged during the lean implementation journey. Those involved with the

lean process should have a higher level of knowledge as it relates to lean processes,

people, and change management. Aligning leadership with lean strategy at the beginning

of the implementation encourages change for motivation from the top to the shop floor.

Theme 7: Benefits Gained from Lean Strategy Deployment

There are many benefits to be gained from an LSD. A strong lean framework

should improve an organization's performance considerably (Belhadi & Touriki, 2016).

All participants agreed that there are many benefits of LSD if implemented properly.

Employees can experiment on how to achieve their next target condition and not be

punished for doing so. Eliminating waste and saving the organization money supports a

win-win environment. Participant 4 shared:

You have an opportunity to, you have a goal to deliver, you have a target to reach.

You can reach it in many ways with a lot of waste, a lot of costs and a lot of

frustration because it's not really well executed. A lean strategy deployment gives

you an opportunity to look at your process, how do I get from A to B? But how do

I get there as efficiently as possible with eliminating waste, eliminating

redundancies and just making it a process that's um, reliable, predictable, and

again with as minimizing waste as much as possible?

Participant 2 added additional insight:

Sometimes we tend to forget about what the main goal is to achieve because in

the end we're still a business and a company and we have to make money. I

would say the biggest benefit is everyone's aligned at the same goal and when

everyone's aligned to that one goal, and there'll be a lot easier to improve

throughout the business.

Theme 8: Bringing the Best out of Employees

Employees need to know their leaders care about the work they do during a lean

improvement activity. Providing clarity for the end goal during an LSD motivates

employees to do their best. Many participants felt that vision, purpose, confidence, and

contributed highly to permitting employees to learn and work harder to attain lean

success. Participant 5 shared," For employees in general, they want their leadership to

support them and their ideas. They want people who will listen to their suggestions for

change and people who can make those changes occur, which is a lot." Participant 2

added additional insight:

Best out of your people came up. I was speaking with somebody last week, and I

think that the function of a leader is to inspire their people to, this is the basic. If I

only able to inspire my employees, I think a job, a, he wanted to inspire

somebody. Do you need to, and again, you need to, eh, and you have to be

honest? I also need to refer with your employees. You need to recognize good

performance, or do you need to take on night. We do have good performance as

well. Eh, what he's good at showing. I think that the basic role of idea on this on

this side is to inspire the people.

Theme 9: Leadership Characteristics for High Performance

Culture is the core element for high performing employees and organizations.

There must be a deep dive to understand what leadership characteristics exist to drive

culture and performance (Laureani & Antony, 2017). Participants expressed when leaders

have clearly defined goals; employees are more willing to perform at their highest. The

goals should include activities like Value Stream Mapping, Process Mapping, use of Key

Performance Indicators (KPIs), and time/cost studies. Participant 8 shared:

Definitely there has to be a reward involved because there are in my mind to kind

of simplify that two types of workers, the ones that are sales driven and they

simply want to see their work done in the most efficient way. And, and then there,

there are the ones that are perhaps followers, and they need an external reward

because internally they don't, they perhaps don't have that drive and uh, no, I

don't want to say they could care less. I would just want to say that they want to

come in and do their job and go without seeing the entire picture of how they do

the job impacts the business side of it.

Participant13 added additional insight:

Then you can think about what has made you want to perform at your highest

level. For me personally, I just like to win. You know, what? Winning is what

drives me. Uh, in the beginning it was obviously providing for my family and,

you know, having a stable job and, you know, building a skillset, uh, but forever,

you know, but when I learned that there were goals and targets, you know, that

needed to be hit, you know, the competitive nature in myself always seems to

come out and no matter how many times I try and tame that down, you know,

with that competitive nature, when it becomes, when it becomes green versus red

and winning versus losing. I always want to win.

Theme 10: Leadership Traits-Motivating Others

Participants shared that they felt leaders should be highly visible, engaged, and

transparent during an LSD (Laureani & Antony, 2017). It is also imperative to have an

experienced, charismatic Lean Coach leading the implementation efforts. Employees are

willing to learn and work hard to accomplish goals set for a successful LSD

implementation. Participant 14 shared:

I feel like I'm giving the same answer again, but it's, I can't emphasize enough

how important trust is. And you know, when you're driving, if you know people

who have worked in a manufacturing plant for a long time, you know, the longer

that they've been working on it, the harder it is to try and what, try and get them

willing to adapt and want to change and assume it's going to fail and to get to get away from the methodology of that's just the way we've always done it. Uh, so it's first; first, it's trust. You need to be willing as a leader to be able to get feedback, you know, from your team. Do you have to be willing to accept that feedback and being willing to listen and being willing to adapt and change strategies if things aren't going the way that they should be? You know, to be a guilty, to be willing to make the adaption, to be willing to adapt, to be willing to make a course correction. And you know, for myself personally, when I've seen that things weren't going well, to potentially just say, Hey, I made a mistake. You know, this is what I thought we were going to do. This is what I thought was expecting to happen. It's not what's happening. And for that reason, I'm going to humble myself and saying, I'm pulling the clock, you know? So that's it. At the end of the day, it all boils back to trust. If you don't have trust as a leader, you're a rudderless ship.

Summary

This chapter covered the qualitative phenomenological study and open-ended, structured interview process used to gain a better understanding of leader's strategies used to commit, coach, motivate and embed a culture of change within their organization to sustain lean implementation success. This chapter also addressed the settings, demographics, data collection, data analysis, evidence of trustworthiness, and results of this study. Chapter 4 addressed the research questions guiding this study:

RQ1: How do oral healthcare manufacturing leaders effectively use the CK method to commit to LSD?

RQ2: How do oral healthcare manufacturing leaders use the CK to motivate, embed, and sustain a culture of change during LSD?

RQ3: How does self-efficacy play a role in leadership commitment during LSD? There were no discrepant cases, nonconforming, patterns, themes findings or relationships in the results. Chapter 5 will conclude with introduction, interpretation of findings, limitations of study, recommendations, and implications for future studies.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

Chapter 5 includes the discussion, conclusions, and future recommendations of how the research results contribute to the field of knowledge on leadership strategies for a successful LSD. The goal of this phenomenological study was to explore the vivid recollections of the leaders' strategies used to commit, motivate, and embed change during an LSD implementation. Key findings of this study were that all participants articulated that they felt the elements of a successful LSD include leadership communication top-down through all phases of implementation, and trusting relationships must be present at all levels of the organization, so employees clearly understand the goals of the implementation. Employees want to feel like valued contributors; therefore, leaders should provide employees with the lean knowledge needed to work through the change and apply what is learned in their areas with support from direct leaders.

