

## ABSTRACT OF DISSERTATION

### EXAMINING TOYOTA KATA'S BEST DEMONSTRATED PRACTICES FROM IMPLEMENTATION TO SUSTAINMENT

Throughout this qualitative study using constructivist grounded theory, I explored the experiences of 12 veteran continuous improvement practitioners in their practice of Toyota Kata. I examined their earliest influences in continuous improvement, specifically the methods their mentors used to help their mentees (participants) learn. Within the data, I identified nine themes that guided continuous improvement practitioners in their ongoing Toyota Kata practice. Lastly, I put forth a grounded theory on why Toyota Kata helps organizations adapt better than tool-based methods.

William Harvey

March 30, 2019

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IMPLEMENTATION TO SUSTAINMENT

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*Dissertation*

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A dissertation submitted in partial fulfillment of the requirements  
for the degree of Doctor of Education in Educational Leadership  
at Northern Kentucky University

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2019

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## **Dedication**

My life changed on October 21, 2018. I woke up to a text message from one of my dearest friend's wife, stating that he was missing for nearly 24 hours. Samuel Selay was an independent and adventurous person and would often explore the outdoors alone. Four days later, a recovery team would find Samuel's body. At the tender age of 34, Samuel was gone, leaving his wife to care for their four children. Before my life changed that fateful October morning, I want to share how our paths crossed in May 2015 and led me to where I am today.

After seeing Samuel comment on LinkedIn, I reached out and offered to help him transition from active duty Marine Corps service. Given our similar backgrounds and passion in helping others, we built a strong relationship quickly. Just days before his untimely death, I joked with him that I would tell him the opposite of what I thought he should pursue as his next career step because he did the opposite on two occasions with predictable results. He and I both shared a good laugh and I hoped to inspire him in helping others, even if it was not connecting the dots forward.

Our conversations were us helping each other through our respective journeys. In November 2016, Samuel recommended I reach out to Karyn Ross for advice on my doctoral research process. Karyn sat on my doctoral committee and has become one of the most positive influences in my life. Samuel shared in one of his last blogs, "I feel it's wasteful to go through life with no purpose, no meaning, no direction." I am unsure how Samuel felt in his final moments. I do want the world to know that his friendship provides me inspiration to help others find their purpose, meaning, and/or direction.

## **Acknowledgements**

There are many people who I am thankful for inspiring me over the past three years. I would like to thank them now.

I extend my deepest gratitude to Dr. James Allen for answering my call three years ago to share more about Northern Kentucky University's Doctor of Education program. Your kindness and encouraging words are what I remember most about our time together and over the last year, your encouraging words increased to keep me on track. I would like to thank Dr. Shawn Faulkner and Karyn Ross, MFA, my dissertation committee members. Your constructive feedback challenged me in the most positive of ways throughout the research and writing processes.

To my professors, Drs. James Allen, James Koschoreck, Cindy Reed, Kathy Burkhardt, James Votruba, Paul Wirtz, Brandelyn Tosolt, John Huss, and Mark Wasicsko, it has been a pleasure to learn alongside you. Your dedication to each learning associate was ever present. Thank you for answering my many questions!

Thank you to my fellow learning associates of Cohort XII, I learned as much, if not more, from our in-class small group sessions. I learned a tremendous amount about each of your respective leadership abilities in our small group sessions. I am confident that you will continue to inspire those around you to achieve greatness.

To the research participants, your willingness to share your experiences to help others is selfless and I expect no less of the continuous improvement community. I appreciate the time you spent to help produce this research.

I thank my colleagues, friends and family who have followed me on this journey, inquiring often about my progress. Among them, I extend a special thank you to my

grandmother, Joan Fiala, for having the forethought to name me William Joseph as my office nameplate will soon read Dr. William Harvey—just as you predicted 36 years ago! To my parents, Lynn Gross and Billy Harvey, your sacrifices to make my life better will serve as a springboard for your four grandchildren: Sarah, Hannah, Aiden, and Alexandra. They will live a better life thanks to your efforts. And to my dearest wife, Ami Harvey, I thank you for your patience as I have spent half of our marriage chasing my academic goals. It is exhilarating to watch you do the same.



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## Chapter 1

### Introduction

Automobile manufacturer General Motors sold more automobiles than any other automobile manufacturer for 77 years until Toyota surpassed General Motors in 2008 (LeBeau, 2010). Second-generation Toyota leader Kiichiro Toyoda, with great foresight during the 1940s, remarked, “Catch up with America in three years. Otherwise, the automobile industry of Japan will not survive” (Ohno, 1988, p. 3). Survival was an understatement—Toyota thrived despite challenging factors in the postwar period following WWII.

Ohno, Toyota Senior Engineer, was the creator of the Toyota Production System (TPS) that is synonymous with Lean Manufacturing and Lean in Western literature. Throughout this research, the terms are synonymous. Ohno was supported by others, including W. Edwards Deming. Deming was initially rejected by American industrial companies and engaged Japanese industry with incredible success in the postwar economy as they were willing to listen to his input (Editorial: Giants of Quality, 2012).

From the 1940s to early 1980s, American manufacturers maintained status quo. Recognizing the threat of Japanese manufacturing quality to their businesses, new programs were quickly adopted that incorporated components of Total Quality Management (TQM) and Lean Manufacturing (Cole, 1990). Despite significant improvement during the decade following acceptance of the quality problem, American automobile manufacturers never fully recovered their losses (Cole, 1990).

During the 1980s and 1990s, Americans implemented many tools such as TQM, Lean Manufacturing, and Six Sigma to improve quality and efficiency, while reducing

manufacturing costs. These programs specified what should be done to solve existing problems but lacked insight on how individuals solved those problems (i.e., how they developed the tools taught in TQM, Lean Manufacturing, and Six Sigma). Schein (2010) identified culture at three levels: artifacts, espoused values, and basic assumptions and values. Artifacts are surface-level and are easy to identify (Schein, 2010). Espoused values often appear in what an organization thinks of itself, often through core values and/or a mission statement. The deepest level, basic assumptions and values, are concepts that work well enough to teach others and become part of the organization's how-to guide for accomplishing tasks (Schein, 2010). The programs, TQM, Lean Manufacturing, and Six Sigma, born in the United States throughout the 1980s and 1990s were at the first two levels: artifacts and espoused values.

In copying these tools, organizations copied what worked for other organizations given specific context (Rother, 2010). Womack, Jones, Roos, and Sammons-Carpenter (1990) identified what Rother (2010) discovered for himself—managerial routines must change to implement such improvements. These basic underlying assumptions and values are at the core of this research through a new continuous improvement model known as Toyota Kata.

Previous authors were effective in identifying visible aspects within TPS (Rother, 2010). Rother (2010) argued that others copied the wrong, visible things and reverse engineering attempts missed the point—the critical, invisible things such as management thinking and routines differed from US automobile manufacturers. Rother (2010) described Toyota Kata as the invisible daily behaviors team leaders and team members execute, associating these recurring acts with a “way of keeping two things in

alignment or synchronization with one another” (ch. 1, section 4, para. 16). The invisible is equivalent to basic assumptions and values.

The methods by which Rother (2010) maintained alignment between learner and coach was through an Improvement Kata and its complementary Coaching Kata. The learner focused on Improvement Kata while the Coach focused on Coaching Kata. In Improvement Kata, learners understood the direction, vision, target, or need before grasping the current condition, establishing the next target condition, and conducting experiments through the plan-do-check-act cycle (PDCA). The Coaching Kata consisted of five questions supporting Improvement Kata that were universally applicable to process improvements (Rother, 2010). Rother (2018) followed up his 2010 research with Starter Kata, practical methods for aligning organizations towards scientific thinking.

### **Problem Statement**

In simplest form, teaching people how to think about the world around them was critically important to equipping people to solve dynamic organizational challenges (Rother & Shook, 2009). Toyota Kata offered this whereas other tools fell short of a holistic approach.

Within TPS and Six Sigma, authors proposed numerous tools such as The Seven Deadly Wastes and DMAIC, Six Sigma’s problem-solving methodology (Ohno, 1988; Pande, Neuman, & Cavanagh, 2000; Welch, 2005; Womack, Jones, Roos, & Sammons-Carpenter, 1990). These tools provided learners with concrete tools to apply to their environment. Their limitation was that the tools solved a specific problem within a specific organizational context. Independent of organizational culture, mentors taught

learners specific tools and success was proficiency in these tools. This was dangerous precedent as tools are not 100% transferrable between contextual situations (Rother, 2010). Therefore, in dynamic environments, it behooved an organization to teach its associates how to think critically so associates can adapt to ever-changing contexts.

If organizations espouse one way to solve today's problems with erroneous assumptions, they will prepare the practitioners for tomorrow's unidentified challenges. Practitioners may not be able to respond quickly enough to a dynamic environment. Failure to build capabilities could result in organizational decline, including obsolescence. Tools have been and were effective at solving specific problems (i.e., where solution 'tool' quickly and easily solves problem). If leaders train and promote team members based on tool mastery instead of critical thinking and collaboration, leaders may unintentionally prepare practitioners to lead the organization to obsolescence.

### **Significance of the Study**

Rother (2010) published work on the fundamental differences in how leading organizations operated, specifically Toyota. Rother (2010) pointed out, "Any organization's competitiveness, ability to adapt, and culture arise from the routines and habits by which the people in the organization conduct themselves everyday" (p. xvi). While tools are outcomes of thinking and behavior, simply copying the tools will only yield marginal benefit (Rother, 2010).

In this study, I published grounded theory on the reasons why Rother's idea created a new movement (Kata), embraced by leading continuous improvement (CI) practitioners around the globe and proposed what makes Kata successful. Rother's

Kata movement has inspired a new wave of CI, specifically in deployment. Instead of focusing on tools, Kata focuses on the process of learning through iterative steps of plan-do-check-act (PDCA), analogous to the scientific method (Rother, 2010).

Practitioners include coaches and learners. As a coach-practitioner, the coach served as a process manager, questioning lessons learned and learners' assumptions. As a learner-practitioner, the learner conducted a series of PDCA cycles, experimenting his or her way towards target condition attainment (Rother, 2010).

In previous CI deployment strategies, tool mastery and proof of knowledge through application were required. This new movement, Kata, differed drastically in this regard, encouraging learners to communicate with others about how project success links to organizational goals. Through experimentation, learners critically think and use creativity to generate potential countermeasures to solve the challenge they are working through. This stands counter to the previous 30 years of USA-based CI strategy.

Fast approaching \$100 billion dollars, training expenses have risen year-over-year (Training Magazine, 2017). As organizations research what may help their associates achieve organizational objectives, they must consider how training dollars are spent and their returns. Despite Toyota using similar strategies for approximately 70 years, Rother's 2010 attempt to articulate the routines behind Toyota's success are new. With limited research from practical implementation, this research may help guide training managers, continuous improvement practitioners, human resources professionals, and business executives in continuous improvement program implementation.

Gallup (n.d.) reported 87% of employees worldwide are not engaged. More alarming was the ignorance of executives of the underperforming companies who do not realize their competitors are outperforming them on earnings per share by a multiple of 1.47 simply by engaging their workforce (Gallup, n.d.).

Is the new movement due to leadership dispositions? Is it customer need? Is it something else entirely? My answer will come in the form of constructivist grounded theory, an inductive method, to help identify what and why these best demonstrated practices are such. Despite its manufacturing roots, theory generated from this study should be applicable to services and administrative industries as well, because the intent was to examine the management system, not tools.

### **Purpose of the Study and Research Question**

The purpose of this study was to identify best demonstrated practices in Toyota Kata deployment, execution, and sustainment. The following research question guided this study:

From practical implementation, what Toyota Kata deployment, execution, and sustainment insights can be categorized as best demonstrated practices and applied to other organizations?

### **Theoretical Framework**

Two concepts created the theoretical framework that underlie this research. The first concept was that Schein (2010) was accurate in describing culture at three levels, specifically basic assumptions and values. The second framework was that Rother (2010) was accurate in identification of Toyota's basic assumptions and values. More specifically, how leaders engaged front line associates to solve problems. While



Rother's (2010) identification of a series of iterative experiments through PDCA was not a new concept, Rother's (2010) research attempted to understand how Toyota arrived at its solutions rather than the solutions themselves.

Rother (2010) and Schein (2010) intersect as Rother highlighted the competitive advantage Toyota enjoys was not easily observed as they are basic assumptions and values for how Toyota operated. Within cultural research, Schein (2010) pointed to the difficulty of first-time observers accurately assessing organizational culture. Schein's (2010) hypothesis was realized by Rother (2010) who was the most prominent researcher to articulate the basic assumptions and values with which Toyota operates. Holding that these two are capable of observation, independent of difficulty in accurate assessment, open them to empirical research.

### **Assumptions, Limitations, and Delimitations**

Research starts with assumptions and often has limitations and delimitations. This research offers each to narrow research scope. This research included personal observations supported by worldwide search information. This research had limitations in that the subject under study was relatively new and many participants have experience in multiple CI methodologies. However, to draw upon the experience of each research participant, experience was critical in reflection and helpful when comparing methodologies.

**Assumptions.** This study's research question assumed specific context-specific data:

1. Organizational reliance on Six Sigma decreased. Since 2004, interest in Six Sigma has declined from an index of 99 to current index of 26 (Google Trends).
2. Organizational reliance on Lean Manufacturing increased. Since 2004, interest in Lean Manufacturing has increased from an index of 35 to current index of 47 (Google Trends).

**Limitations.** There were limitations to this study which pertain to the participants that may have influenced study outcomes:

1. Participant selection criteria may limit Toyota Kata's thought leaders.
2. Participant selection criteria may cloud perceptions, specifically of those who promote Six Sigma as a product as part of their work.
3. Because Toyota Kata was relatively new, fewer organizations have adopted its methods, which may limit discussion on advantages and disadvantages.

**Delimitations.** To increase results' applicability, I set the following delimitations:

1. Participants must have 10+ years of CI experience
2. Participants must have experience in Lean and/or Six Sigma methodologies.

With much forethought, the assumptions grounding my research question are supported by limitations and delimitations help position both the researcher and research participant within the research. Given the research topic was new and people are familiarizing themselves with Toyota Kata, I offer this empirical study.

## **Summary**

How we educate our associates matters. Fast approaching \$100 billion in annual expenses (Training Magazine, 2017), training managers must ensure they select the most appropriate tools for organizational transformation, specifically as it relates to developing people for future roles.