Interpretation of Findings

The overall purpose of this study was to explore the leadership strategies one company used to commit, motivate, and embed change during an LSD implementation. Previous researchers assessed specific leadership strategies that contributed to the successful implementation of lean programs using multiple parameters of focus, such as TPS, change management strategies, transformational leadership, and agile manufacturing (Achanga, Shehab, Roy, & Nelder, 2006; Suresh & Patri, 2017). Even

though many leaders can attest to having a successful lean implementation, many have also struggled to sustain those results.

The interview process revealed that all leaders who participated in this study have different strategies they use to commit, motivate, and embed change during an LSD implementation. The 10 themes that emerged from this study showcased the experiences and feelings manufacturing leaders have related to what they feel contributes to operational lean success. The 10 themes were as follows:

1. Committing to a lean strategy deployment,

2. Communicating lessons learned/changes,

3. Successful/unsuccessful lean deployments,

4. Training before or after lean deployment,

5. Engaging to embed change,

6. Managing change for motivation,

7. Benefits gained from lean strategy deployment,

8. Bringing the best out of employees,

9. Leadership characteristics for high performance, and

10. Leadership traits, motivating others.

The top three highly regarded themes that emerged from this study were (a) committing to a lean strategy deployment, (b) communicating lessons learned/changes, and (c) bringing the best out of employees.

Discussion of Emergent Themes

Theme 1: Committing to a Lean Strategy Deployment

All participants interviewed agreed that communication and leadership commitment were essential traits that effective leaders should possess when leading others in an LSD. These traits could either support or hinder successful lean implementation. The data gathered in this study confirmed the past literature, which specified the efforts of leaders' practical communication skills could support committing to employees' needs during a successful lean implementation (Mann, 2010; Netland et al., 2015).

Effective communication is also essential to continuously discuss targets and measures needed to move through each phase of the lean implementation. Study participants agreed that communication enables learning and fosters change. Communicating throughout the implementation process helps leaders and employees stay aligned with what has been done and what needs to be completed to have a successful implementation (Barnabè & Giorgino, 2017).

Theme 2: Communicating Lessons Learned

Changes challenged leaders to listen and respond to their employees' feedback during and after lean implementation. Over 98% of participants stated that listening to employee feedback on what processes worked best for their area was significant to the success of an LSD implementation. Shop floor employees are closest to the work processes and, in most cases, are the executors of the work. Bottom-up reporting is usually performed on the shop floor through daily performance management meetings.

They use performance management boards to track daily, weekly, monthly targets to gauge if teams are on track. This theme supports previous literature that effective communication is essential to a successful LSD (Melander et al., 2016).

Theme 3: Successful/Unsuccessful Lean Deployments

Participants were provided an outlet to discuss the elements they felt made an LSD successful or unsuccessful. Participants who experienced a successful LSD defined contributing factors as consistent communication with lean practitioners and their frontline leaders, proper goals translation, leadership commitment, and time management skills. Uriarte et al.'s (2015) research suggested that an interactive and systematic approach to process optimization and simulation supports lean success.

Participants who experienced an unsuccessful LSD defined the factors they felt made the implementation unsuccessful as lack of commitment from leadership and employees, site leaders trying to implement an LSD without guidance from lean subject matter experts, and employees feeling that LM was forced on them. Pay (2008) described some unsuccessful LSD factors as senior leaders not understanding the full impact of LM or not being committed to the process.

Theme 4: Training Before or After Lean Deployment

The majority of participants agreed this theme was essential to those involved in an LSD. Past literature has showcased that the Toyota company has a lean leadership training program that is difficult to emulate (Liker & Convis, 2011). The question becomes, should training be conducted before, during, and/or after the implementation? It is beneficial to train employees on the aspects of the program elements of your specific

lean program. Lean foundation program elements focus on people, processes, and purpose.

Jadhav et al. (2014) stated that managers who would lead teams should have formal training on new ways of working, knowledge gaps, and employee motivation. Participants noted some training could involve the use of the company's learning management system to introduce the foundation and principles of lean, explore the value of lean, with an explanation and expectation of roles and responsibilities in a strategy deployment and how to deploy, how to conduct operational changeovers, and after-action reviews.

Theme 5: Engaging to Embed Change

Engaging to embed change is imperative for sustainability in LM and lean culture change (Poksinska et al., 2013). Previous researchers explored reasons why LM is not sustained, and they cited weak leadership commitment, lack of employee engagement, and failure to understand and implement lean tools properly (Bhasin, 2013; Ramakrishnan & Testani, 2012; Suresh & Patri, 2017). Participants felt if leaders and their employees were more involved through commitment, accountability, measuring key results, and understanding the change curve that the sustainment efforts could exist. They also agreed that the lean expert would have a crucial role in supporting leaders to create a roadmap that included milestones and celebrations to keep the momentum moving in a positive direction.

Theme 6: Managing Change for Motivation

This encourages leaders to understand what change is needed, create a plan to support the transition, and sustain the change. Most participants expressed that self-assessing the organization's lean needs and using performance management to track progress may help employees see they are obtaining results. If employees feel there is mutual respect between leaders and employees, along with proper communication and transparency, they may feel more comfortable being held accountable for the results. Zhou (2016) stated that organizational change can be difficult. Leaders can benefit from having a lean expert coach them through the change framework their company uses to manage change.

Theme 7: Benefits Gained from Lean Strategy Deployment

There are many short-term and long-term benefits to LSD. Many of the participants disclosed that they desired to have a safe environment to experiment and make mistakes (Soliman, 2015; Dombrowski & Mielke, 2014). The participants did not feel that the current environment allowed a safe space to make mistakes. Two participants revealed that leaders projected change as a negative aspect because things only changed when something went wrong. Therefore, employees associated the need for change with adverse events. lean implementation is about finding the correct tools and strategies to support a company's lean objectives (Sterling & Boxall, 2013).

Theme 8: Bringing the Best out of Employees

This was one of the participants favorite themes. All participants agreed that bringing out the best in people is a unique craft that all leaders should have. The

characteristics that leaders felt contributed to making employees feel good doing their best work were Stephen Covey's win-win agreement for a clear vision highlighted with confidence, understanding one's self-worth, servant leadership, engagement, and inspiration. Lean implementations will not be successful without employees understanding the lean process and engaging the employees' heart and mind (Covey, 2016; Rother, 2015a).

Knowing what influences employees' motivation is key to the overall motivational process. Once the motivational process begins, the leader must take action to keep that flame lit, bringing the best out of their employees. Many of the participants stated this is not an easy task. As many related, they too must stay motivated to support their employees through the lean journey.