Chapter 1 provided an introduction, problem statement, significance of the study, purpose of the study, research question, theoretical framework, assumptions, delimitations, and limitations. Chapters 2 - 5 will include a familiar dissertation format, consisting of a literature review, data collection methods, findings, and discussions and recommendations for future research.

## Chapter 2

### Literature Review

Continuous Improvement (CI) was important to many types of organizations, beyond corporations, from civic organizations (United Way of Greater Cincinnati, 2018) to governments (State of Connecticut, 2014) to medical clinics (Merguerian et al., 2015). The concept of CI was ambiguous with varying perspectives (Bortolitti, Boscari, & Danese, 2015)—however the goal as explained by Toyota (1997, 2001) followed a simple formula: with respect for people and through collaborative efforts, work toward long-term goals through long-term partnerships. With such broad definition, it was unsurprising CI has spread to multiple industries. Specific to Kata, practitioners have adopted and/or adapted Kata's principles in construction, healthcare, and customer service (Landry, Beaulieu, & Roy, 2016; Merguerian et. al., 2015; Reis, Varela, Machado, Trojanowska, 2016; Ross, 2018; Soltero, 2012)

CI was equally valuable for people development as it was for process improvement (Misiurek & Misiurek, 2017; Ortiz & Liker, 2017; Ross, 2018). Over the past 40 years, the concept of CI has morphed from a positivist approach to a constructivist approach, which aligns with knowledge acquisition principles in a dynamic economy where educators, leaders, and mentors develop their peoples' cognitive abilities (Ortiz & Liker, 2017; Misiurek & Misiurek, 2017; Ross, 2018).

Throughout this literature review in addition to Toyota Kata, I will explore CI before Toyota popularized its brand of CI. While Toyota played an important role in what is known as Lean Manufacturing, others contributed and continue to contribute to CI—precursors to TPS and new applications from TPS that befit the new creator's

environment. As the literature review revealed, there are varying opinions of what CI is and is not—I share a summary of key themes throughout existing literature.

### **Precursors to Contemporary Continuous Improvement**

Despite being born 40 years after the beginning of the American Industrial Revolution, Frederick Winslow Taylor, with a desire to make things better, set out to change the way his industrial shop produced goods for its customers. In retrospect, management researchers viewed Taylor favorably for initiating a revolution in the way workers approached their work despite many disproven theories (Giannantonio & Hurley-Hanson, 2011). Taylor popularized scientific management, a positivist approach, with the goal of increasing human productivity. One observation worth noting was that Taylor recognized that cliques formed based on ethnicity—Taylor created diverse teams by hiring and integrating diversity into his factory to increase communications and work effectiveness (Wren, 2011). This observation spoke to Taylor’s approach, which blended industrial engineering concepts with psychology and sociology.

While Taylor self-described his theory as scientific management, Taylor was the genesis for what would become CI, which propelled the research and practical application of two other prominent figures, Henry Ford and Taiichi Ohno (Ohno, 1988). Ford was founder of Ford Motor Company and Ohno was a Senior Engineer at Toyota. Ford and Ohno each pushed industrial engineering into the forefront.

Ford popularized the assembly line, a mass production process also known as batch manufacturing, to meet the demands of the United States’ rapidly expanding economy (Wilson & McKinlay, 2010). The assembly line works well when consumers

want the same thing. The lack of customization provided opportunity for another revolutionary, Taiichi Ohno.

Ohno possessed the desire to execute Kiichiro Toyoda's vision, "Catch up with America in three years. Otherwise, the automobile industry of Japan will not survive" (Ohno, 1988, p. 3). Ohno studied American methods, including Ford and the American supermarket, which proved vital to Ohno's execution of landmark just-in-time (JIT) manufacturing and automation processes. Ohno (1988) defined automation as "automation with a human touch" (p. 4). Ohno's implementation of industrial engineering concepts coupled with his fanaticism in reducing costs through waste elimination enabled the Toyota Motor Company to prosper in a postwar economy following WWII (LeBeau, 2010; Ohno, 1988). United States companies have popularized Ohno's work as lean manufacturing, which was often perceived as opposite of Ford's batch manufacturing techniques. Ohno (1988), respectful of Ford's work, summarized the difference between the two opposing systems writing, "...In contrast, the Toyota system works on the premise of totally eliminating the overproduction generated by inventory and costs related to workers, land, and facilities needed for managing inventory" (p. 95). Ohno and Toyota were successful in catching up and surpassing American manufacturing with fewer resources based on what Ohno learned from visits to the United States of America (LeBeau, 2010; Ohno, 1988).

While Ohno created a less wasteful automobile production process to help Toyota and Japan recover from WWII, W. Edwards Deming, an American, initially rejected by American industrial companies, engaged Japanese industry with incredible success in the postwar economy (Editorial: Giants of Quality, 2012). Beyond the

statistical underpinnings of Deming's work were three landmark contributions: (a) Deming's 14-points, (b) seven deadly diseases, and (c) the Deming Cycle, built upon Deming's work with Walter Shewhart (Editorial: Giants of Quality, 2012; Saier, 2017). Deming believed that management must eliminate the seven deadly diseases before his 14-point philosophy could exist within an organization (Editorial: Giants of Quality, 2012). The Deming cycle was popularized as the PDCA cycle despite Shewhart's contributions (Saier, 2017).

Taylor, Ford, Ohno, and Deming were thought leaders in their respective fields attempting to continuously improve the organizations they served. Despite different opinions on how to improve systems, each provided input to commonly practiced CI methods (Giannantonio & Hurley-Hanson, 2011; Ohno, 1988). Their commonality lent itself to the development of contemporary CI.

There was a significant gap in what Ohno espoused and what current TPS practitioners practice. For example, many practitioners erroneously attribute the work of Liker and Meier (2006), author of *Toyota Way*, and Rother (2010), author of *Toyota Kata*, as Ohno-mandates. Most notably, the idea that Ohno had the forethought to develop the Toyota House, consisting of many pillars, a foundation, and a roof, each representing a different tool was contrary to Ohno's teachings (Ohno, 1988). Ohno (1988) identified two goals, just-in-time manufacturing and autonomation. Ohno (1988) further described the use of the "Five Whys" tool this way as central to the evolution of the Toyota production system in scientific fashion stating, "To tell the truth, the Toyota production system has been built on the practice and evolution of this scientific

approach” (p. 17). Despite Ohno’s teachings, other practitioners replicated the tools (i.e., Toyota’s solutions to Toyota’s problems).

When tracing the lineage of CI, one thing was certain. Each thought leader broke from the standard to create something new. Independent of their place in history with regard to acceptance, Taylor, Ford, Ohno, and Deming epitomized CI in their quest for ultimate truth.

### **Defining Continuous Improvement**

While the aforementioned thought leaders epitomized and practiced CI, each had varying opinions on what constituted CI, which was why the literature did not have a singular definition. In fact, it is quite the opposite, as varied as its adherents. Let us examine the literature for those differences.

**A six-dimension definition from the literature.** CI was many things to many people. While some advocated a specific system, the literature revealed an integrated definition. CI is a systems approach to continual, incremental process improvement built upon the foundation of collective constructivism through the personal and professional development of its practitioners focused on delivering value to internal and external customers.

**Specificity-limiting approaches.** While specificity in defining problems is inherently valuable, it was too myopic to represent a valid definition in specific instances. For example, Hill’s (2007) description included external standards and external accreditation as significant influences yet lacked customer input. Without a customer-centric focus, an organization improved in isolation, which could be severely limiting. Huckman and Raman (2015) highlighted the challenge within the medical



community that many were content to minimize defects instead of maximizing quality. While perfection was not achievable in most processes, if any, organizations varied in how lofty goals were set. Langbert (2000) described a loss minimization focus. While loss minimization was effective, Attiyah (2015) identified these as reactive improvements, which are good but limiting since there was little to no proactivity. Interestingly, Langbert (2000) integrated equity and commitment into CI, which was unique within the literature. Additional authors incorporated a program-oriented quality management system (TQM). Lillrank, Shani, and Lindberg (2001) emphasized TQM as central to CI, which has generally been perceived as a failed methodology (Rinehart, 2006) due to unclear objectives (Dereli, Durmuşoğlu, Delibaş, & Avlanmaz, 2011; Richards, 2012; Su Mi, 2011). Ohno (1988) spoke about eliminating the wastes of non-value added activity, unevenness, and overburden. Nichols (2010) discussed CI as an incremental method of eliminating those wastes. While this was a lofty goal, Ohno (1988) and other Toyota executives recognized the production system must integrate additional concepts from psychology and sociology, specifically organizational behavior, organizational development, and neuroscience (Liker & Meier, 2006; Rother, 2010; Womack, 2011; Womack & Jones, 2003).

**Incremental improvement.** While Zangwill and Kantor (1998) advocated substantial improvement, many CI researchers described CI as incremental (Attiyah, 2015; Jørgensen, Laugen, & Boer, 2007; Nichols, 2010). Substantial improvement was simple—buy something better. Incremental improvement was inherently more difficult as it required managers and hourly associates to be more creative with existing equipment. The Productivity Press Development Team (2002) highlighted this when

they wrote, “The main thing you need to know how to begin a CI program is how important it is—how the smallest ideas can lead to the greatest results...it is the foundation upon which all these methods have been built” (p. 2). The other methods identified are other lean methodologies, which are not covered in detail in this literature review as they are specific tools of CI rather than a specific disposition or philosophical view favorable to CI.

**Foundations and frameworks.** To teach CI methods, practitioners attempted to map their intuition and wisdom into easily repeatable steps that were easily articulated as a process (Gillam, Holbrook, Mecham, & Weller, 2018; Jusko, 2015; Ramesh & Kodali, 2012; Rother, 2010; Saier, 2017; Saurin, 2013). As a practical knowledge-creating methodology, it limited creativity to the tools the teacher was competent to teach. Kata engaged the mind’s cognitive abilities (Balle & Handlinger, 2012; Ortiz & Liker, 2017; Misiurek & Misiurek, 2017; Ross, 2018) through daily experimentation routines (Jusko, 2015; Ortiz & Liker, 2017; Rother, 2012)

Gattiker and Boyd (1999) identified the importance of a structured approach espousing Goldratt’s (2004) theory of constraints model. While Goldratt’s (2004) current reality tree was effective, it was but one method for identifying the root cause of an issue. Ohno (1988) promoted the five whys methodology, another method for identifying root cause.

Jørgensen et al. (2007) advocated for a planned, incremental approach using existing resources. While Jørgensen et al. (2007) referred to a planned approach, too much planning led to customary implementation of known methods with existing tools. In other words, methods likely to produce obvious answers and little to no gain.

Rother (2010) offered a systematic approach built on CI and adaptation known as Kata. Rother (2010) remarked that CI and adaptation was “the ability to move toward a new desired state through an unclear and unpredictable territory by being sensitive to and responding to actual conditions on the ground” (pp. 8-9). While Rother (2010) used a series of PDCA cycles, Rother’s model promoted effective, repeated questioning that drives the learner to test new hypotheses until the learner achieves the target condition—all without an abundance of tools. To date, Rother’s description of Toyota’s improvement methodology was the most prominent to feature a rich description of the underpinnings, which the Toyota production system was based upon, rather than an exhaustive list of tools. Tyagi, Cai, Yang, and Chambers (2015) identified Kata as a type of knowledge asset with three steps—learning, breaking, and creating. Tyagi et al. (2015) described this process as self-renewing, dynamic, and epistemologically constructivist.

**Total system failure.** Goldratt (2004) argued that a bottleneck in a system must be exploited if the system was to become more efficient. Kim and Senge (1994) and Senge (2002) popularized systems thinking over the past 30 years because they encouraged practitioners to study systems, identify patterns, and manipulate variables until the practitioner reached the desired state. Senge was not without critics. Caldwell (2012) criticized Senge’s systems theory stating, “First...it cannot theorise the organizing practices by which learning, and change occurs in organizations. Second, it is substantively flawed as a practice for increasing the dispersal of human agency, power, knowledge and autonomy within the workplace” (p. 145). Despite Caldwell’s legitimate criticism, many researchers (Anand, Ward, Tatikonda, & Schilling, 2009;

Charvet 1995; Hillmer & Karney, 1997; Middel, Boer, & Fisscher, 2006) asserted that a systems approach was required, albeit less defined than Senge's (2002) model.

Beyond a generic systems approach, Kilty (1999) argued for a value stream approach.

A value stream approach is a specific approach that maps acceptance of a customer's order, manufacturing, delivery, and receipt of payment for said order.

In addition to a systems approach, Langley, Nolan, and Nolan (1994) posited that building knowledge and applying it was integral to the foundation of improvement. This observation was unique in that it was one of the few definitions that promoted learning.

Goldratt (2004) described the value of the system well when he spoke of saving an hour in a non-bottleneck portion of a system as wasteful. Rother and Shook (2009) created the standard for value stream mapping, which directed readers to walk through the process, tracing and understanding each step as it was currently before attempting to create a future state value stream map. Without an understanding of the system, an improvement may be anything but.

In Rother's (2010) description of Kata, Rother explained the process of attempting an improvement and evaluating the results, using the PDCA cycle. This reflection period is only possible if improvement cycles are continual rather than continuous. The difference between continual and continuous is that continual is progressive, but has breaks between cycles, whereas continuous is never-ending. It was imperative that the coach-practitioner and learner-practitioner reflected on what worked well, what failed, what the practitioners can improve, and most importantly, why each practitioner had the success he or she had. In the field of service learning, much information exists on the importance of reflection. Reflection is critical, thoughtful,

introspective, and probing self-examination (Ball, 2008; Ball & Schilling, 2006; Swords & Kiely, 2010). For any learner to understand more deeply, a learner must self-reflect (McKinney & Sen, 2012).

While a tools-based weeklong workshop helped consultants teach tools to learners, they teach yesterday's tools for yesterday's problems. While Ohno (1988) and Rother (2010) may not have known their respective models fall under constructivist ideology, their respective approaches generate and sustain individual contributor learning, development, and CI execution.

Paul Akers, lean practitioner and company founder, promoted CI at his company. While Akers' (2012) team taught CI tools, the game changer for his company was to "...stop the struggle. Fix what bugs you and make a 2 second improvement" (p. 120). This concept of fixing what bugs you requires something that must be relearned by many—creativity. Akers (2012) encouraged and unleashed his team to solve individual challenges with uncapped creativity, where his team implemented improvements best suited for how he or she works, not within a predefined set of tools.

Ohno, Rother and Akers had uncovered something that works very well for their organizations—collective constructivism. Jaleel and Verghis (2015) described collective constructivism as follows:

In today's competitive global economy characterized by knowledge acquisition, the concept of knowledge management has become increasingly prevalent in academic and business practices. Knowledge creation is an important factor and remains a source of competitive advantage over knowledge management. Constructivism holds that

learners learn actively and construct new knowledge based on their prior knowledge. Therefore, there needs to be a shift in locus of constructing knowledge from the individual to collective construction. The concept of knowledge building communities has emerged recently as a foundation for re-examining pedagogical approaches in education. To understand the true nature of knowledge, it is necessary to recognize that tacit and explicit knowledge are essential to knowledge creation. Knowledge can be created through conversion between tacit and explicit knowledge by four different modes. The four modes of knowledge conversion are created when tacit and explicit knowledge interacts with each other. It is in this very act of conversion from tacit to explicit knowledge that learning is created. (p. 8)

The concept of constructivism is not new. The concept of constructivism is new to the general population of CI practitioners as many texts advocate an approach, specific methodology (e.g., Lean, Six Sigma, TQM). Company executives committed to these programs and invested heavily. Once committed, it was difficult to reverse course and maintain influence (Cialdini, 2001). As such, the executive maintained the course until removed by senior management. If the model of CI is 100% adaptable (i.e., question based as opposed to solution-based), the program could be successful indefinitely.

Building capacity takes time (Hoyle, Samek, & Valois, 2008) as individuals personally and professionally develop to become more effective and efficient as a human in all respective roles (e.g., spouse, parent, student, teacher, employee). With structure and guidance from a mentor, the process of reflection enabled learners to

understand what went well and why in addition to what needs improvement and why, thus creating knowledge of the world and how learners perceive how the world works.

**Management system.** CI culture is a hypothetical construct that requires a supportive management system (Mann, 2015). Mann discussed four critical components: (a) visual controls, (b) daily accountability process, (c) leader standard work, and (d) discipline. Visual controls are effective if a novice can understand process performance quickly. Mann (2015) advocated three tiers of daily accountability meetings to drive accountability at appropriate levels. At the first-tier meeting, front line associates engage with team leaders. At the third-tier meeting, senior managers engage middle managers to ensure system was operating as intended. Leader Standard Work (LSW) focused on process simultaneous to results so the how becomes as important as the what (Mann, 2015). Lastly, managers implementing any system must ensure discipline and adherence if they are to implement and embed the new management system.

### **Kata's Effectiveness: Organizational Culture and Soft Skills Foci**

While earlier authors documented tools (Balle & Handlinger, 2012; Liker & Meier, 2006, Ortiz & Liker, 2017; Womack et al., 1990), Rother (2010) emphasized the importance of organizational culture and soft practices. Additional researchers have reached similar conclusions regarding continuous improvement program sustainability (Balle & Handlinger, 2012; Bortolitti et al., 2015; Merguerian et al., 2015; Misiurek & Misiurek, 2017; Ortiz & Liker, 2017; Ross, 2018). Rother (2010) discussed the challenges of copying Toyota's culture and suggested that an organization adjust course to align with Toyota's corporate culture that emphasized problem solving and

preventative measures based on the actual situation from the actual place the work occurs. Ortiz and Liker (2017) informed readers that Toyota Kata reversed earlier approaches to Lean and previous focus on tools countered prevailing cultures making Lean difficult to sustain. Ortiz and Liker (2017) offered that Toyota Kata's focus on the desired culture and emphasis on mindset development provide meta skills for learner-practitioners.

Womack (2011) highlighted the importance of going to the actual place work occurs and Rother (2010) continued the practice based on Toyota's go and see approach within PDCA (Reis et al., 2016). Through Kata, practitioners built soft skills such as critical thinking, communication, teamwork, adaptability, problem-solving, creativity, and collaboration (Bortolitti et al., 2014; Jusko, 2015; Ross, 2018; Rother, 2010;).

## **Summary**

Tracing the lineage of documented CI thought leaders from Taylor to Ford to Ohno to Deming, we experienced a rich history in which successors built upon each other's ideas. In analyzing the literature, it was apparent that a comprehensive definition does not exist and that the original thought leaders used their creativity to solve practical challenges. With such adaptability, codifying Kata was an attempt that deviated from previous practice (Ortiz & Liker, 2017) that appears to be sustainable through its emphasis on dynamism (Balle & Handlinger, 2012; Merguerian et al., 2015; Ortiz & Liker, 2017; Ross, 2018; Soltero, 2012; Tyagi et al., 2015).

Based upon what the literature revealed, we have good understanding of what worked in specific contexts. Despite this strength, one could argue that all



organizations should be able to replicate what worked elsewhere with similar success. However, this expectation was devoid of varying contexts and unique social situations. It was clear additional research was needed to better understand how others developed these methods for their environments and how to sustain continual learning cycles, so improvements can continue. Specific to Toyota Kata, additional research was needed to better understand what works well with deployment, execution, and sustainment as the literature briefly touches on its inner workings.

## **Chapter 3**

### **Methodology**

The purpose of this study was to identify best demonstrated practices in Toyota Kata deployment, execution, and sustainment. Given the decreasing popularity and use of Six Sigma, increasing popularity and use of Lean (Google Trends), and birth and use of a Toyota Kata, a lean concept, I hypothesized that Toyota Kata's knowledge creation enabled organizations to continually adapt using this continuous improvement program. With \$93.6 billion dollars spent on training and focus on evaluating return on investment, budget managers must understand what programs yield the highest return (Training Magazine, 2017).

Researchers debated the value of quantitative, qualitative, and mixed methods research (Creswell, 2014; Newman & Benz, 1998, Pole, 2007). I see value in each method and used qualitative research to explore the research question: "From practical implementation, what Toyota Kata deployment, execution, and sustainment insights can be categorized as best demonstrated practices and applied to other organizations?" More specifically, I used constructivist grounded theory methods. I conducted 12 1:1 interviews to explore best demonstrated practices and to establish grounded theory as to why Toyota Kata's constructivist-based approach helps organizations in ever-changing contexts.

I organized this section as follows: (1) restatement of the research question, (2) the research paradigm, which includes the researcher's position within the research, (3) the specific research design, (4) criteria for participant selection, (5) data collection

methods, (6) analytical techniques, (7) validity and reliability methods, and (8) limitations before closing the chapter with a summary.

### **Restatement of the Research Question**

The purpose of this study was to identify best demonstrated practices in Toyota Kata deployment, execution, and sustainment. The following research question guided this study:

From practical implementation, what Toyota Kata deployment, execution, and sustainment insights can be categorized as best demonstrated practices and applied to other organizations?

### **Research Paradigm**

Before exploring research design and research methods more deeply, it is important to understand the paradigm through which I embarked upon this research. I embarked upon this research with a radical constructivist epistemology. Glaserfeld (Watzlawick, 1984) summarized radical constructivism as a “theory of knowledge in which knowledge does not reflect an ‘objective’ ontological reality, but exclusively on ordering and organization of a world constituted by our experience” (p. 5). Toyota Kata is a constructivist-based program that used coaches and experimentation to learn about the environment under investigation (Rother, 2010). Given that organization’s senior leaders establish the organization’s vision and some form of customer input guides immediate objectives, Kata practitioners executed under a similar model of subjective ontological reality.

I first experienced intentionally-designed continuous improvement (CI) in 2006 through an employer’s training plan. The employer promoted Lean and Six Sigma.

Within and outside my organization, US-based executives observed and applied lessons learned from their visits to Toyota in their organizations—many with little to no success. US-based executives quickly approved budget dollars to implement Six Sigma after Jack Welch credited the program with General Electric's success. From 2006 – 2017, I observed an epistemological shift from positivism and post-positivism to constructivism. This was a considerable shift in that individuals began promoting programs epistemologically opposite of US-based Lean and Six Sigma (i.e., positivism, post-positivism) to less dogmatic programs such as Toyota Kata (constructivism).

I share this research paradigm as it guided research design, participant selection, and data collection methods. Equally, I share this research paradigm as it considered historical, social, and situational conditions as Charmaz (2017) argued was necessary for constructivist grounded theory.

**Researcher's position within the research.** My experience led me to explore this research topic as I was trained in multiple CI methods including Lean Manufacturing, Six Sigma, and Toyota Kata. Upon deployment of Toyota Kata at my site where I served as the senior manager (site leader), I experienced unexpectedly and surprisingly faster deployment with quicker results than deployments in Lean Manufacturing and Six Sigma. One of the specific items of interest during the Toyota Kata deployment was how quickly learner-practitioners became coach-practitioners. This experience was the genesis of what would become the core topic of interest throughout doctoral coursework and doctoral dissertation. Viewing the initial deployment with some skepticism, I asked others who deployed Toyota Kata—they experienced similar results.

Philosophically, I entered doctoral coursework with a distinct preference for quantitative data collection due to the many years of Six Sigma project management. During doctoral coursework in research methods, I became interested in qualitative data for this research. During guided independent study, I explored grounded theory which became the basis for this research, specifically constructivist grounded theory.

As an action researcher, this research has direct applicability in my current organization and any future organizations where people are viewed as a source of competitive advantage. My organization is currently undergoing rapid transformation with customers who are global market leaders. The urgency to learn and apply links directly to my organization's ability to sustain current business and organically grow with global market leaders. Toyota Kata offered one perspective how to construct new knowledge and through iterative daily experimentation. I posit Toyota Kata matches the entrepreneurial organization's operating philosophy within which I am employed. Assuming this research yields actionable insights, I will practically apply and/or attempt to influence others within my organization with best demonstrated practices from the research.

### **Research Design**

According to Creswell (2014), "Research designs are types of inquiry within qualitative, quantitative, and mixed methods approaches that provide specific direction for procedures in a research study" (p. 247). There was much academic debate in application of grounded theory, a type of qualitative research grounded in data. I will not enter the debate in this dissertation but summarize it as it is important to understand.

**A brief philosophical history of grounded theory.** Glaser and Strauss originally created grounded theory, an inductive research method, in 1967 with a positivist epistemology that argued for an objective reality (Ghezeljeh & Emami, 2009; Higginbottom & Lauridsen, 2014). From 1990 to Strauss' death in 1996, Strauss and Corbin argued from a post-positivist epistemology that assumed an objective reality (Ghezeljeh & Emami, 2009). Following the third and fourth moments in qualitative research, "Charmaz began to reconsider grounded theory using [constructivist grounded theory]" (Birks & Mills, 2015, p. 7). Ontologically, "Constructivism denies the existence of an objective reality and claims that realities are social constructions of the mind" (Ghezeljeh & Emami, 2009, p. 17). Ontological and epistemological viewpoints differed greatly between grounded theory's inception to contemporary researchers. Specific to Toyota Kata, a coach-practitioner and learner-practitioner agree to meet an arbitrary goal—even if the goal does not meet another's definition of correct.

**Constructivist grounded theory.** Critics often criticized qualitative research for its lack of rigor (Higginbottom & Lauridsen, 2014). When Glaser and Strauss originally published their collaborative work, it provided systematic and flexible guidelines for data collection and analysis capable of generating theory from data (Charmaz, 2014). Charmaz (2014) remarked, "Grounded theory begins with inductive data, invokes iterative strategies of going back and forth between data and analysis, uses comparative methods, and keeps you interacting with your data and emerging analysis" (Ch. 1, para. 2). Rother's (2010) description of Toyota Kata closely aligns with Charmaz's description of grounded theory, using iterative cycles of PDCA to solve problems until the answer becomes apparent.

## **Participants**

Due to the esoteric nature of this research, I intended to select 10 participants and ultimately selected 12 participants whose knowledge in CI spans 10+ years as experience and familiarity with these programs was valuable to answering interview questions. I exceeded the target as there was great interest in research participation and the experiences of the final two participants were of interest to the research, specifically in increasing the research's validity. All participants had experience in Lean and/or Six Sigma project methodologies in addition to Toyota Kata. Due to my selection criteria, all participants are adults. I limited research participants from any organization to two employees to maximize diversity of thought during this research. There was only one instance of this between RP04 and RP08. RP04 and RP08 worked with Rother during his development of Toyota Kata at a Midwest manufacturing firm. I selected research participants who worked in front-line CI roles instructing others (i.e., project level) and/or senior managers who led deployment efforts (i.e., program level). Research participants had a combination of experience at project and program levels.

## **Data Collection**

Charmaz (2014) shared that rich data "...reveal participants' views, feelings, intentions, and actions as well as the contexts and structures of their lives" (Ch. 2, para. 7). I sought rich data through 1:1 interviews using questions I developed which are listed in Appendix A. Given research participants had 10+ years of CI experience, including Toyota Kata, I found it important to understand a practitioner's CI journey, the practitioner's primary influencer(s), preferred methods, andragogical viewpoints, and the practitioner's epistemological views. Appendix A lists 15 questions I used as prompts

for discussion. I asked on-demand questions when research participants offered a theme or specific input valuable to this research.

During 1:1 interviews, I took fieldnotes. Because all 1:1 interviews were conducted through telephone, I could not evaluate body language. I audio recorded each 1:1 interview for transcription and analysis. I was successful in allowing the participant to speak most throughout the interview as Seidman (2013) recommended. I asked clarifying questions for complete understanding to ensure my assumptions about the world did not fill in the blanks within participants' responses (Charmaz, 2014). Within constructivist grounded theory, Charmaz (2014) highlighted areas to be intentionally mindful: (a) what is happening, (b) the social and social psychological processes in action, (c) the point of view from which each participant speaks, (d) word choice meaning, (e) the context for event sequence, and (f) taken-for-granted and hidden assumptions. I designed the interview questions with Charmaz's (2014) recommendations in mind. Additionally, as I conducted 1:1 interviews via telephone per the interviewee's preference, I explored the point of view often to understand the context in which each participant spoke. Of note were the words people chose—I explored those words as it related to a potential theme within their specific interview. In other words, when people used a word multiple times or changed the word from some word to another word, I probed to understand the reason why. I avoided assumptions by asking participants open-ended questions even if I thought a recurring theme would answer a future question.