Theme 9: Leadership Characteristics for High Performance helped participants look in the leadership mirror to reflect on the specific behaviors that supported high performance during an LSD. The majority of participants stated concern of their lean knowledge and how to become better with coaching employees while holding them accountable for the implementation. Past literature focuses on lean leaders with high performance tend to have better performance outcomes using trust, accountability, and innovation (Liker & Meier, 2013). Participants articulated that leaders should have a keen knowledge of lean tools and the application of those tools to guide the lean implementation.

Most of the participants agreed that the use of lean should apply to the support areas such as safety, finance, technical, and engineering. These areas are commonly

neglected during an LSD. Dombrowski and Mielke (2014) proposed that these functional support areas have a responsibility to provide training and project management information for the implementation. Through participants responses, the researcher concluded that many misinterpretations around the lean management system and its intent has resulted in common implementation mistakes. Participants expressed they did not understand some the elements of the company's product system used to implement lean. As a result, they used only the components they understood and did not seek additional help from the lean experts. All participants agreed that every function in the business within an organization should have a part in the lean implementation process. Every business function's participation would support linkage of the organization's lean goals.

Participants stated that the organization's current lean program is not mandatory even though it is highly recommended. The Quality department was the only department that fully utilized lean tools such as five whys, 6-step problem-solving, and Failure Modes and Effects Analysis to solve problems. The reason that the Quality department uses lean tools regularly is due to the American Society of Quality as the most popular certifying body for the different levels of Six Sigma. Therefore, participants expressed if the company mandated the use of lean, leaders, and employees would have more of an obligation to ensure they are using lean programs at every opportunity that exists.

Theme 10: Leadership Traits-Motivating Others- Technical skills and social skills are essential to achieve teamwork and problem-solving during a lean implementation. Human behavior and these two elements drive high performance. Prior

research described the leadership trait of motivating others as a necessity for effective organization transformation (Lande et al., 2016). Participants made it clear to the researcher that a leader involved in an LSD should display self-confidence when leading and motivating others. An empathetic leader should work to build trust with his or her team to define their traits that contribute to motivating employees.

Limitations of the Study

There were 15 participants interviewed for this study; only lean manufacturing leaders from operations manufacturing functional areas were included in the sampling process (e.g., manufacturing line, packaging line, quality assurance, logistics, engineering). A goal in comprehending leaders and their characteristics that lead to lean success became essential to making contributions to a larger, more general population. The study's transferability and design included a purposeful sampling of participants. Data collected and study findings were used from one site out a network of ten manufacturing sites which may not apply to other participants of various locations of the overall company or other manufacturing industries.

My initial response to the anticipated limitations included the interaction between the researcher and participants would unintentionally affect the outcome of how participants responded. I was able to provide an environment during the interview that participants felt safe to express themselves without penalty. I was confident that the participants were open and honest with their responses to the interview questions. I also felt anyone with less than 3 years of lean experience would present answers to the interview questions that could skew the study's results. This anticipated limitation was

resolved through the recruiting process in ensuring only those with 3 or more years of

lean experience were eligible to participate in the study.

Recommendations

The future of leaders' strategies used to commit, motivate, and embed change is

not an exact science as no one size fits all to accomplish a successful LSD

implementation. Different leaders use different strategies when implementing lean in

their departments or areas of work. Different strategies will also be determined by what

type of lean management system is used for implementation such as the TPS, TPM, ISO

9001 or Six Sigma. The data from the research shows that leadership characteristics to be

considered during an LSD are senior leadership engagement and effective

communication throughout the process of commitment to success.

Previous literature confirmed that a leaders' ability to communicate change within

an organization is related to implementing a successful LSD (Karim & Arif-Uz-Zaman,

2013). All leaders must be aligned with the overall organizational goals of the LSD

implementation. Future studies may explore and address the elements of what success

looks like to an organization. Each participant in this study had a different explanation of

their perception of success.

Future studies may include two more locations as a comparison between multiple

manufacturing sites within the same company. Leaders and employees at different levels

of the organization could be included in the recruitment participant interviews. The

researcher may include not only operational functions within manufacturing but include

functional areas that support the daily operations (e.g., Human Resources, Safety,

Technical, Finance). The study may be extended to employees on the shop floor, which is responsible for the final application of lean tools and processes. The shop floor employees may have additional insight regarding the LSD that leaders may not have.

Future research may focus on using a Case Study reviewing one chosen leadership strategy used in past lean implementations to disclose more focused information on that one leadership strategy. The researcher could evaluate one specific leadership strategy used to commit, motivate, and embed change with a closer look at what employees at all levels see as the most effective strategies for a successful lean implementation.

Implications

The present findings corroborated the findings of Bhasin (2013) that leaders must use leadership strategies to support a culture of continuous improvement to transform an organization. Organizational transformation is one of the essential elements of the lean journey, as is the destination. The results of this study can potentially impact positive social change by showing manufacturing leaders in numerous industries how to support LSDs and transform the organization. These results may also encourage leaders to identify and select specific leadership characteristics they can cultivate and apply to become better skilled as lean leaders. Having an engaged, skilled leader supports employees in the change management and continuous improvement process of the LSD implementation.

Previous literature addressed the reasons why lean implementations fail, which was mostly contributed to decreased leadership involvement (Lande et al., 2016). The

present findings enhance the existing literature in a new leadership strategy in committing, motivating, and embedding change of manufacturing, therefore, indicating irrespective of the industry, all types of organizations can influence a successful outcome of their LSD.

Practitioners, leaders, and shop floor employees may use information from this study to gain an understanding of lean thinking. As Womack and Jones (1996) suggested, determine the value of lean by knowing what your customer (who may be your employees) want. When considering what parts of lean to implement, leaders may want to focus on the foundational methods and build a lean culture along the way through small wins and employee engagement, before continuing to advance lean methods.

Conclusions

This qualitative phenomenological study explored leaders' lived experiences to commit, motivate, and embed change during an LSD. This study addressed a gap in the literature that contributes to the body of knowledge on lean strategy deployment implementation success. Pay (2008) noted that more than 70% of lean implementations fail. This study provided information on the impact of leaders' experiences and what strategies they felt promoted a successful lean implementation. Leaders can drive improvements and create real success when they take the time to understand the human side of lean. Participants were very forthcoming on the current lean program either measured up to their expectations or how it did not. This study provided enough detail to help identify best practices for future lean implementations at the micro and macro levels.

While there are no "one size fits all" organization's lean implementation strategies, leaders can create a playbook of the tools and strategies that support lean success in their organization. Overall, a personalize implementation will encourage a lean culture that guides leaders' ways of thinking strategically and ways of working. Constructing lean implementations in a manner that fosters a positive work culture is the best start towards a journey to excellence.