## **Analysis**

I paid a vendor for audio transcription services. I reviewed the automated transcripts and was unwilling to settle at a 75% accuracy rate. I used a different service at the same company that used human transcription rather than automated transcription. Human transcription results were greater than 99% accurate. I reviewed each transcript for accuracy at 10 points. There were no substantial errors. I defined a substantial error as language that makes the sentence unintelligible from its audio recording. The error rate under 1% was primarily related to foreign company names and acronym usage (e.g., PBCA as opposed to PDCA).

Using Charmaz's (2014) guide to coding practices, I conducted initial coding through line-by-line coding using constant comparative methods to explore similarities and differences within a participant's response and across participants' responses, while paying special attention to participants' rhetoric. Following initial coding, I conducted focused coding to explore what "initial codes say and the comparisons [I] make between them" (Charmaz, 2014, Ch. 6, para. 4). To guard against preconceptions during the analytical phases of this research, I clarified ambiguous rhetoric during 1:1 interviews.

Lastly, I practiced memo-writing from the moments leading into the first portion of the research, post-proposal acceptance, through dissertation defense as memos provided the basis for my grounded theory (Charmaz, 2014). Within this memo-writing, I would identify a potential theme and review other transcripts for similar rhetoric to see if I could draw connections between participants' responses.

## **Validity and Reliability**

Given this research and selected research methods, I ensured my conclusions were valid and reliable by engaging participants when language was ambiguous. While I clarified ambiguous language during the interview process, I recognized the need to evaluate answers with research participants through a process known as member checks by discussing the conclusions I drew from their answers to ensure agreement during emerging analysis and published findings. By completing member checks, validity and reliability increased as my interpretation matched research participants' intentions (Merriam & Tisdell, 2016). During the member checks, I received excellent feedback to make my language more clear, specific to how I represented Toyota Kata best demonstrated practices discussed in Chapters 4-5.

## **Limitations**

I was able to overcome all three limitations identified in Chapter 1: (a) participant selection criteria may limit Toyota Kata's thought leaders, (b) participant selection criteria may cloud perceptions, specifically of those who promote Six Sigma as a product as part of their work and (c) because Toyota Kata is relatively new, fewer organizations have adopted its methods, which may limit discussion on advantages and disadvantages. Participants did not promote Six Sigma throughout the interviews—mentions of it were favorable but were not overwhelming. I quickly identified 12 participants for this research and their Toyota Kata experience ranged from 1 – 10 years, with many practicing Toyota Kata before or shortly after Rother's book. Participants were skewed towards manufacturing (nine of 12). The three remaining participants applied Toyota Kata in healthcare, a service organization (sales/customer

service), and financial services. All participants were from North America. While some participants had experience outside of North America, most experiences were from Canada and The United States of America.

### **Summary**

Using constructivist grounded theory as a framework, I identified best demonstrated practices for deployment, execution, and sustainment of Toyota Kata. Despite the debate around grounded theory, my research presupposed an answer based on context, not an objective reality. Therefore, a qualitative approach, and more specifically, constructivist grounded theory provided a framework to explore these ideas.

## **Chapter 4**

### **Results**

The purpose of this chapter is to report findings from the qualitative investigation. The purpose of this study was to identify best demonstrated practices in Toyota Kata deployment, execution, and sustainment. The following research question guided this study: “From practical implementation, what Toyota Kata deployment, execution, and sustainment insights can be categorized as best demonstrated practices and applied to other organizations?”

Throughout the 1:1 interviews, interview questions concentrated in three focus areas: (a) early continuous improvement experiences, (b) teaching and learning styles, and (c) Toyota Kata practical application. In addition to these three focus areas, I aimed to establish grounded theory as to why these best demonstrated practices are such. I explored the first two focus areas to determine what, if any, early influences enhanced participants’ early adoption and their potential influence on Toyota Kata execution. Throughout the coding process, I evaluated key themes by the frequency participants spoke of them and choose to address them by the focus areas and their frequency within participants’ responses.

#### **Best Demonstrated Practices**

While themes, categories, and grounded theory are important, the purpose of the study was to identify best demonstrated practices in Toyota Kata deployment, execution, and sustainment. In analyzing participant responses, participants shared the below best demonstrated practices that are organized into their respective program subgroups.

**Deployment.** Participants heavily emphasized Advance Groups, part of the deployment phase, with 11 of 15 best demonstrated practices relating to deployment. As readers will read further in the themes, participants repeatedly commented on the importance to engage senior executives during the deployment phase by having them be an active participant in the Advance Group. Many deployment-centric best demonstrated practices flow through to a discussion of themes in following sections. Participants shared the following deployment-centric best demonstrated practices:

- identify and align with at least one key senior executive champion during pre-deployment (Advance Group) phase;
- engage at least one key senior executive to actively participate in the Advance Group;
- within Advance Group;
  - select individuals who are curious, possess a long-term vision, and emphasize the group over the individual;
  - select individuals who are open-minded to new ideas;
  - select individuals who are reflective thinkers;
  - at least one expert must participate;
    - if no expert is available, hire an expert to develop coaching capability within the Advance Team;
  - do not select people who require significant convincing to adopt the new philosophy of work;
- align Executive Team's vision (challenge) to Advance Group's target conditions;

- Advance Group and Executive Team to clearly articulate the reason for starting Kata routines;
- Advance Group to select as few as possible processes to achieve target conditions during the Advance Group's training period (i.e., pilot area);
- throughout Advance Group's training period, the Advance Group should exclusively use Kata routines as defined by Rother (2010).

While I asked questions that included execution and sustainment, the emphasis on deployment-centric events highlighted the need for an expert coach to train coach-practitioners. The mixture of best demonstrated practices spans easily teachable skills and personality traits, which open these best demonstrated practices to further examination discussed later in this chapter and in chapter 5. Despite participants ranging from 1 – 10 years of Kata experience, I was not able to identify subgroups within these comments to equate experience and emphasis on the Advance Group during the deployment phase.

**Execution.** When participants discussed execution, it was brief. Participants emphasized deliberate practice and offered detailed personal stories to accentuate its importance. Participants recounted stories of starting small, which is a theme discussed later in this chapter. Participants' stories revolved around going too quickly at first, recognizing their error, reflecting on what to do differently, and ultimately, limiting scope to a pilot group. For example, participants indicated organizations should do the following:

- practice Toyota Kata daily and deliberately to establish the discipline necessary to support cultural change;
- expand Toyota Kata slowly as effective Advance Group coaches increase capability and capacity.

It appeared from participant comments that once learned, execution is simple, or participants were still working through deployment-centric challenges and have not been as effective in execution as they hoped. Whatever the case, the data, while limited was discussed repeatedly and transition into themes discussed later in this chapter.

**Sustainment.** As mentioned in chapter 1, Kata is new and limited empirical research exists. It was not surprising that only two best demonstrated practices relate to sustainment. I categorize them in sustainment because participant language assumed subsequent groups beyond the Advance Group, and they are a form of meta-metacognition. Participants highlighted the importance of examining lessons learned and sharing with future participants as summarized below:

- when expanding Toyota Kata to individuals beyond Advance Group, incorporate class-room education into Kata routines so they understand what went well and what needs improvement based on kata-ing the kata;
- after kata-ing the kata, share these lessons with future learners.

With sustainment, there appeared to be more research necessary as these two best demonstrated practices seem limiting. Echoing my comments about subgroup execution's comments, participants may still be trying to figure out how to be successful

in pilot groups as they expanded their reach throughout their respective organizations, and the concept of kata-ing the kata was each participant's learning process in play as they determined what went well and why as well as what needed improvement and why.

**Summary of Best Demonstrated Practices.** This list of best demonstrated practices had three key subgroups based on their implementation phase (deployment, sustainment, execution). The importance of the Advance Group could not be overstated. How organizations executed at this stage set the direction for Toyota Kata deployment success rates. Three things were clear from participant's responses on the Advance Group—an executive's active participation in the Advance Group was a must, Advance Group member selection mattered, and a link to organizational goals was critical. The importance of practicing Kata routines deliberately while initially using established methods appeared repeatedly in participant responses. As organizations transitioned from early stages to latter stages, the concept of learning-as-you-go was evident in comments regarding kata-ing the kata.

### **Early Continuous Improvement Experiences**

One of the reasons for exploring early continuous improvement experiences was to determine what, if any, influence Toyota had on participants' earliest programmatic interaction. Despite experience ranging from 10 – 30 years, there was no link between experience and a named, Toyota-influenced program. With less Toyota influence than expected, many participants operated under unnamed programs or company-specific generic names (e.g., Company Z Continuous Improvement Team). Only four participants had an early Toyota-centric experience. Let us explore each of the three categories: Toyota-centric, generic, unnamed.



Four participants worked within a continuous improvement program that was Toyota-centric (e.g., Total Quality Management, TQM, Lean). RP02 commented, “Yeah, it was called TQM back then, so it was called Total Quality Management, which I think was a weak-hearted attempt to put something around what Deming was doing.” RP05 gained his “Six Sigma and Lean” experience at The Ohio State University in a Master of Business Administration program that was the precursor to the Master of Business in Operational Excellence. RP11 shared, “...it was under the Deming TQM...Most of the TQM stuff was on the Lean side of things...” RP12 consulted with an organization that directly applied “Toyota Production System” often interchanging the name of their organization with Toyota. Three other participants worked in organizations that uniquely named their continuous improvement program. RP04 recounted, “That was before Lean or things like that happened...We didn’t think about it as continuous improvement activity, if you will.” RP06’s organization redeployed from [redacted] to the Lean Team citing, “Originally the organization wanted to create their own system of improvement, concepts, and tools. And so, they didn’t want to name it after any particular methodology.” The remaining five participants shared that their organizations did not name their continuous improvement programs. With little consistency in continuous improvement naming convention, early program names did not appear thematic to Toyota Kata practitioner’s earliest influences.

Given the apparent lack of concentration amongst participants, I was unable to group early continuous improvement experiences as it related to their earliest program participation. As such, I was unable to create any themes from the data collected. While program names were void of any discernable groups, eight participants named

Toyota as an influence through direct employment and/or consultation with and/or Mike Rother as Rother developed what would become Toyota Kata.

### **Teaching and Learning Styles**

When discussing influences, mentors mattered. I focused the second portion of the interview on the mentor's teaching style and the participants' preferred learning methods. All participants had mentors who asked many questions, a constructivist-based inquiry, to examine thinking patterns (i.e., metacognition). I grouped constructivist-based inquiry and metacognition into one theme as they are conjoined in the participants' responses. In other words, participants described how (constructivist-based inquiry) and what (metacognition) jointly in their responses. Nine participants indicated in their responses that metacognition was important to their personal development or Toyota Kata practice. Nine participants shared comments that would indicate they are lifelong learners.

**Theme 1: Mentors' constructivist-based methods and metacognition.** As participants recounted their most influential mentor, all participants described mentors who used constructivist-based methods using open-ended questions and emerging approaches as opposed to positivist-based methods that are associated with closed-ended questions and pre-determined approaches (Dudovskiy, 2018). The mentors spent time examining thinking patterns using additional questions often employing the Socratic method. Within this theme included comments on metacognition from the mentee's or mentor's perspective.

Direct connections to constructivism and/or metacognition came in the form of not providing answers to mentees/participants and examining thought processes. This

showed up within participant responses in numerous ways, including instances of asking Socratic questions, not providing answers, examining how people think and getting people to think. Participants shared that mentors asked questions to guide, rather than direct as communicated below.

On using the Socratic method, which is question-based and answer-light, RP01 remarked, “He asked a lot of questions...he would start asking me the Socratic questions afterwards, to see what I'd learned, and did I learn the right lesson.” RP02 shared that he was explicit in that he did not “want to give the answers out” which was the “Toyota Way, or Lean Way...” RP06 likened “asking questions” to a form of humility practiced under Toyota Kata. RP07 recalled his mentor fondly, “He forced a very reflective thinking concept that I already had a little bit of, but he deepened it and made it broader. He was very provoking in the way that he asked questions.” When I questioned RP07 about how he would help others if they were stuck, RP07 replied, “And if they get stuck, help them work through it but not by giving the answers, but through asking questions.” RP10 had a similar experience with his mentor when he recalled, “I wouldn't say he always gave me the answers, definitely kind of practiced a Socratic approach and sometimes would respond with a question.” RP11 was concise when he shared that his mentor “asked a lot of questions.” While six participants commented directly to being asked questions rather than directed in explicit language, participants articulated that their mentors used questions to help the participant learn, which aligns with Toyota Kata coaching practice. With experience spanning 10 – 30 years, participants were taught through Toyota Kata style practices. Participants shared that they realized the link between their mentor's approach and Toyota Kata practice.

Seven participants commented indirectly on metacognition in addition to two previous comments about Socratic questions that relate to metacognition. The concept of metacognition was ever-present in these responses where participants discussed the evaluation of thinking and the thought process. RP12 described the thinking process through the concept of teaching concepts in reference to Toyota Kata. RP01 criticized general continuous improvement practice before he praised Toyota Kata, "There's too much focus on the tools, instead of on the people and how the people think." RP05 shared a similar experience, "Focus on the thinking and not the tool. So, focus more on... Are you thinking in the right way versus just copying the tool that is out there on the website?" RP02 likened thinking to muscle-building, "For me, thinking style was more that you're building problem solving muscle...and so the emphasis is not on getting answers but on asking the right questions to have people start thinking." RP03 recounted her time at Toyota when a committee guided her through the A3 process, "It was to track your thought process." RP06 shared that his mentor modeled and slowly shifted his "thoughts about getting things done." RP10 appeared to coach similarly to RP06's mentor as RP10 recounted, "So, it's always kind of pushing you to think on a different plane." RP12, whose earlier experiences were in education noticed quickly what Toyota was doing different from other organizations, "He went from that company to work at Toyota, and he knew that he was teaching people and that we were teaching concepts back when most people thought we were teaching processes and tools." Participants were aware of the gaps in their thinking and shared their mentors helped them through these gaps by fully examining participants' thought processes. Each

participant fondly remembered their mentor and used language regarding the skill with which mentors helped participants shift their thinking.

Supporting the concept of emerging approaches came through within participant responses such as trying new approaches, figuring things out for oneself, and learning through failure. As mentees/participants describe their mentors, their language included direct application in addition to or apart from questions alone. Rother (2010) described this behavior as experimentation. As you read through the next five quotes, note how mentors encouraged participants to experiment while building confidence and accepting of failure. RP03's mentor encouraged new approaches and built confidence in RP03 by instructing RP03 to "just go try and see what happens." RP08 had a similar experience where his mentor built his confidence, "And he gave me a chance. He believed in my passion, and he knew that I would somehow figure out the know-how. I didn't have it, but I will figure it out." RP04 highlighted the struggle of learning through Kata, "[Rother gave] some background [and had] us go out and struggle, watching our results, our learnings." RP04 shared that Rother taught using Kata to develop Kata, "He'd give you some information, send you out to do the activity... Use the Kata to make your Kata better." This struggle of learning through Kata was exhibited by RP09 and his mentor, "Honestly, he allowed a lot of failure. Try, do, and repeat until you had success." The paradigm RP09's mentor had was supportive of Toyota Kata, "Failure was as celebrated as much as success. Because from the failure they understood the learning that came from that and knew that we would not experience that same failure again." When RP09 reflected on how he would coach others new to Toyota Kata, RP09 shared, "The coaching is for them to understand that change happens in steps. And failure is

one of those steps, and it must still be embraced and celebrated.” When RP12 recalled a sitewide Toyota Kata deployment by the site manager, RP12’s recollection was direct and impactful as she shared what her Toyota Kata influencer said, “I don't do Lean workshops. I just say, Let's give you a challenge. Let's look at what's going on right now with yourself, and then let's try to move through it.” Mentors encouraged participants to experiment and learn through confidence-building comments. Participants described their mentors as viewing failure differently in that a failed experiment was an opportunity to learn and apply new knowledge in future experiments, not outright failure because the target condition was not achieved on first attempt.

From the initial participants’ description of their mentors’ epistemological views, participants described their mentors as asking open-ended questions that sought emerging approaches that are consistent with constructivism (Dudovskiy, 2018). Nine participants mentioned concepts relating to metacognition in how their mentors helped them learn. Former Toyota Associate RP03 recounted her earliest problem-solving experience using a problem-solving method, A3, that she succinctly described as an opportunity to present to a committee responsible for tracking “your thought process.” Toyota’s emphasis on metacognition appears to influence many participants and their mentors.

**Theme 2: Lifelong learners.** When asked about what prompted additional continuous improvement knowledge acquisition, nine participants shared that they were curious to learn, passionate towards the ideal of continuous improvement, liked or loved the concepts, and self-identified as lifelong learners. While I asked participants about

continuous improvement knowledge acquisition, participants shared unprompted responses about general knowledge acquisition.

Participants behaved in a knowledge-seeking manner. In the following quotes, note behaviors participants took to gain knowledge, including reading and experimenting their way forward. Participants described themselves as curious, passionate, had a love of learning new things. In a very early experience, when RP01's organization was learning to compete in a new world, RP01 highlighted what his organization did and how he took advantage to learn, "discovering that library and going down and consuming mass quantities of books, papers, and study missions." RP01 led a pilot Total Productive Maintenance deployment that eventually went organization-wide. RP01's experience was borne out of necessity and curiosity. Necessity and curiosity came through in participant responses.

RP03's experiences with Toyota helped her grow professionally but presented a unique challenge. RP03 learned at Toyota so work methods were ingrained. It was not until she left Toyota and joined an organization dedicated to replicating and implementing Toyota's work methods that she realized how little she knew about documented continuous improvement practices, "I had to read and kind of learn how to do that and see what material we had out there. So, it was out of necessity. The other part of it is I love this stuff." Similar to RP03, RP07 shared that his organization was supportive but slow and he "wanted to bridge a gap faster" than his organization was moving. He implemented "tools that were very easily implemented and learned" on his initiative.

While a combination of necessity and curiosity drove RP03 and RP07, many others' curiosity was enough to learn continuous improvement tools, including Toyota Kata, and get started in the field. When RP05 was in graduate school, RP05 was motivated to pursue more knowledge and a job within the field. RP05 went to his administrators and sought an internship in continuous improvement. This experience served as a springboard to his career.

For others, the desire to learn was profound. RP06 disclosed, "I was fully engaged and just very curious about that and wanted to learn more. And I'm still always looking for ways to sharpen the saw." Not only did RP06 want to sharpen his saw, RP06 drew conclusions about Toyota Kata practitioners, "I think those of us who gravitate towards being learners always want to learn more, and I'm just very curious about how things work and how things fail." RP06 saw Toyota Kata as an extension of applied curiosity when he remarked, "So, this was a very natural complement to that curiosity." RP10 and RP06 communicated similar disposition toward learning, "[RP10] ...I was just naturally curious about things. I love learning. I get bored easy, so I need to keep learning different stuff. I'm just fascinated with learning new things." The desire to learn supported participants' curiosity and Toyota Kata reinforced that learning opportunity. Curiosity showed up differently for RP08 who shared that his mentor thought he was an excellent problem solver, "I think he believed in my ability to figure things out...So, he believed in me highly, and he allowed me to go find out." RP08's problem-solving mindset and desire to seek answers aligned with curiosity.

Perhaps the best combination of factors was when curiosity matched professional need as it did for RP11 and RP12. RP11, a Lean Six Sigma Master Black



Belt, highlighted some of the tools he learned and applied throughout his career including Theory of Constraints, Lean product design, TRIZ, and numerous statistical tools through his graduate program. RP12's professional achievements are numerous. Among them was her time on the "committee that worked on the SME Bronze, Lean, Silver, Gold curriculum when it was first coming out based on the Shingo Prize System." RP12 shared that she took additional Shingo examiner training "just because [she] wanted to know what that was about." Whether necessity and/or curiosity drove people to learn, its professional application implied organizational need. This organizational need was met with curious people. In concert, participants helped their organizations become learning organizations through self-initiated efforts.

With a passion towards continuous improvement and a generalized love of learning, participants shared their intrinsic motivation to obtain knowledge they could apply in their daily lives, at work and at home. While I summarized this theme as lifelong learning, this theme was supported by an underlying disposition of curiosity.

In practice, Toyota Kata involved a coach asking a learner a series of open-ended questions that enabled the coach to examine the learner's thought process. Without pre-determined approaches directed by the coach, the learner's curiosity and disposition towards lifelong learning showed up throughout this study, indicating its importance. As I move into the third focus area, Toyota Kata practical application, this disposition towards lifelong learning was linked to trainee selection during Toyota Kata deployment.

## Toyota Kata Practical Application

As we move towards practical application to identify Toyota Kata's best demonstrated practices in deployment, execution, and sustainment, I must start with pre-deployment must-haves. Participants highlighted three themes that are critical to successful Toyota Kata deployment: (a) deliberate culture (n=12), (b) leadership participation and support (n=11), and (c) organizational clarity (n=12). During deployment, 10 participants highlighted the important theme of trainee selection as an Advance Group (n=10). Once deployed, two themes were recurring: (a) start small (n=10) and (b) follow the books during initial deployment (n=7).

**Theme 3: Deliberate culture.** Culture was central to participants' comments as a required component of successful Toyota Kata deployment. What became clear quickly was the necessity of forcing the culture onto the workforce. RP03 shared:

Plus, it's part of the culture, that challenge. And then there's the whole idea of someone puts a target in front of me. I've got to figure out how to meet it or if I do make this improvement, I'm going to be recognized for that. People are going to acknowledge it. I'm going to get that dopamine rush, right? I get the reward. I did something cool. I get a reward. I don't see that as much in companies outside of Toyota. I think that's part of the difference and what encourages that curiosity in Toyota is we're always trying to get better. We got our true north. If I tried this, would that help me in reaching that challenge? It's just kind of a 'let's see what happens' type of approach. I can't pin down the root cause on why that's different between the two. I can just say that it is.

Later in the interview, RP03 continued, “So, you understood if you're going to work for Toyota, this is our culture, and we're giving you that information. This is how we do business.” RP03 emphasized the consequence if new associates did not assimilate:

So, we had our Japanese advisors on site who were helping with [daily reinforcement]. But also, every single leader that I interacted with had a basic understanding of how we did things in Toyota and would kind of correct you or address you if you weren't falling within that framework and that mindset. So, you kind of understood that your position in Toyota was contingent on you abiding by the culture of Toyota. If you didn't do that, you just didn't fit in the company. You'd feel like you were in a culture that just didn't... You didn't belong in. It was just very uncomfortable if you didn't conform to what the cultural norms were in Toyota. So, I would say that pressure from everybody, ‘Most people are conforming to this culture. If you don't, why are you working here?’

Toyota appeared deliberate in creating the culture it viewed necessary for competitiveness, including forced assimilation for its conforming associates and ostracization for non-conforming associates.

On culture, RP01's experience with culture change matched RP03's Toyota experience in daily reinforcement, “Number one, if you're not doing it daily. Okay, so you're trying to get the culture changed. Culture doesn't change overnight. Culture has to be repetitive, over and over and over again.” RP03's experience after leaving Toyota reaffirmed her earlier comments about cultural importance that mirrored RP01's previous comments about daily reinforcement:

It was weird because I walked into a culture that was kind of already in place, so I wasn't so much having to start up or get buy-in for continuous improvement, that was already just part of the everyday work system. So, when I left Toyota, I found in myself a huge gap because I had to actually start to build some of the things that I had just already experienced. And when you're starting up something and building it and making the case for change and understanding it, that's a lot different than just coming into a system that's already existed.

RP01 and RP03 were not alone in deliberate culture creation. In a separate interview, RP02 discussed his Toyota mentors' focus on changing behaviors through force, "Get behind the beliefs and really kind of force... Through, like you point out, through exemplification, how to build our problem-solving muscles." Participant comments on forced cultural assimilation and ostracization for non-conforming associates was surprisingly harsh, specifically in the language participants used to describe their experiences. Daily reinforcing activities appeared to be one way an organization could force a deliberate culture onto its members.

RP06 and RP07 discussed the importance of an individual and organizational readiness. RP06 hinted at a stakeholder analysis to identify specific barriers and the need to overcome such barriers, "Because the better you can understand the obstacles, the better you can anticipate adjustments that you need to make." It is important to note that RP06 did not limit language to specific hierarchal levels. RP07 was direct, "The first thing to consider is the culture. Is the culture going to be open to CI?" RP06 and RP07 highlighted the need for change management practices, specifically in the earlier

stages as they considered what was required for successful deployment. RP06 focused on individuals and RP07 focused overall. This difference highlighted the macro and micro needs when it comes to preparing organizations for change. With RP06's interest in individuals, one must consider informal, non-hierarchical leaders during a stakeholder analysis, not simply those in official managerial capacities.

While leadership participation and support were also addressed, leadership support during deployment came through in how senior leaders foster a deliberate culture. In RP09's response, the esoteric language may not directly link to leadership support for many readers—it does. Hoshin Kanri is a strategic planning method that guides value stream optimization as Hoshin Kanri provides a holistic organizational vision. As you read the following quotes, participants explicitly addressed culture. What was implicit was of equal importance—participants discussed personal involvement to lead by example during cultural transformation toward a vision they created and embraced (e.g., RP 09's comments about knowing the why).

As I prefaced the question with leading deployments as the deployment leader or a business executive, participants emphasized the macro. RP02 suggested that cultural change was not just the daily reinforcing activity when he shared, "...how do I touch my culture, and how do I make sure that the lessons that we're learning are deep lessons that get anchored in?" RP02 recognized the need for an expert advisor, "I need somebody that has done it before that's going to be able to lead me down the right path and allow me to have the maximum amount of learning through my reflection." While RP07 recognized his own readiness, "...do I have a full understanding of what that is going to entail and am I ready for this," RP07 questioned whether the organization was

ready for Toyota Kata “to holistically go across all the functions in my business and all of the sites at my business, so I’m multi-site?” Within organizational readiness, RP07 connected people development and Toyota Kata, “And then thirdly, am I willing to invest in the talent and develop my people to do that and allow the business to do it?” RP09’s comments indicated that Toyota Kata does not stand alone and required complementary tools:

We were attempting to make a complete cultural change through a Lean deployment using Toyota Kata as well as a number of other tools... Value Stream Management, Value Stream Optimization, Hoshin Kanri were the primary things and the Toyota Kata was the primary approach for coaching around the metrics and the change we were trying to drive.

Equal to the points raised by RP02, RP07, and RP09, RP10 asked a simple, yet profound metacognitive question, “...the most important thing for an executive wanting to deploy a continuous improvement culture is to determine why. Why are they doing it?” Whatever the reason and practical application considerations, RP12 informed practitioners of the importance of leadership being the example, “Well, because [the senior leader] lived it, right?” Through the responses shared by participants, leadership support, including personal sacrifice, becomes a distinct and important point to consider for leaders considering how much time they can invest in such a cultural transformation. RP02’s comments about getting expert help coupled with RP07 and RP10’s personal willingness to change link to theme 6: select Advance Group wisely.

On daily reinforcing activities, participants emphasized the need to reinforce culture through daily action. RP04 shared the codified version through leader standard

work, “It comes back to that standard work. It becomes part of the leader standard work, part of that mindset.” Leader standard work’s periodicity depends upon leadership level. For many front line leaders, the periodicity is each day/shift. RP05 conveyed the importance of daily action when he replied, “You can only sustain it if it becomes part of the system of how you manage work on a daily basis. So, if it's part of a system then it will sustain.” In combining these two opinions of RP04 and RP05, we see the importance of RP08’s comments, “[Kata] allowed you to do the improvements on a daily basis.” When practiced daily per the Coaching Kata, Toyota Kata requires coach-practitioners and learner-practitioners to discuss obstacles and recent experiences that align with RP11’s comments, “...if you’re just making your problems visible every day...” As suggested in the responses, daily reinforcing activities change and/or sustain culture. If there are competing priorities and initial trainees are unable to dedicate appropriate time to Toyota Kata activity, the deliberate culture may develop slowly or may never develop, stopping cultural transformation and Toyota Kata’s practice.

**Theme 4: Leadership participation and support.** Leadership support and daily reinforcing activities are intertwined according to participants. Participants presented two opinions. The first opinion is that senior leadership participation, not just support, is required. The second opinion is that executive leadership support is necessary. Eleven participants commented on leadership participation or support. Only one participant did not mention senior leadership participation or support. Let us explore each opinion.