The analysis of all the information in this summary should be considered as an initial step towards a better understanding of all the variables and concepts involved in the implementation of lean. The ten themes that emerged from this study may serve as a basis in which leaders can build a more structured process for implementing lean within their organization. The more organizations understand how lean impacts the well-being of people, the more capable they will become in the identification of aspects that influence the outcome of lean-based work systems.

References

Achanga, P., Shehab, E., Roy, R., & Nelder, G. (2006). Critical success factors for Lean implementation within SMEs. *Journal of Manufacturing Technology Management*, *17*(4), 460–471. doi:10.1108/17410380610662889

Ahmad, S. A. (2013). Culture and Lean manufacturing: Towards a holistic framework. *Australian Journal of Basic and Applied Sciences*, *7*(1), 334–338. Retrieved from http://www.ajbasweb.com/

Alagaraja, M., & Egan, T. (2013). The strategic value of HRD in Lean strategy implementation. *Human Resource Development Quarterly*, *24*(1), 1–27. doi:10.1002/hrdq.21155

Albliwi, S., Antony, J., Abdul Halim Lim, S., & van der Wiele, T. (2014). Critical failure factors of Lean Six Sigma: A systematic literature review. *International Journal of Quality & Reliability Management*, *31*(9), 1012–1030. doi:10.1108/ijqrm-09-2013-0147

Allen, J., Robinson, C., & Stewart, D. (2001). *Lean manufacturing: A plant floor guide*. Dearborn, MI: Society of Manufacturing Engineers.

All About Lean. (2017). Glossary. Retrieved from http://www.allaboutlean.com/lean-glossary/

Alshenqeeti, H. (2014). Interviewing as a data collection method: A critical review. *English Linguistics Research*, *3*(1), 39. doi:10.5430/elr.v3n1p39

Anney, V. N. (2014). Ensuring the quality of the findings of qualitative research: Looking at trustworthiness criteria. *Journal of Emerging Trends in Educational*

Research and Policy Studies, 5(2), 272–281. Retrieved from

http://jeteraps.scholarlinkresearch.com/

Atkinson, P., & Nicholls, L. (2013). Demystifying lean culture change and continuous

improvement. *Management Services*, *57*(3), 10–15. Retrieved from

https://www.ims-productivity.com/page.cfm/content/Management-Services-

Journal/

Atkinson, P., & Wilson, J. (2016). Change mastery: Agility and lean transformation in

Angus Council. *Management Services, 57*(4), 30–35. Retrieved from

https://www.ims-productivity.com/page.cfm/content/Management-Services-

Journal/

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change.

Psychological Review, *84*(2), 191–215. doi:10.1037/0033-295X.84.2.191

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory.

The Health Psychology Reader. Englewood Cliffs, NJ: Prentice-Hall.

doi:10.4135/9781446221129.n6

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York, NY: Freeman.

Barnabè, F., & Giorgino, M. C. (2017). Practicing Lean strategy: Hoshin Kanri and X-

Matrix in a healthcare-centered simulation. *TQM Journal*, *29*(4), 590–609.

doi:10.1108/TQM-07-2016-0057

Belhadi, A., & Touriki, F. E. (2016). A framework for effective implementation of Lean

production in small and medium-sized enterprises. *Journal of Industrial

Engineering and Management*, *9*(3), 786–810. doi:10.3926/jiem.1907.

Bhamu, J., & Singh Sangwan, K. (2014). Lean manufacturing: Literature review and

    research issues. *International Journal of Operations & Production Management*,

    34(7), 876–940. doi:10.1108/IJOPM-08-2012-0315

Bhasin, S. (2012). An appropriate change strategy for Lean success. *Management*

    Decision, *50*(3), 439–458. doi:10.1108/00251741211216223

Bhasin, S. (2013). Impact of corporate culture on the adoption of the Lean principles.

    International Journal of Lean Six Sigma, *4*(2), 118–140.

    doi:10.1108/20401461311319329

Bonvillian, W. B. (2013). Advanced manufacturing policies and paradigms for

    innovation. *Science*, *342*(6163), 1173–1175. doi:10.1126/science.1242210

Buckley, P., Prewette, P., Byrd, J., & Harrison, G. (2017). *Staying lean: Thriving, not just*

    surviving. New York, NY: Productivity Press.

Burton, T. (2014). A history of lean and continuous improvement. *The Center for*

    Excellence and Operations, Inc. Retrieved from

    http://ceobreakthrough.com/wp2016/wpcontent/uploads/2015/03/A-History-of-

    Lean-and-Continuous-Improvement.pdf

Carmeli, A., Gelbard, R., & Reiter-Palmon, R. (2013). Leadership, creative problem-

    solving capacity, and creative performance: The importance of knowledge

    sharing. *Human Resource Management*, *52*(1), 95–121. doi:10.1002/hrm.21514

Chan, Z. C., Fung, Y. L., & Chien, W. T. (2013). Bracketing in phenomenology: Only

    undertaken in the data collection and analysis process. *Qualitative Report*, *18*(30),

    1–9. Retrieved from https://nsuworks.nova.edu/tqr/.

Cherian, J., & Jacob, J. (2013). Impact of self-efficacy on motivation and performance of

    employees. *International Journal of Business and Management*, *8*(14), 80.

    doi:10.5539/ijbm.v7n20p36

Connelly, L. M. (2016). Trustworthiness in qualitative research. *MEDSURG Nursing*,

    25(6), 435–436. Retrieved from http://www.medsurgnursing.net/cgi-

    bin/WebObjects/MSNJournal.woa

Cope, D. G. (2014). Methods and meanings: Credibility and trustworthiness of qualitative

    research. *Oncology Nursing Forum, 41*(1), 89–91. doi:10.1188/14.ONF.89-91

Covey, S. R. (2016). *The 7 habits of highly effective people: Powerful lessons in personal

    change*. Miami, FL: Mango Media.

Creswell, J. W. (2015). *A concise introduction to mixed methods research*. Thousand

    Oaks, CA: SAGE.

Crouch, M., & McKenzie, H. (2006). The logic of small samples in interview-based

    qualitative research. *Social Science Information, 45*(4), 18.

    doi:10.1177/0539018406069584

Dombrowski, U., & Mielke, T. (2014). Lean leadership–15 rules for a sustainable Lean

    implementation. *Procedia CIRP*, *17*, 565–570. doi:10.1016/j.procir.2014.01.146

Downton, J. V. (1973). *Rebel leadership: Commitment and charisma in the revolutionary

    process*. New York, NY: Free Press.

Eaton, M. (2013). *The Lean Practitioner's Handbook*. Philadelphia, PA: Kogan Page

    Publishers.