***Direct senior leadership participation.*** Eight participants necessitated direct leadership participation. Within this group, some identified senior managers as part of

the Advance Group that should cascade training to subordinate managers. I will discuss Advance Group findings later within this study. In the following quotes, participants discussed (a) direct involvement, (b) leaders cascading training throughout the organization, (c) leadership challenging subordinates to attain increased levels of performance, and (d) leaders owning their problems as discussed by RP12.

RP01 discussed how leaders would personally visit and deliver training to model the behaviors of leadership involvement and cascaded training. After RP02 gained Toyota Kata experience, he adopted the coaching model of his former Toyota influencers and engaged “the leaders [by] having them be very, very involved.” RP04 echoed similar sentiment leaving no ambiguity in his words, “Participation of that executive and leader is crucial, not support, not backing, participation. Big difference.” RP08’s language was ambiguous in that he discussed creating memorable moments for executives through their involvement so executives could reflect on their personal involvement, “...you as an executive, can walk out, look back and say, ‘I remember six months ago.’” RP03 discussed leadership’s involvement in establishing a challenge, “...and it was the responsibility of leadership to put that challenge on you.” RP07 on his personal involvement reflected, “And if I’m the business executive, do I have a full understanding of what that is going to entail and am I ready for this?” RP10’s reflections were similar, “What am I willing to do? What sacrifice am I willing to make?” RP12 transferred the burden of leadership when she conveyed how she engaged executives who did not want to assume leadership, “...people want to take some problem and move it from their desk to my desk. And my job is to move it back to their desk with them knowing how to handle it.” Participants shared strong opinions towards



the need for leadership to participate in continuous improvement deployment. These opinions stand in contrast to three participants who shared that leadership support is needed, not necessarily participation.

***Direct senior leadership support.*** The second opinion, shared by three participants, was that support, rather than participation, was necessary. RP06 shared that the continuous improvement leaders should be “very clear about the level of senior leadership support for deployment.” RP09’s previous CEO and mentor provided support and required his executive team to support initiatives. RP11 opined senior leadership’s awareness and support was enough if a passionate program manager led the program.

While opinions varied, eight participants felt strongly about direct senior leadership participation. With three participants sharing senior leadership support, rather than participation, was necessary, 11 participants highlighted what appears to be a critical theme grounded in the research. Within this theme, participants identified another critical theme that highlighted the need for senior managers to provide organizational clarity.

**Theme 5: Organizational clarity.** Organizational clarity quickly became a recurring theme with 11 participants mentioning this throughout their interviews. The theme, organizational clarity, was highlighted through use of similar words: singular language, clarity, vision, purpose, knowing the why, and specificity. While this organizational clarity served a purpose for establishing a vision (i.e., understanding direction), participants discussed organizational clarity at the program and/or project level. Participants posited clarity from their organizations was important to link

individual improvement project target conditions to their respective improvement work. Clarity and focus were similar. As you read the following quotes, consider singular language (e.g., one problem at a time, one of them, something) and aim (what an organization wants to achieve).

Three participants used singular language in their responses. By singular, I mean the emphasis of one over many. RP02 remarked, “I think it's important to solve one problem at a time, and Kata allows for that, and it trumps it.” RP03 mentioned the importance of a singular target, “So we talked about our 10 attitudes of Toyota, and one of them is challenge. And kind of the subtitle they put behind that is, ‘Aim at a high target with a brave and creative spirit.’” RP04’s response was more nuanced and incorporated singular language through use of the word something when he replied, “The leaders would need to start practicing on something that meant something to them.” With emphasis on individual concepts, this singular language highlighted the need to narrow one’s focus.

Equally important to a narrow scope, participants discussed the value of specificity in declaring what the organization wants of its engagement and execution of continuous improvement. This was both obvious and subtle in the following quotes. Beyond the obvious language, reflect upon responses such as RP07’s who communicated the value of Toyota Kata amongst competing priorities and RP08’s response about management systems actively understanding of the voice of the customer. The voice of the customer was as simple as listening for what the customer wants and delivering on those goals and inferring what customers may need. When

accomplishing both, organizational clarity aligned with customer needs and potential needs making for a powerful combination.

Regarding direct language on specificity, RP05 shared, “The other gap I have seen with Kata is that a lot of times people don't define the challenge very specifically.” RP06 informed readers the importance of “being clear about what you want to get out of the program...” RP11 echoed RP06, “Make sure that you have a crystal-clear challenge.” RP12 commented about where this crystal-clear vision originated, “Kata at its best depends on a clearly-defined strategic goal from on high.” While a strategic goal from on high is necessary according to RP12, RP10 shared that the most difficult part of Toyota Kata was for executives and/or leadership to set appropriate challenges.

Lastly, on organizational clarity, priorities must align. RP07's leadership prioritized Toyota Kata coaching:

In our organization, we made the commitment that where we're going to do Kata, if they call to come check a routine and it meant you missed a meeting, even at a presidential level, you missed the meeting to go out and do your Kata routine because it was that important.

When organizations prioritize Toyota Kata, leadership must be aware of alignment with customers per RP08:

So a management system, regardless of what the name of it is, that allows people to understand who the customer is, understand the voice of the customer and the voice of the process, that for me is a successful system.

Once aligned internally and externally, a successful system begins formation. Despite this suggested alignment, RP08 was the most emphatic on the voice of external

customers. Other participants touched upon the voice of the external customer but none emphasized as often as RP08.

Organizational clarity showed up in many ways. As participants discussed focused singular efforts and an understanding of what the organization wants to achieve and why, visionary leadership and the organizational clarity it provides became a prerequisite for Toyota Kata deployment. Without such organizational clarity, organizational alignment was near impossible and if achieved, exceptional luck not effort enabled goal attainment. Without external customer alignment, organizations must be mindful about how they incorporate customers' goals and how they communicate Toyota Kata deployment with such customers.

Within Toyota Kata, senior leaders set challenges (vision) and practitioners set target conditions that align with the challenge. If the leader practices Kata, he or she would set both the challenge and the target condition. This was the exception. Most often, the senior leader set the challenge and practitioners moved toward that goal through target conditions. If target conditions did not align with challenges, the improvement may not help the organization achieve its ultimate goals (i.e., the overarching reason that aligns all associates). Assuming the challenge was clear and actionable, participants RP09 and RP10 shared the need for clarity when setting target conditions. RP09 discussed the coaching conversation that ended with this question, "...what is the next thing you're going to try?" RP10 shared that his organization's most difficult challenge is in "setting the target condition." Without an appropriate challenge (vision), practitioners would have more difficulty in achieving target conditions, particularly if they were unable to determine the next target condition. The key

takeaway within these two quotes was clearly understanding the challenge and setting appropriate target conditions that aligned with the challenge and its respective timeline.

With the concept of singular rhetoric (e.g., one problem at a time, topic, something, target condition) throughout participant responses, organizational clarity became another theme grounded in the research. Coupled with leadership support, organizational clarity provided practitioners with necessary guidance for Toyota Kata implementation per the participants.

**Theme 6: Select Advance Group wisely.** This section includes two similar concepts: an Advance Group and information on ideal first participants. The Advance Group consists of the organization's first Toyota Kata practitioners. Ideal first participants make up the Advance Group. Therefore, I choose to link them throughout this theme as they are so closely linked.

Ten participants described the importance of selecting the Advance Group wisely in one of three clusters. First, participants highlighted personnel characteristics they viewed as favorable. Second, participants described cascaded training by leadership as an effective practice for Advance Group associates. Third, participants discussed the need to have an expert assist during the Advance Group's initial training.

RP01 expressed the intent to select candidates who "take it personally as a mission" that "go learn, participate, and guide, and coach." RP01 shared that individuals who do not hold this attitude and act in accordance as described, change efforts will fail. RP01's comments were similar to RP11, who shared that organization should select "generally enthusiastic" people. RP03 shared that organization should select candidates that conform with existing culture. RP06 and RP09 recommended

individuals that sought to own the process of individual learning and continuous improvement. RP07 shared that not everyone can be a coach, specifically because not everyone took improvement seriously and worked to maintain status quo by doing the minimum. RP10, a senior executive leader, shared that humility was key to him accepting Toyota Kata.

The second cluster included participants who described the importance of cascaded training. RP01 learned through lack of leadership involvement that he must get “senior management on down involved.” RP02 described Toyota leaders as people who train their teams to improve and make things happen. RP04 shared that leaders must be on the team as they needed to learn Toyota Kata. RP05 shared that involvement leads to new behaviors as opposed to cognitive understanding and intellectual alignment.

The third and final cluster within this theme included the need for an expert to train the Advance Group. RP02 described the expert as “a source of guidance” who helps lead the Advance Group “down the right path.” RP11 recommended regular ongoing coaching until coaches can effectively coach other coaches.

While the best people differ for each organization and each context, cascaded training, and expert coaching early within a deployment are less ambiguous. In reflecting upon the first cluster, organizations are wise to select Advance Group participants who want to be part of the change independent of organizational differences in desired characteristics. With 10 participants highlighting Advance Group concepts in one of three clusters, this theme appeared in the research as a best demonstrated practice.

**Theme 7: Start small.** As the Advance Group begins its work, 10 participants urged stability and starting small. Regarding stability, RP01 and RP12 shared that stability was worthwhile as stability positioned organizations for future improvements, which makes RP09's comments about patience that much more important. By focusing on pilot areas or singular problems, participants could start small, enabling them to go deep into a problem before spreading the concept too wide and too fast that impacts morale.

Let us first explore participants' comments regarding stability. RP01 conveyed its importance when he responded, "...you could spend the first year when you implement Toyota Kata just stabilizing." RP12 implied deep process knowledge was important when she replied, "...imposing the kind of systematic thinking that goes with even setting up work areas in a certain way can just—You don't even have the stability of the foundation of knowing how your business works." Each organization will be at its unique starting point and will have its definition of stability. How much time it takes to stabilize is situation-specific.

Stability, a subtheme of starting small, appeared to have a time component based on RP09 and RP02's comments that urged patience and focus. While these comments do not address how much time it takes to stabilize, these comments provided guidance on how to achieve stability. RP09 succinctly communicated this opportunity.

The only thing I could think of is management allowing the appropriate time for the change. And I say that because many organizations want Lean or CI, but they want those improvements to be really quick and they fail to understand the learning that has to come about as those

improvements come about. They don't necessarily move at a quick pace because of experimentation, learn to fail, fail forward and as well as customer contact.

While RP09 emphasized patience, RP02 hinted at patience when he highlighted focused efforts on one problem at a time:

Pick some problems that we're having, pick one, pursue that one, and then have coaching teach me and my fellow executives what kind of thinking has to be true in order to get the lean thinking built around the problem solving? ...I think it's important to solve one problem at a time, and Kata allows for that, and it trumps it.

With the importance of stability known and direction from participants RP02 and RP09 to remain patient and focused, practitioners faced a challenge to improve quickly if they wished to sustain their deployment. As discussed in previous themes, specific and aligned target conditions yielded the best opportunity for execution and sustainment when practitioners practiced Toyota Kata frequently daily or multiple times daily.

Participants discussed leadership's involvement in truly understanding what prevented their associates from achieving respective goals by engaging the team directly in their work areas. The intent, it appeared, was to stabilize. Participants who urged patience and focus indicated the value of solving the one problem that needs solved so the entire group can support change efforts. The importance of this could not be overstated—without a common organizational goal, this effort was all for naught as invaluable human resources spent finite resources attempting to accomplish what they thought best.



The concept of starting small could be as simple as focusing on what was important. RP03 discussed the importance of identifying a problem, selecting the appropriate tool(s), and fixing that problem. RP04 echoed RP03 and added the importance of picking something that mattered to the individual. RP04 shared that a best demonstrated practice was that one should always start with the pacemaker process. RP06 spoke of the value-add when investing time upfront to train a leader in the tools and the techniques so RP06 could support the leader, first coach, as a second coach. RP11 was concise, “Start small. Rother, I think, would call it an Advanced Team.” Starting small came after lessons learned when going too wide too fast. RP07’s pilot group was across five different and distinct groups (i.e., too broad), leading RP07 to call his first attempt an “abysmal failure.” RP10 shared similar lessons learned about too broad an approach during his first attempt. With experiential knowledge from his first attempt, RP10 shared that he would select a pilot organization (e.g., plant, facility, department). These two leaders learned through experience that starting small was incredibly valuable. RP07’s comments about the abysmal failure were tied to feelings of being a “morale killer.” Therefore, starting small seemed to have practical benefits when starting Toyota Kata.

Participants that failed to start small quickly learned their mistake. If organizations wanted a quick return on investment, it appeared Toyota Kata must parallel other efforts to meet time-based needs. Participants that expressed timelines for competence in Toyota Kata estimated between six and 12 months before the Advance Group was ready to coach others.

**Theme 8: Follow the books during initial deployment.** Seven participants discussed the importance of using Starter Kata, Improvement Kata, and Coaching Kata during initial deployment. Participants shared that the books' content was required. RP02 shared praise for Rother, "I realized right away, he got it, he's nailed the plan-do-check-act mentality." RP02 continued to share his personal experience that once an idea became a model that is replicable and successful, the model was correct. RP04 remarked, "Obviously, follow the pattern diligently." RP05 posited that an effective coach must have done Improvement Kata himself or herself. RP10 described Toyota Kata step-by-step, calling it the most "elegant way of practicing PDCA ever..." Beyond the word elegant shared by RP10, Toyota Kata's model provided practitioners with a replicable model they could teach others.

In addition to reading the books, RP07 recommended having an experienced coach teach Toyota Kata "if you want to get results more deeply rooted." RP11 noted that reading the book was required but insufficient. RP11 recommended that new practitioner's follow the practice guide's Starter Kata. RP12 shared a unique observation in that following Improvement Kata and Coaching Kata increased practitioners' listening abilities.

According to participants, deliberate, recurring practice built discipline and discipline led to culture change. Participants commented that culture mattered throughout their interviews. Assuming the Advance Group had been selected wisely, following the book during initial deployment provided colleagues an opportunity to see Kata at the visual level. While these fellow colleagues may not understand the thinking

behind the thinking, Toyota Kata's visual aspect could begin to shift culture before the less-visible cultural components took root.

### **Themes' Summary**

Throughout this study, I was able to identify eight themes through 1:1 interviews. The first theme, mentors' constructivist-based methods and metacognition, came from exploring participants' early continuous improvement influences, specifically the relationship with the mentor. While participants were influenced by their mentors, the second theme, lifelong learners, appeared throughout the interview and independent of mentor association. The third theme, deliberate culture, and the fourth theme, leadership participation and support, came about when participants answered interview questions regarding what was important to consider for Toyota Kata deployment. Closely linked with theme four was theme five, organizational clarity. More specifically, leadership was responsible for establishing organizational clarity in what the organizations sought by starting a continuous improvement program. In theme six, select Advance Group wisely, participants clustered around three distinct concepts— personnel characteristics, leadership involvement through cascaded training, and expert coaching support when starting Toyota Kata. The Advance Group fueled discussions of starting small, the seventh theme. The seventh theme was best summarized as picking a pilot group. After selecting the pilot group, participants recommended following the book during initial deployment, specifically pre-defined Kata routines.

## **Summary**

The purpose of this chapter was to report findings from the qualitative investigation. Best demonstrated practices were shared through direct question and answer. I grouped each best demonstrated practice response when possible and where appropriate. I did not prioritize them because the knowledge was a posteriori and did not know other participant responses. The emphasis on the Advance Group seemed to indicate its importance or the infancy of Toyota Kata lessons learned. Through coding practices, I identified eight themes and five major categories I will discuss in Chapter 5 that led to a grounded theory model as to what basic underlying assumptions and values must exist for Toyota Kata's success within any organization. In the next chapter, I will discuss the findings and the grounded theory model. I will address the implications for future research and end with this study's conclusion.

## **Chapter 5**

### **Discussion**

The purpose of this chapter is to present a summary of this study, discuss findings, share conclusions, identify implications for action within my organization and for the broader continuous improvement field, recommend topics for further research, and share concluding remarks. The purpose of this study was to identify best demonstrated practices in Toyota Kata deployment, execution, and sustainment. In addition, I established grounded theory as to why Toyota Kata's constructivist-based approach helps organizations in ever-changing environments. My hope is that this study will enable new practitioners to start their journeys with fewer missteps and provide existing practitioners with actionable advice on how to improve their existing Toyota Kata program and/or prepare them for future Toyota Kata initiatives.

#### **Summary of the Study**

In chapter 2, I reviewed continuous improvement literature from the industrial revolution to contemporary practice. I identified two distinct schools of thought: (a) those that discussed specific, static tools to improve and (b) those that discussed generalized, dynamic approaches that enabled improvement. I placed Rother (2010) in the latter school of thought and sought to investigate his model, Toyota Kata, through constructivist grounded theory methods based on 12 1:1 interviews with Toyota Kata practitioners with 1-10 years of Toyota Kata experience and 10 – 30 years of continuous improvement experience. In chapter 4, I identified eight themes that I summarize in this chapter and provide an illustration that enables readers to see how I generated

categories and subcategories from those eight themes. In this chapter, I will focus my comments on the categories and subcategories rather than individual themes.

Because I was successful in linking themes to categories and subcategories, I was able to generate grounded theory as to why Toyota Kata's constructivist-based approach helps organizations in ever-changing environments grounded within each category and its subcategories. This grounded theory will aid readers and practitioners alike in understanding how Toyota has been successful for 80+ years. I posit that the combination of this grounded theory model and identified best demonstrated practices will lead to greater success than either independently. I will discuss this in the next section of Chapter 5. This research supports Rother's (2010) published findings as discussed throughout this study.

While themes, categories, and grounded theory are important, the purpose of the study was to identify best demonstrated practices in Toyota Kata deployment, execution, and sustainment. I discuss each phase independently and repeat the best demonstrated practices shared in Chapter 4 for reader convenience.

**Deployment.** Deployment comments were central to participant responses on best demonstrated practices. Whether this was due to its overwhelming importance and/or Toyota Kata's infancy remains an open question worth additional investigation. What appears clear was the need to get deployment correct through the best possible Advance Group possible. Eleven best demonstrated practices during the deployment phase follow for your convenience:

- identify and align with at least one key senior executive champion during pre-deployment (Advance Group) phase;

- engage at least one key senior executive to actively participate in the Advance Group;
- within Advance Group;
  - select individuals who are curious, possess a long-term vision, and emphasize the group over the individual;
  - select individuals who are open-minded to new ideas;
  - select individuals who are reflective thinkers;
  - at least one expert must participate;
    - if no expert is available, hire an expert to develop coaching capability within the Advance Team;
  - do not select people who require significant convincing to adopt the new philosophy of work;
- align Executive Team's vision (challenge) to Advance Group's target conditions;
- Advance Group and Executive Team to clearly articulate the reason for starting Kata routines;
- Advance Group to select as few as possible processes to achieve target conditions during the Advance Group's training period (i.e., pilot area);
- throughout Advance Group's training period, the Advance Group should exclusively use Kata routines as defined by Rother (2010).

**Execution.** Execution comments were brief and clear. Deliberate practice was emphasized by participants, not simply practice. The difference is intentionality per

participants. By having a focused effort aligned with a challenge, participants shared personal stories that paralleled their professional Toyota Kata experiences. When it came to going fast, participants urged patience and focused efforts as their experiences were mired by too much activity. Two best demonstrated practices during the execution phase follow for your convenience.

- Practice Toyota Kata daily and deliberately to establish the discipline necessary to support cultural change
- Expand Toyota Kata slowly as effective Advance Group coaches increase capability and capacity

**Sustainment.** With 10 years of Toyota Kata, participants shared only two comments about sustainment. These comments are consistent with the themes discussed in Chapter 4, specifically metacognition. By kata-ing the kata, participants saw the need to not only share lessons with future learners real-time through coaching, but in classroom training as well. Two best demonstrated practices during the sustainment phase follow for your convenience.

- When expanding Toyota Kata to individuals beyond Advance Group, incorporate class-room education into Kata routines so they understand what went well and what needs improvement based on kata-ing the kata
- After kata-ing the kata, share these lessons with future learners

In the next section of this chapter, I direct your attention to the discussion of the best demonstrated practices, themes/categories, and new grounded theory. Within this discussion, I will share the links between themes and categories/subcategories, share



my grounded theory, and will provide commentary to the participant's responses of best demonstrated practices.

## **Discussion**

**Best demonstrated practices.** The best demonstrated practices as identified by participants emphasized the importance of the Advance Group. While Rother (2010) discussed the Advance Group throughout his text, participants' emphasis on the Advance Group, specifically executive involvement, Advance Group member selection, and expert coaching urged pause and reflection.

The overwhelming opinion was that an executive's active participation was a major contributor to Toyota Kata success. Whether or not Toyota Kata can be successful without executive involvement remains to be seen within the participant group. This is a common talking point in other continuous improvement efforts as well and may apply to change leadership efforts more broadly. That said, its importance here cannot be overstated—active executive involvement is a must according to participants.

Once the executive joins the group, enlist him or her in Advance Group member selection. According to participants, the Advance Group was best served by having curious, open-minded, supportive, and reflective thinkers at Toyota Kata's earliest stages. Given this recommendation for member selection, traditional hierarchal appointments must be considered. If potential hierarchal managers are heavily indoctrinated in a specific discipline, they may struggle to adopt new thinking methods required under Toyota Kata practice.

Member selection matters not only for new thinking but also how members within the Advance Group coach others. An expert coach was prized by participants when it comes to changing how coaches practice Toyota Kata coaching as it requires new methods where expert knowledge no longer makes an effective coach. Instead, an effective coach actively listens and prompts learner reflection through effective questioning. This skillset differs significantly from traditional continuous improvement experts where tool mastery was promoted and rewarded. By engaging with an expert coach, rather than an expert continuous improvement practitioner, the Advance Group will reach higher performance levels more quickly.

**Themes.** While I identified eight themes within participant responses, I further analyzed the data to cluster eight themes into two major categories and five major subcategories. Before discussing the clusters of subcategories, recall the themes below:

- Theme 1: Mentors' constructivist-based methods and metacognition.
- Theme 2: Lifelong learners.
- Theme 3: Deliberate culture.
- Theme 4: Leadership participation and support.
- Theme 5: Organizational clarity.
- Theme 6: Select Advance Group wisely.
- Theme 7: Start small.
- Theme 8: Follow the books during initial deployment.

Themes 1 and 2 link to epistemological views that I further subdivide into constructivism and metacognition. Themes 3, 4, 5, and 6 link to disposition that I further subdivide into

curiosity, long-term visionary, and collectivism. While themes 7 and 8 exist in the data, they are explicit in what to do, rather than basic underlying assumptions and values. Themes 7 and 8 stand independently. See Figure 1 for my illustration of how these themes relate to categories and subcategories.

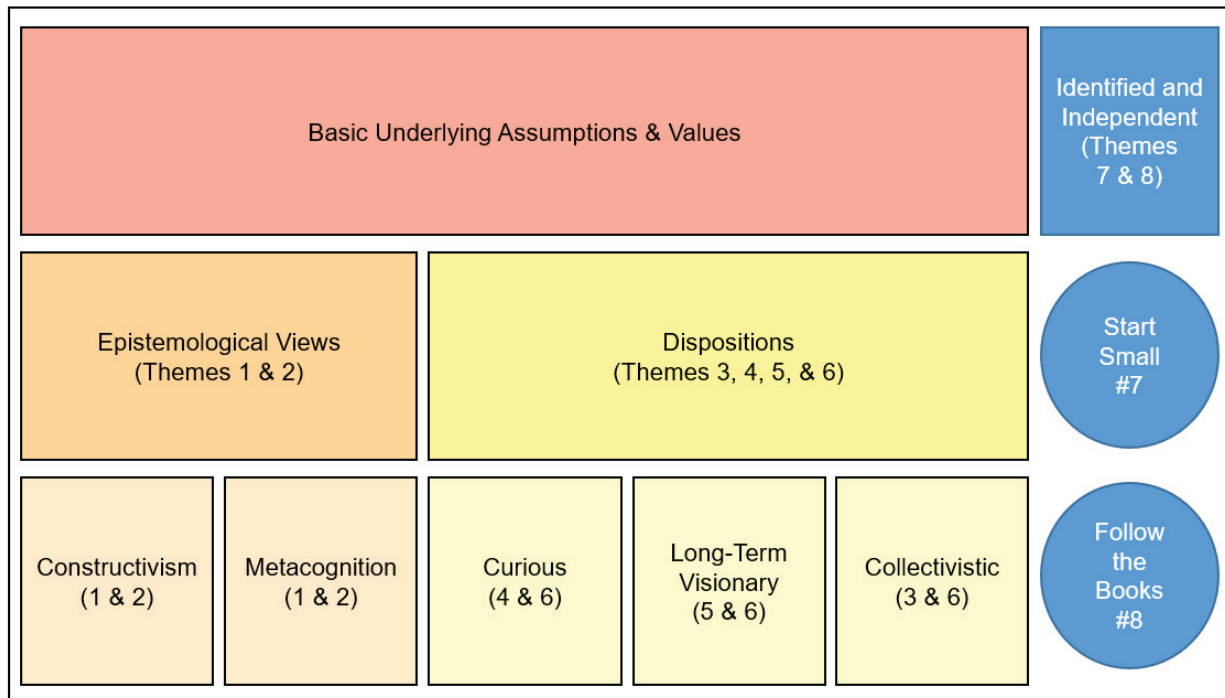


Figure 1. Toyota Kata: A Grounded Theory Model

As readers may recall, Schein (2010) shared that basic underlying assumptions and values work at the deepest levels of culture and simply become how the work is done. These basic underlying assumptions and values are the genesis of my grounded theory. Let us explore how the work was done and why Toyota remains more adaptable than competitors.

**Grounded Theory.** This two-part study was to determine best demonstrated practices in Toyota Kata deployment, execution, and sustainment and establish constructivist grounded theory to help identify what and why these best demonstrated

practices are such. Charmaz (2014) discussed the focused coding process as capable of bringing an observed, but non-conceptualized, phenomenon to the conscious. With focused coding, researchers use transcripts, memos, and can integrate identified themes (Charmaz, 2014) into major categories. I begin this section with a cascaded approach based on themes discussed in Chapter 4. With basic underlying assumptions and values splitting into two concepts, epistemological views and dispositions, that make up five major subcategories. Under the umbrella of epistemological views are constructivism and metacognition. Under the umbrella of dispositions are curiosity, long-term visionary, and collectivism. Themes 7 and 8 stand independently and are not discussed further as it relates to this grounded theory. Let us explore the links between themes and five major categories.

***Basic underlying assumptions and values.*** Throughout the research, participants discussed culture at great length. Rother (2010) shared that observations at Toyota were correct in identifying the tools Toyota used but observers failed to understand how Toyota developed solutions to their problems. Even when examining a company's core values and mission statements, observers will have difficulty in identifying basic underlying assumptions and values (Schein, 2010). Participants' discussions on culture are analogous to the basic underlying assumptions and values described by Schein (2010). Basic underlying assumptions and values are passed from one person to the next. These basic underlying assumptions and values are cultural norms. When individuals do not accept established norms, consequences include punishment, ostracization, and banishment.

Multiple participants described the forceful way Toyota attempted to assimilate associates into their way of thinking. This forceful assimilation of culture was something that seemed to set Toyota apart from its Western competitors. With a collectivistic Japanese culture in direct conflict with America's individualistic culture, US-based associates are unlikely to sacrifice their individualism for company success. Given US-based associates ability to find new employment in a growing economy, US businesses did not and do not appear to be as forceful with culture as Toyota was in establishing its dominance.

*Epistemological views.* Admittedly, epistemology is an esoteric subject. For the purposes of this study, I encourage readers to recall the subsection of Research Design from Chapter 3 that discussed the progression from positivism epistemology through post-positivism epistemology and ending with constructivist epistemology as it related to the grounded theory research process. The relevance recurs in my focused coding exercise.

Participants shared their mentors influenced their development through open-ended questions and emerging approaches, which are constructivist-based (Dudovskiy, 2018). This distinction is important since Toyota Kata practice requires the coach to ask questions, allowing the learner to create new knowledge through insights gained from iterative experimentation. If a coach or senior manager argues for a specific solution, Toyota Kata was at odds with the coach or senior manager's epistemological views, which could create conflict. As discussed, leadership participation and support are necessary—but only if it was the right kind of participation and support. Equally important was the learner's epistemological views. If the learner was heavily biased

towards positivism through closed-ended questions, pre-determined approaches, and numeric data only (Dudovskiy, 2018), expert coaches and senior managers will likely find difficulty in convincing the learner to follow the Kata, letting open-ended questions and emerging approaches (Dudovskiy, 2018) facilitate resolution.