Englander, M. (2012). The interview: Data collection in descriptive phenomenological

human scientific research. *Journal of Phenomenological Psychology*, *43*(1), 13–35. doi:10.1163/156916212X632943

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, *5*(1), 1–4. doi:10.11648/j.ajtas.20160501.11

Fauchier, D., & Alves, T. (2013). Last Planner® System is the gateway to lean behaviors. In *Proceedings of the 21st International Group for Lean Construction Conference* (pp. 559-568). Retrieved from http://alves.sdsu.edu/Papers/Fauchier-Alves-2013-LPS_Is_The_Gateway_To_Lean_Behaviors.pdf

Flinchbaugh, J., Carlino, A., Pawley, D., & Society of Manufacturing Engineers. (2006). *The hitchhiker's guide to Lean: Lessons from the road*. Dearborn, MI: Society of Manufacturing Engineers.

Fusch, P. I., & Ness, L. R. (2015). Are we there yet? Data saturation in qualitative research. *Qualitative Report*, *20*(9), 1408–1416. Retrieved from https://nsuworks.nova.edu/tqr/

Gill, M. J. (2014). The possibilities of phenomenology for organizational research. *Organizational Research Methods*, *17*(2), 118–137. doi:10.1177/1094428113518348

Giordani da Silveira, W., Pinheiro de Lima, E., Deschamps, F., & Gouvea da Costa, S. E. (2018). Identification of guidelines for Hoshin Kanri initiatives. *International Journal of Productivity and Performance Management*, *67*(1), 85–110. doi:10.1108/IJPPM-03-2016-0071

Giorgi, A. (2012). The descriptive phenomenological psychological method. *Journal of Phenomenological Psychology, 43(*1), 3-12. doi:10.1163/156916212x632934

Glesne, C. (2006). Becoming qualitative researchers: An introduction (3rd ed.). New York, NY: Pearson Education, Inc.

Goodridge, D., Westhorp, G., Rotter, T., Dobson, R., & Bath, B. (2015). Lean and leadership practices: Development of an initial realist program theory. *BMC Health Services Research, 15*, 362-377. doi:10.1186/s12913-015-1030-x

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field Methods, 18*(1), 24. doi: 10.1177/1525822X05279903

Holweg, M. (2007). The genealogy of Lean production. *Journal of Operations Management*, *25*(2), 420-437. doi:10.1016/j.jom.2006.04.001

Huang, L., Krasikova, D. V., & Liu, D. (2016). I can do it, so can you: The role of leader creative self-efficacy in facilitating follower creativity. *Organizational Behavior and Human Decision Processes*, *132*, 49-62. https://doi.org/10.1016/j.obhdp.2015.12.002

Huntzinger, J. (2002). The roots of Lean training within industry: The origin of Kaizen. *Target Magazine. 18*(2), 9-21. Retrieved from https://twi-institute.org/assets/Uploads/PublicationFiles/Roots-of-Lean-Huntzinger.pdf

Jadhav, J., Mantha, S., & Rane, S. (2014). Development of framework for sustainable Lean implementation: An ISM approach. *Journal of Industrial Engineering International, 10*(72), 1-27. doi:10.1007/s40092-014-0072-8

Jaros, S. (2010). Commitment to organizational change: A critical review. *Journal of Change Management*, *10*(1), 79-108. doi:10.1080/14697010903549457

Junewick, M. A. (2017). *LeanSpeak: The productivity business improvement dictionary*. Portland, OR: Steiner Books.

Juran, J. M., & Defeo, J. A. (2016). Quality Improvement and Breakthrough Performance. In *Juran's Quality Handbook: The Complete Guide to Performance Excellence* (7th ed., pp. 155-212). New York, NY: McGraw Hill Professional.

Kaplan, G. S., Patterson, S. H., Ching, J. M., & Blackmore, C. C. (2014). Why lean doesn't work for everyone. *BMJ Quality & Safety*, *23*(12), 970. doi: 10.1136/bmjqs-2014-003248

Karim, A., & Arif-Uz-Zaman, K. (2013). A methodology for effective implementation of lean strategies and its performance evaluation in manufacturing organizations. *Business Process Management Journal*, *19*(1), 169-196. doi 10.1108/14637151311294912

Kata in the Classroom (2015, June 28). *4 Steps - Improvement Kata!* [Video file]. Retrieved from https://www.youtube.com/watch?v=INMQHgrkcM4

Kotter, J. P. (1995). Leading change: Why transformation efforts fail. *Harvard Business Review 73*, 259–267

Krafcik, J. F. (1988). Triumph of the Lean production system. *Sloan Management Review, 30*(1), 41. Retrieved from http://ezp.waldenulibrary.org/login?url=https://search-proquest-com.ezp.waldenulibrary.org/docview/224963951?accountid=14872

Kulkarni, P. P., Kshire, S. S., & Chandratre, K. V. (2014). Productivity improvement

through lean deployment & work study methods. *International Journal of

Research in Engineering and Technology*, *3*(2), 429-434. Retrieved from

http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.676.2759&rep=rep1&t

ype=pdf

Lacerda, A. P., Xambre, A. R., & Alvelos, H. M. (2016). Applying value s

mapping to eliminate waste: A case study of an original equipment manufacturer

for the automotive industry. *International Journal of Production Research*, *54*(6),

1708-1720. doi:10.1080/00207543.2015.1055349

Lande, M., Shrivastava, R. L., & Seth, D. (2016). Critical success factors for Lean Six

Sigma in SMEs (small and medium enterprises). *TQM Journal, 28*(4), 613-635.

doi:10.1108/tqm-12-2014-0107

Lander, E., & Liker, J. K. (2007). The Toyota Production System and art: Making highly

customized and creative products the Toyota way. *International Journal of

Production Research*, *45*(16), 3681-3698. doi:10.1080/00207540701223519

Latham, J. R. (2013). A framework for leading the transformation to performance

excellence part I: CEO perspectives on forces, facilitators, and strategic leadership

systems. *Quality Management Journal, 20*(2), 22Lean.org Knowledge Center.

(n.d.). Retrieved from https://www.lean.org/search/?sc=kaizen.

doi:10.1080/10686967.2013.11918095

Laureani, A., & Antony, J. (2017). Leadership characteristics for Lean Six Sigma. *Total

Quality Management & Business Excellence*, *28*(3-4), 405-426.

Doi:10.1080/14783363.2015.1090291

Liker, J., & Convis, G. L. (2011). *The Toyota way to lean leadership: Achieving and sustaining excellence through leadership development*. New York, NY. McGraw-Hill Education.