Participants described their mentors' methods as reflective and inquisitive, specifically as it related to the participants' thought processes. Participants were aware of this method citing their mentor's use of the Socratic method, leading me to deduce both the participants and their mentors engaged in metacognitive reflection. Within Kata, each routine is a metacognitive exercise, specifically during questions around recent experiments. Participants described this exercise as uncomfortable as people were learning to examine their respective thought processes with a skilled coach. This emphasis on metacognition was evident in Toyota's onboarding practices through use of committee review of a new associate's A3 continuous improvement.

*Dispositions.* When basic underlying assumptions and values are accepted by individuals, they become part of the person which I will identify as dispositions. These dispositions often lay within the subconscious. Dispositions guide our thinking and our behavior. Participants shared dispositions that were curious, collectivistic, and long-term focused. When participants discussed their struggles with people, they described individuals who held opposing dispositions. When the conflict was with senior managers, participants left the organizations where conflict existed. When the conflict was with subordinates, participants discussed the need to involve them later in the process of starting a Toyota Kata program.

Curiosity came about through examples of lifelong learning, personal upbringing, passion towards learning, passion towards continuous improvement, interest in understanding parts of the whole, desire to improve faster, and validated self-perceptions of strong problem-solving ability. Long-term visionary came through in participants' comments around emphasis on people development rather than problem-solving. Participants discussed patience in starting Toyota Kata as it took time to develop people's coaching abilities and to realign trainees' thought processes. Participants discussed long-term visions highlighting the need for a properly identified challenge, so practitioners could establish aligned target conditions. Lastly, emphasizing the organization's long-term success through effective and continuous people development exercises led to the major category of collectivism. As participants discussed their experiences, they used collectivistic language rather than individualistic language. Within my initial draft of chapter 4, participants used the word "we" approximately 50 times and the word "our" 15 times. The emphasis on the group over the individual was paramount and emphasized the importance of basic underlying assumptions and values.

***Toyota Kata increases cognitive ability.*** As readers consider how Toyota Kata engages the coach and the learner equally, one can argue that both have an opportunity to develop. The coach has an opportunity to increase conceptual skills and human relations skills. The learner has an opportunity to increase conceptual skills, decision-making skills, and technical skills. Within Toyota Kata lies another interesting concept stemming from how experimentation was encouraged. This encouragement lends itself to increased cognitive ability. Consider William Perry's model of cognitive

development that has four stages: (a) dualism, (b) multiplicity, (c) contextual relativism, and (d) commitment within contextual relativism (Barker, n.d.). As learners progress from one stage to the next as their thinking ability increases, learners recognize that the answers they seek are not as simple as correct or incorrect (Barker, n.d.). In later stages such as commitment within contextual relativism, Barker (n.d.) commented, “the brain appreciates ambiguity as a quality of the most interesting challenges. It enjoys methodically discovering, evaluating, and using evidence.” This is the essence of Toyota Kata’s technical component—working to solve a problem through creative solutions, many of which are novel and created based on need, not replication.

Cognitive development’s earlier stages are challenging for the learner and coach. Barker (n.d.) remarked, “Perry’s model suggests that while learning is generally difficult, cognitive development can be downright painful” (p. 4). Learners experience a sense of loss as they let go of prior assumptions about the world and transition into ambiguity (Barker, n.d.). With Toyota Kata, coach-practitioners guide learner-practitioners to uncertain ends. Given that learner-practitioners and new coach-practitioners likely must progress in their cognitive function to coach effectively, this uncomfortable feeling was best approached with an experienced, expert coach that guided individuals through their cognitive development.

***Grounded theory summary.*** To succinctly paraphrase this discussion on grounded theory and to clarify exactly what I intend, consider four points. First, Toyota provides an effective model when supported by forced cultural assimilation. Second, Toyota Kata is successful because it employs a constructivist-based approach in overcoming its obstacles through guided experimentation. Third, Toyota Kata’s



emphasis on examining thought processes during experimentation is the process of metacognition. As learner-practitioners become aware of and adopt Toyota Kata's model, they develop their cognitive ability. William Perry's model of cognitive development provides continuous improvement practitioners with an understanding of how people progress from certainty to ambiguity to aid their coaching practices. Fourth, curious people are more likely to excel in Advance Group and early Toyota Kata practice precisely because their curiosity is tied to the personality trait known as openness to experience (Weisberg, DeYoung, & Hirsh, 2011). Openness to experience is the "predisposition to recognize and search for new knowledge and experiences" (Kashdan, Sherman, Yarbro, & Funder, 2013, p. 142). Simply put, curious people enjoy exploring and Toyota Kata, at its most intensive, requires daily exploration. These four components are the basis for my grounded theory and aid practitioners in developing context-rich answers for their ongoing efforts to practice Toyota Kata.

## **Conclusions**

Each participant had a mentor that influenced and/or reinforced his or her thinking. The way in which the mentors helped participants learn about their respective industry and continuous improvement was consistent with constructivist-based methods where mentors encouraged exploration and experimentation rather than a pre-determined approach. Given this influence, it stands to reason that this type of thinking can be passed from coach to learner, particularly when the learner respects the coach. This logic extends to Toyota's practices where coaches connect with learners in similar fashion. When the learner was willing to adopt Toyota Kata thinking, the coach and learner continued a symbiotic relationship. When the learner was unwilling to adopt

new thinking, Toyota and this study's participants recommended moving forward without such a learner to create a sustaining culture.

Participants' best demonstrated practices supported Rother's (2010) assertions, emphasizing the Advance Group throughout their responses. Significant upfront time was necessary to plan the Advance Group's membership based on the results the organization hoped to achieve. By starting small and going slow, Toyota Kata promoters can help coaches navigate the complex cognitive development challenges that learner-practitioners are likely to face. While context matters for each organization, it appeared these best demonstrated practices apply across functions, organizations, and industries.

### **Implications for Action**

The purpose of this study was to identify best demonstrated practices in Toyota Kata deployment, execution, and sustainment. The following research question guided this study:

From practical implementation, what Toyota Kata deployment, execution, and sustainment insights can be categorized as best demonstrated practices and applied to other organizations?

This research has brought significant and practical knowledge to my continuous improvement journey. I was able to identify best demonstrated practices that fulfilled a secondary goal to establish grounded theory and lessons learned implied personal change was necessary.

I learned continuous improvement in a standalone group that supported internal customers. I initially believed this to be an effective model given the expense to train

people to lead significant Lean Six Sigma projects and time (2 – 4 years) for full proficiency. I experienced two things unique with Toyota Kata I did not experience during my Lean Six Sigma experience. First, the speed at which we solved problems was exponentially faster. Second, there was no time wasted on unnecessary classroom training. My Toyota Kata experience motivated this research. As I reflect on my earliest experiences and knowledge gained from this research, four lessons learned inform future action.

**Delay deployment until senior leadership aligns.** I thought that an effective Deployment Leader could lead organizational transformation through continuous improvement efforts independent of senior leadership involvement. I no longer hold this opinion. Unless senior leadership is aligned with a transformation effort, I will not lead such an effort as it appears futile. It seems to me that selecting an organization aligned with personal motives regarding transformation is imperative for career fulfillment and longevity. Now more than ever, I will exercise patience when determining future assignments that align with senior leadership.

**Select participants wisely.** When I entered this research, I did not think my answers would link to dispositions and psychology. Since this research and subsequent analysis led me to these conclusions, I must conduct iterative cycles of PDCA in order to learn how to best select participants for early transformation stages. While I may not know the answer for years of personal experience and research, I will start with curious people who are open to new experiences that possess a long-term vision focused on the collective.

**Deliberately create a supportive culture.** Perhaps the most shocking revelation throughout the analysis phase was how deliberate organizations must be in creating a supportive culture. Alignment between Human Resources, senior executives, and policies (consequences) is a must. Organizational policies must select for the most likely associates to adopt the new culture while quickly supporting the removal of those who resist transformation. I will work closely with Human Resources to select those most likely to support transformation and set policies and associated consequences for actions that do not support transformation. Equally, I will not support policies that hinder transformation efforts.

**Focus 1:1 meetings on cognitive development.** Through 1:1 with direct reports, I will work with them to identify their cognitive development and move them toward commitment within contextual relativism with intention of opening their minds to new possibilities and approaches that engage their creativity and move them towards acceptance of colleagues' approaches, especially when they create internal conflict.

### **Recommendations for Further Research**

Mentors influenced their learners through constructivist-based methods. To determine whether this replicates to additional Toyota Kata practitioners, additional quantitative research could more expeditiously confirm or reject this finding. Within this same quantitative analysis, future researchers could use factor analysis to determine what, if any, link exists between constructivism and metacognition. Psychology offers breadth and depth of research in openness to experience that can further evaluate the importance of curiosity within Toyota Kata practitioners relative to the population. Lastly, collectivism offers future researchers an opportunity to explore the concept

where data is abundant relative to societal norms. More specifically, future researchers can compare Toyota Kata's adoption relative to how collectivistic the culture is.

### **Concluding Remarks**

At the beginning of this research, I was curious to determine whether my personal experience was unique. I discovered that my personal experience was common to two participants but unique to 10 other participants. The personal experience was how quickly informal leaders adopted coaching roles and effectively led their peers. This personal experience may have come from member selection discussed in the Advance Group comments throughout this study, further emphasizing the need to get this step correct.

Under the umbrella of people development, Toyota does something remarkable. They develop their associates' cognitive ability and comfort with ambiguity so associates can solve novel problems. The ability to solve for novel problems is invaluable for any organization as the organization creates value with new solutions. When organizations imitate, they are always one step behind by definition. Toyota Kata offers an effective model for developing people that enable an adaptable organization capable of achieving superior results.

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## Appendix A

### 1:1 Interview Questions

- (a) Describe your first experience with continuous improvement.
- (b) What was the continuous improvement program's name?
- (c) How many years experience do you have in continuous improvement?
- (d) Who was the most influential mentor during your development? What makes this mentor memorable?
- (e) What methods did the mentor use to help you learn?
- (f) How do you describe your mentor's teaching style?
- (g) In addition to your first experience with continuous improvement program, what additional programs have you been trained in or self-learned?
- (h) What prompted additional training in subsequent continuous improvement programs?
- (i) What advantages and disadvantages do you think are most important for deployment leaders and/or business executives to consider before selecting a continuous improvement program?
- (j) Specific to Toyota Kata, how did you come to learn of this approach?
- (k) Specific to Toyota Kata, what stage did you begin your work: deployment, infancy, or maturity?
- (l) Specific to Toyota Kata, what went well with deployment and execution?
- (m) Specific to Toyota Kata, what needs improvement with deployment and execution?



(n) Specific to Toyota Kata, what insight can you offer to make the program sustainable?

(o) Specific to Toyota Kata and narrowed to no more than three key takeaways, what are the most important takeaways you have that you consider best demonstrated practices?

Appendix B



*Verified Exempt Notification*

To: William Harvey  
From: Andrea Lambert South, Ph.D, IRB Chair  
IRB #: 461  
Title: Doctoral Dissertation - Toyota Kata  
Date: 04/15/2019

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The protocol 461, Doctoral Dissertation - Toyota Kata, has been verified by the NKU IRB as Exempt according to 45 CFR 461.01 (b): 2, Anonymous Surveys - No Risk on **11/02/2018**.

The following documents have been reviewed and verified:

**Consent Form** 11/01/2018 NKU Informed Consent William Harvey Toyota Kata.docx

**Recruitment Materials** 11/02/2018 Recruiting Language for LinkedIn Posts

**Data Collection Tools** 11/02/2018 Data Collection Tools - Research Questions

**Approved Consent Form** 11/02/2018 NKU Informed Consent William Harvey Toyota Kata.pdf

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**Continuing Review:** Not required for exempt studies

**Amendments:** Amendments are only required for exempt studies if the proposed changes will require a higher review level (Expedited or Full Board). Examples include:

- Proposed changes to include minors, prisoners or another potentially vulnerable population
- A change to data collection to include identifiers and/or sensitive data
- An increase in risk to participants

The NKU IRB does not require modification to exempt protocols for the following routine changes:

- Changes in project personnel/CITI certificates
- Additional changes in research sites
- Minor time involvement changes
- Recruitment changes
- Minor changes in compensation to participants

**Document and Data Retention:** Investigators are required to retain all study related documents (signed informed consents, data collection sheets, etc.) for six years after the end of the study per State of Kentucky record retention policy (U1802). Per State of Kentucky record retention policy (U0120), data from all research studies must be retained for five years after the submission or publication of the final project report for which the data were collected.

**Audit or Inspection Reports:** Investigators are required to provide to the IRB a copy of any audit or inspection reports or findings issued to them by regulatory agencies, cooperative research groups, contract research organizations, the sponsor, or the funding agency.

**Study Termination:** The Principal Investigator must terminate the study in the Mentor IRB system upon study completion. The study may be closed out if all data collection is complete AND the data has been deidentified (i.e contains no identifiable information).

Thank You,

IRB Administrator  
irb@nku.edu

Federal Wide Assurance #FWA00009011

## Appendix C

### William J Harvey, M.A., Ed.D. Candidate

[www.linkedin.com/in/williamharvey83](http://www.linkedin.com/in/williamharvey83) | Cincinnati, OH

#### EDUCATION

##### **Doctor of Education in Educational Leadership (Ed.D.)**

Northern Kentucky University, Highland Heights, Kentucky 2016 – Present  
Expected graduation date is May 2019; all coursework is complete

##### **Master of Arts in Business Management (M.A.), Organizational Leadership**

American Military University, West Charles Town, West Virginia, 2015

##### **Bachelor of Arts in Business Management (B.A.), Leadership**

American Military University, West Charles Town, West Virginia, 2009

#### PROFESSIONAL EXPERIENCE

Plant Manager	Peter Cremer North America, Cincinnati, Ohio	10/2017 – current
Adjunct Faculty	University of Cincinnati – Clermont, Batavia, Ohio	08/2017 – current
Operations Manager	Multi-Color Corporation, Batavia, Ohio	04/2016 – 06/2017
Plant Manager	Greif, Florence, KY	11/2014 – 11/2015
Operations Manager	United States Playing Card Company, Erlanger, Kentucky	05/2013 – 11/2014
Continuous Improvement	Graphic Packaging International, Atlanta, Georgia	11/2008 – 10/2012