Liker, J. K., & Meier, D. (2013). *Toyota way fieldbook: A practical guide for implementing Toyota's 4Ps*. New York, NY: McGraw-Hill.

Lishner, D. A. (2015). A concise set of core recommendations to improve the dependability of psychological research. *Review of General Psychology*, *19*(1), 52-68. doi:10.1037/gpr0000028

Lyons, A. C., Vidamour, K., Jain, R., & Sutherland, M. (2013). Developing an understanding of lean thinking in process industries. *Production Planning & Control*, *24*(6), 475-494. doi:10.1080/09537287.2011.633576

McBride, D. (2003, August 29). Seven wastes of lean manufacturing. Retrieved from https://www.emsstrategies.com/dm090203article2.html

McMahon, T. (2013, May 6). A Lean journey: Top 10 reasons why lean transformation fails. Retrieved from http://www.aleanjourney.com/2013/05/top-10-reason-why-lean-transformation.html

Mann, D. (2010). *Creating a lean culture: Tools to sustain lean conversions* (2nd ed.). New York, NY: Productivity Press.

Masai, P., Parrend, P., & Zanni-Merk, C. (2015). Towards a formal model of the lean enterprise. *Procedia Computer Science*, *60*, 226-235. doi:10.1016/j.procs.2015.08.122

Melander, A., Löfving, M., Andersson, D., Elgh, F., & Thulin, M. (2016). Introducing the Hoshin Kanri strategic management system in manufacturing SMEs. *Management Decision, 54*(10), *54*(10), 2507-2523. doi:10.1108/md-03-2016-0148

Mesterova, J., Prochazka, J., Vaculik, M., & Smutny, P. (2015). Relationship between self-efficacy, transformational leadership and leader effectiveness. *Journal of Advanced Management Science Vol*, *3*(2). 109-122. doi:10.12720/joams.3.2.109-122

Motwani, J. (2003). A business process change framework for examining lean manufacturing: A case study. *Industrial Management & Data Systems*, *103*(5), 339-346. doi:10.1108/02635570310477398

Moustakas, C. (1994). *Phenomenological research methods*. Thousand Oaks, CA. Sage Publications.

Näslund, D. (2013). Lean and six sigma- Critical success factors revisited. *International Journal of Quality and Service Sciences*, *5*(1), 86-100. doi:10.1108/17566691311316266

Netland, T. H., Schloetzer, J. D., & Ferdows, K. (2015). Implementing corporate lean programs: The effect of management control practices. *Journal of Operations Management*, *36*, 90-102. doi:10.1016/j.jom.2015.03.005

Nicholas, J. (2016). Hoshin Kanri and critical success factors in quality management and lean production. *Total Quality Management & Business Excellence, 27*(3-4), *27*(3-4), 250-264. doi:10.1080/14783363.2014.976938

Nordin, N., Deros, B. M., Wahab, D. A., & Rahman, M. N. A. (2012). A framework for

organisational change management in lean manufacturing implementation. *International Journal of Services and Operations Management*, *12*(1), 101-117. doi:10.1504/ijsom.2012.046676

Pakdil, F., & Leonard, K. M. (2017). Implementing and sustaining lean processes: The dilemma of societal culture effects. *International Journal of Production Research*, *55*(3), 700-717. doi:10.1080/00207543.2016.1200761

Patton, M. Q. (1999). Enhancing the quality and credibility of qualitative analysis. *Health Services Research*, *34*(5), 1189. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1089059/pdf/hsresearch00022-0112.pdf

Pay, R. (2008). Everybody's jumping on the lean bandwagon, but many are being taken for a ride. *Industry Week*, *257*(5), 62. Retrieved from https://www.rpaycompany.com/industry/pdf/LeanBandwagon.pdf

Pedhazer, E., & Schmelkin, L. (1991) *Measurement, design and analysis*. Hillsdale, NJ: Psychology Press. https://doi.org/10.4324/9780203726389

Poksinska, B., Swartling, D., & Drotz, E. (2013). The daily work of lean leaders– Lessons from manufacturing and healthcare. *Total Quality Management & Business Excellence*, *24*(7-8), 886-898. doi:10.1080/14783363.2013.791098

Ramakrishnan, S., & Testani, M. (2012, January). A methodology to assess an organization's lean readiness for change. *In Proceedings of the Industrial and Systems Engineering Research Conference*, edited by G. Lim and J. W. Herrmann, 2855–2866. Peachtree Corners, Georgia: Institute of Industrial and

Systems Engineers.

Reverol, J. (2012). Creating an adaptable workforce: Using the Coaching Kata for

enhanced environmental performance. *Environmental Quality Management*,

22(2), 19-31. doi:10.1002/tqem.21324

Robinson, A. G., & Schroeder, D. M. (1993). Training, continuous improvement, and

human relations: The U.S. TWI Programs and the Japanese Management Style.

California Management Review, *35*(2), 35-57. doi:10.2307/41166721

Rosenthal, M. (2015, August 10). The Improvement Kata PDCA Cycles Record.

Retrieved from http://theleanthinker.com/2015/08/10/the-improvement-kata-pdca-

cycles-record/

Roth, G. (2006). Distributing leadership practices for lean transformation. *Reflections,*

7(2), 15-29. Retrieved from

http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.452.3175&rep=rep1&t

ype=pdf

Rother, M. (2015a). Improvement Kata Handbook. Retrieved from http://www-

personal.umich.edu/~mrother/Handbook/Preface.pdf

Rother, M. (2015b). Improvement Kata and Coaching Kata Practice Kit. Retrieved from

http://www-personal.umich.edu/~mrother/KATA_Files/PG_Introduction.pdf

Rother, M. & Liker, J. (2014). *How kata fits in.* Lean Enterprise Institute. [PowerPoint

slides]. Retrieved from

https://www.lean.org/coachingkata/Archive.cfm?KataItemId=31#contentTop

Rother, M., Aulinger, G., & Wagner, L. (2017). *Toyota Kata culture: Building*

organizational capability and mindset through Kata coaching (1st ed.). London, UK: McGraw-Hill Education.

Rother, M., Shook, J., & Lean Enterprise Institute. (2009). *Learning to see: Value stream mapping to create value and eliminate muda*. Cambridge, MA: Lean Enterprise Institute.

Ruiz-de-Arbulo-Lopez, P., Fortuny-Santos, J., & Cuatrecasas-Arbós, L. (2013). Lean manufacturing: Costing the value stream. *Industrial Management & Data Systems*, *113*(5), 647-668. http://dx.doi.org/10.1108/02635571311324124

Saurin, T. A., Marodin, G. A., & Ribeiro, J. L. D. (2011). A framework for assessing the use of lean production practices in manufacturing cells. *International Journal of Production Research*, *49*(11), 3211-3230. doi:10.1080/00207543.2010.482567

Sayer, N. J., & Williams, B. (2012). *Lean for dummies*. Hoboken, NJ: John Wiley & Sons.

Schwarzer, R. (2014). *Self-Efficacy: Thought control of action*. Oxfordshire, England: Taylor & Francis.

Seidman, I. (2006). *Interviewing as qualitative research: A guide for researchers in education and the social sciences* (3rd ed.). New York, NY: Teachers College Press.

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, *22*(2), 63-75. doi:10.3233/efi-2004-22201

Shook, J., & Marchwinski, C. (2014). *Lean lexicon: A graphical glossary for Lean thinkers* (5th ed.). Cambridge, MA: Lean Enterprise Institute.

Simundic, A. M. (2013). Bias in research. *Biochemia Medica*, *23*(1), 12-15. doi:10.11613/bm.2013.003

Sisson, J., & Elshennawy, A. (2015). Achieving success with lean: An analysis of key factors in lean transformation at Toyota and beyond. *International Journal of Lean Six Sigma*, *6*(3), 263-280. doi:10.1108/ijlss-07-2014-0024

Sloan, A., & Bowe, B. (2014). Phenomenology and hermeneutic phenomenology: The philosophy, the methodologies, and using hermeneutic phenomenology to investigate lecturers' experiences of curriculum design. *Quality & Quantity*, *48*(3), 1291–1303. doi:10.1007/s11135-013-9835-3

Smith, J., & Noble, H. (2014). Bias in research: Table 1. *Evidence Based Nursing, 17*(4), 100-101. doi:10.1136/eb-2014-101946

Soliman, M. H. A. (2015, June 23). What Toyota production system is really about? Retrieved from https://www.researchgate.net/publication/280557330_What_Toyota_Production_System_is_Really_About.

Soltero, C., Boutier, P. (2012). The 7 Kata. New York: Productivity Press. https://doi.org/10.1201/b12217

Sorsa, M. A., Kiikkala, I., & Åstedt-Kurki, P. (2015). Bracketing as a skill in conducting unstructured qualitative interviews. *Nurse Researcher*, *22*(4), 8-12. doi:10.7748/nr.22.4.8.e1317

Staff Writer. (2014, June 11). Top 10: Lean manufacturing companies in the world. *Global Manufacturing*. Retrieved from http://www.manufacturingglobal.com/top-

10/top-10-lean-manufacturing-companies-world?q=ntr

Steed, A. (2012). An exploration of the leadership attributes and methods associated with successful lean system deployments in acute care hospitals. *Quality Management in Healthcare*, *21*(1), 48-58. doi:10.1097/qmh.0b013e318241825c

Sterling, A., & Boxall, P. (2013). Lean production, employee learning and workplace outcomes: A case analysis through the ability-motivation-opportunity framework. *Human Resource Management Journal*, *23*(3), 227-240. doi:10.1111/1748-8583.12010

Stoller, J. (2015). *The lean CEO: Leading the way to world-class excellence*. New York, NY: McGraw-Hill Education.

Suresh, M., & Patri, R. (2017). Agility assessment using fuzzy logic approach: A case of healthcare dispensary. *BMC Health Services Research*, *17*(1), 394. doi:10.1186/s12913-017-2332-y

Taylor, A., Taylor, M., & McSweeney, A. (2013). Towards greater understanding of success and survival of lean systems. *International Journal of Production Research*, *51*(22), 6607-6630. doi:10.1080/00207543.2013.825382

The Mosby Group. (2009). Retrieved from http://www.gearedmedia.com/MosbyGroup/services.html (Lean House Image)

Thomas, D. R. (2017). Feedback from research participants: Are member checks useful in qualitative research?. *Qualitative Research in Psychology*, *14*(1), 23-41. doi:10.1080/14780887.2016.1219435

Uriarte, A. G., Moris, M. U., Ng, A. H., & Oscarsson, J. (2015, December). Lean,

simulation and optimization: A win-win combination. In *Winter Simulation Conference (WSC), 2015* (pp. 2227-2238). IEEE. doi:10.1109/WSC.2015.7408335

Van Manen, M. (2016). *Phenomenology of practice: Meaning-Giving methods in phenomenological research and writing*. London, England: Routledge. https://doi.org/10.4324/9781315422657

Van Manen, M. (2017). Phenomenology in its original sense. *Qualitative Health Research*, *27*(6), 810-825. https://doi.org/10.1177/1049732317699381

Veech, D. S. (2017). Leadersights: Creating great leaders who create great workplaces. Boca Raton, FL: CRC Press.

Wackerbarth, S. B., Strawser-Srinath, J. R., & Conigliaro, J. C. (2015). The human side of lean teams. *American Journal of Medical Quality*, *30*(3), 248-254. doi: 10.1177/1062860614527784

Wilson, L. (2010). *How to implement lean manufacturing*. New York: McGraw-Hill.

Womack, J. P., Jones, D. T., & Roos, D. (1990). *Machine that changed the world*. New York, NY: Rawson Associates.

Womack, J. P., & Jones, D. T. (1996). Beyond Toyota: How to root out waste and pursue perfection. *Harvard Business Review*, *74*(5), 140-158. Retrieved from https://pdfs.semanticscholar.org/cd5a/6aab5cc62905c0e31cb04aeacf8f25e2a1b6.pdf

Womack, J. P., & Jones, D. T. (2003). *Lean thinking: Banish waste and create wealth in your corporation* (2nd ed.). New York, NY: Free Press.

Worley, J. M., & Doolen, T. L. (2006). The role of communication and management

support in a lean manufacturing implementation. *Management Decision*, *44*(2), 228-245. https://doi.org/10.1108/00251740610650210

Worley, J. M., & Doolen, T. L. (2015). Organizational structure, employee problem solving, and lean implementation. *International Journal of Lean Six Sigma*, *6*(1), 39-58. doi:10.1108/IJLSS-12-2013-0058

Yin, S. Y. L., Tserng, H. P., Toong, S. N., & Ngo, T. L. (2014). An improved approach to the subcontracting procurement process in a lean construction setting. *Journal of Civil Engineering and Management*, *20*(3), 389-403. doi:10.3846/13923730.2013.801900

Zhou, B. (2016). Lean principles, practices, and impacts: A study on small and medium-sized enterprises (SMEs). *Annals of Operations Research*, *241*(1-2), 457-474. doi:10.1007/s10479-012-1177-3

Appendix A: Introductory Letter to Leaders

Dear Human Resources Manager:

I am a PhD Candidate at Walden University in Minneapolis, Minnesota. I am conducting

a study on self-efficacy and leadership commitment during a Lean Strategy Deployment

(LSD) for my dissertation.

As part of the study, leaders who have participated in an LSD will be interviewed for 45

minutes face-to-face. I am contacting you to ask that you allow me permission to contact

the leaders within the site distribution list starting with senior leaders and front-line

leaders. Please forward the attached invitation to the senior leaders and front-line leaders

of your company.

The interviews will not take more than 45 minutes. The data collected in this study will

be confidential. The raw data will only be shared with the researcher for this study. I will

be happy to share general study findings to the Senior Leadership Team (SLT), if they are

interested.

If you have any questions regarding the study or findings, please feel free to contact me.

Thank you in advance for your assistance in this matter.

Sincerely,
Angela D. Pearson
Doctoral Candidate- Walden University

Appendix B: Email Invitation

Subject: Invitation to participate in a research study on self-efficacy and leadership commitment during a Lean strategy deployment.

Dear Sir or Madam,

My name is Angela Pearson and I am a Doctorate student in the School of Psychology, College of Social and Behavioral Sciences at Walden University. I am working on a qualitative research study under the supervision of Dr. Barbara Chappell and Dr. Steven Linville.

I am writing to you today to invite you to participate in a study entitled "*Self-Efficacy and Leadership Commitment During Lean Strategy Deployment.*" This study aims to explore how leaders in oral healthcare manufacturing use self-efficacy and the coaching kata method to commit, coach, motivate and embed a culture of change within their organization to sustain lean implementation success.

This study involves one 45-minute interview that will take place in a mutually convenient, safe location. With your consent, interviews will be audio-recorded. Once the recording has been transcribed, the audio-recording will be destroyed.

While this project does involve some professional and emotional risks, care will be taken to protect your identity. This will be done by keeping all responses and any personal data confidential.

You will have the right to terminate your participation in the study at any time, for any reason. If you choose to withdraw, all the information you have provided will be destroyed.

All research data, including audio-recordings and any notes will be encrypted. Any hard copies of information (including any handwritten field notes) will be kept in a locked cabinet at my workplace. Research data will only be accessible by the researcher.

The ethics protocol for this project was reviewed by the Walden University's Institute Research Board (IRB), which provided clearance to carry out the research.

If you have any ethical concerns with the study or if you want to talk privately about your rights as a participant, you can call the Research Participant Advocate at my university.

If you would like to participate in this research project, or have any questions, please contact me.

Sincerely,

Angela D. Pearson
PhD Candidate
Walden University

Appendix C: Participant Identification Demographics

The results of the survey will determine if the participant meets the requirements of this study. Qualified participants will be selected, specifically, those who have led or participated in Lean program strategy deployments in an organization whose leaders use self-efficacy and the coaching kata method to commit, coach, motivate and embed a culture of change.

1. Participant's job title

2. Participant's business industry (i.e., healthcare, manufacturing)

a. Company zip code

3. Participant's company product

4. Participant's company number of employees

5. Previous employer (as it applies to lean implementations only)

6. Sex of participant- male or female

7. Time with current organization in years and months

8. Years of Lean experience (ISO 9001, TPM, Six Sigma, GPS), (must have three or more years to participant in study)

9. Certifications held

10. Degrees held

11. What kind of program did you support implementation for (ISO 9001, TPM, Six Sigma, GPS)?

Appendix D: Interview Questions

Participation in this interview is entirely voluntary. The data that is provided will be audio recorded, but the recording will be conducted in a way that is confidential. This interview will not be video recorded.

1. Please tell me what leadership strategies you have used to commit to a Lean strategy deployment?

2. What do you think are the benefits gained from Lean strategy deployment?

3. What do you feel makes employees want to perform at their highest level?

4. What are the leadership strategies you used to help manage the change that is associated with motivating employees during Lean strategy deployment?

5. Which leadership traits allow a leader to motivate their employees during the change?

6. What do leaders do to engage their teams to embed change during the Lean strategy deployment?

7. What do you feel are the main reasons lean strategy deployments have been unsuccessful/successful within the organization or organizations you have worked with? Can you tell me about the experience(s) you had?

8. How should the changes/lessons learned from the Lean strategy deployment be communicated to the general population?

9. Is there a need for training before/after a Lean strategy deployment? If so, what type of training should occur?

10. Are there any additional thoughts related on leadership approaches for committing, coaching, motivating, and embedding change during the Lean strategy deployment?

11. What leadership characteristics brings the best out of their employees?

Appendix E: Permission to Use Author's Work

Mark Rosenthal
To
Angela Pearson
Dec 23 at 4:12 PM

A word doc, or a flurry of emails for that matter, would be fine. "Creative Commons" is simply a set of standard verbiage for copyright. Everything on Wikipedia, for example, is copyrighted under a creative commons license of some sort. An author can say his work is under "Creative Commons" and by doing so, authorize re-use under specified conditions. But if you want to be doubly sure, then contacting Mike directly would certainly be OK. He is a really nice guy.
He has pulled stuff back off his web site since publishing a couple of new books - that may well be at the request of the publisher - I don't know.

 Hide original message

On Sat, Dec 23, 2017 at 12:50 PM, Angela Pearson wrote:

Thank you for your rapid response. I will send a word document with all the images I would like to use, this way I do not bombard you with too many emails. So, would Creative Commons be the point of contact I need to get written permission from as it relates to Mr. Rother's works?
Regards,

Angela

On Saturday, December 23, 2017 3:18 PM, Mark Rosenthal wrote:

Anything from Mike Rother is usable under Creative Commons. (He is a friend of mine) And yes - go ahead and send the any link you want to me. I can probably point you to the original source.

On Sat, Dec 23, 2017 at 11:47 AM, Angela Pearson wrote:

Happy holidays Mark,
The specific image I found out are those of Mike Rother. I have reached out to him for permission. I know that there will be future opportunity to use images from your website. Is it ok if I send you the link to verify and request permission?
Regards,

Angela

On Sunday, December 17, 2017 2:11 PM, Mark Rosenthal wrote:

Angela -
Let me know what graphics they are - maybe links to the posts you are looking at.
(I need to make sure they are mine to give away)

Mark

On Sun, Dec 17, 2017 at 10:34 AM, Angela D. Pearson wrote:
Name: Angela D. Pearson

Comment: Hi Mark,

I am a PhD student who is working on a qualitative dissertation regarding Lean Strategy Deployment. There are a few graphics on your site I would like to use but need written permission to do so. Can you assist me with this?

Regards,

Angela

Time: December 17, 2017 at 10:34 am

Sent by an unverified visitor to your site.