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Perceptions of School Leaders Regarding the Benefits of Leadership Dashboards

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by

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Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work at Lindenwood University and that I have not submitted it for any other college or university course or degree.

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Abstract

Implementation of continuous improvement structures in education continues to expand as demands for accountability increase in response to ongoing educational reform (Frickx, 2015). Park, Hironaka, Carver, and Nordstrum (2013) found the systemic nature of educational organizations often inhibits these organizations from successfully implementing continuous improvement structures characteristic of high-reliability organizations. Specifically, system leaders in educational entities are ill-equipped to lead system improvement due to poor preparation and lack of focus on specific implementation drivers (Kirkpatrick & Kirkpatrick, 2014). This has resulted in a need for educational system leaders to develop a leadership dashboard similar to dashboards created by Jack Stack (2013) and utilized by his Great Game of Business. Due to the myriad of roles school administrators play in the daily operations and systemic improvement of schools, it is vital administrators be equipped with a systematic tool to focus leadership behaviors on needs specific to a continuous improvement plan (SIP) or departmental improvement plan (DIP). This study involved examination of the perceptions of Missouri educational system leaders regarding the impact of dashboards on their efficacy to promote systemic improvement of the systems under their direction. Interview responses were collected and analyzed using coding methods to identify common words, phrases, and themes. The findings of this study revealed leadership dashboards are beneficial in building leadership capacity to promote system improvement. Educational leaders should be prepared to investigate the use of leadership dashboards to build leadership efficacy necessary in leading highly systemic educational organizations.

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Chapter One: Introduction

The need for additional leadership tools was evident in Mrachko's (2015) assertion that "to enact large-scale instructional reform, school-level leaders need opportunities and support to acquire the new skills necessary for its implementation" (p. 17). Mrachko (2015) further illustrated the need to equip school leaders with school improvement tools:

> Guiding the effective enactment and maintenance of school improvement initiatives will depend on the generation of new knowledge surrounding the development of appropriate capacities in system-level leaders to support, implement, and manage sustainable change in the midst of teaching and learning. For that development to occur, it would be of value to know how to characterize successful system-level leadership, improve system-level leaders' performance, and recreate effective practices. It would be worthwhile for an initiative seeking to foster this type of leadership at scale to create provisional designs for practice at the system level and engage in their continuous improvement. (p. 19)

W. Edwards Deming's Total Quality Management concepts were adopted and soon evolved into a prevalent school improvement model titled the Continuous Improvement Model (CIM) (Brown, Smith, & Steele, 2013). Researchers Best and Dunlap (2014) asserted successful implementation of continuous improvement strategies by organizations in healthcare, manufacturing, and technology has resulted in them being "categorized as 'high-reliability organizations,' which strive to operate error-free under high-risk conditions" (p. 1).

However, Park, Hironaka, Carver, and Nordstrum (2013) cited educational organizations have traditionally been slow to adopt formal continuous improvement methodologies and are rarely characterized as "high-reliability organizations." The need for a personal continuous improvement tool such as an administrative dashboard that can be monitored daily is evident. Park et al. (2013) found, "The only way for quality improvement work to be truly continuous is if it is woven into the fabric of the daily work that individuals are constantly doing" (p. 5). Annual strategic plans and organizational goals with lag measures do not qualify as continuous improvement (Park et al., 2013).

Background of the Study

December 10, 2015, was a significant date in the history of public education, as it was the day on which the Elementary and Secondary Education Act (ESEA) was reauthorized in the form of the Every Student Succeeds Act (ESSA) (Shulman & Hulnick, 2016). Before the reauthorization of the ESSA, the ESEA had not been reauthorized since 2007 when Congress approved the No Child Left Behind (NCLB) Act (Shulman & Hulnick, 2016). Before the passage of the ESSA, NCLB had been characterized as the most "extensive legislative changes since the inception of the department of education" (Schumpelt, 2011, p. 4).

The passage of the ESSA was significant in its unprecedented transfer of control for accountability from the U.S. Department of Education to state educational agencies (American Association of School Administrators [AASA], 2016). The 2016 American Association of School Administrators (AASA) resource library on the ESSA illustrated this by publishing, "States are now in charge of setting school performance standards and

putting in place accountability provisions. The entire federal infrastructure for identifying low-performing districts and schools has been eliminated" (p. 1). While the relinquishment of long-time federal control of public education to state control was well-received, the 2017-2018 deadlines for state accountability plans quickly proved daunting (Burnett, 2016). The 2007 recession left state educational agencies understaffed and ill-prepared to transition from their previous role of NCLB compliance officers for federal accountability to initiators of innovation in meeting ESSA accountability plans (Burnett, 2016).

The ESSA maintained the same emphasis on accountability as the NCLB Act and thus necessitated ongoing continuous improvement processes encouraged by NCLB (AASA, 2016). The current continuous improvement processes are an outgrowth of Deming's Total Quality Management (TQM) in Japan (O'Day & Smith, 2016). According to O'Day and Smith (2016), "Continuous (quality) improvement has been a focus for research and organizational change efforts in both public service and private industry for decades" (p. 315). O'Day and Smith (2016) outlined the premise of continuous improvement processes in the following manner:

> While specific methodologies differ, continuous improvement processes generally start with identification and analysis of a problem or practice in the given system, followed by repeated cycles of inquiry in which a plan for addressing that problem is developed, tested, revised based on data, and then implemented more broadly (or retested anew), followed by new data and more refinement. (p. 315)

Unfortunately, past policies emphasized outcome data for accountability rather than improvement (Hargreaves & Braun, 2013). Hargreaves and Braun (2013) explained, "In

the main, over more than a decade, these top-down initiatives in the U.S. have not had positive effects on educational excellence or equity" (p. 3).

Dr. Daggett (2014), founder and chairman of the International Center for Leadership in Education, identified benefits of aforementioned federal legislation mandating additional accountability. Daggett (2014) posited ongoing legislation spurred educational leaders to embrace the processes associated with continuous improvement and to seek organizational change. Dr. Daggett's (2014) research documented the proliferation of data-based TQM models such as the Baldrige Model, which is embedded in state education agencies and school districts throughout the nation.

The difficulty in capitalizing on continuous improvement's narrow focus for improvement is the public school system's inability to reduce the number of goals due to numerous competing demands schools much manage (Best & Dunlap, 2014). Unlike many industries, the complex nature of educational institutions has often resulted in ambiguous measures of organizational effectiveness (Lillis, 2012). Arnold and Marchese (2011) identified fundamental differences in continuous improvement focus, the organizational autonomy of materials, identification of product, improvement cycle times, and disparities in performance measures as just a few of the inherent differences that must be overcome to integrate continuous improvement systems into education.

System leaders occupy a crucial role in the implementation and sustainability of continuous improvement processes (Best & Dunlap, 2014). Best and Dunlap (2014) cited the research of Park et al. (2013), "Successful leaders use a formal improvement methodology, create a vision for improvement, enable others to pursue that vision, and monitor progress toward goals" (p. 3). Frabutt and Holter (2012) echoed this belief in

their assertion, “A truly effective leader is one who systematically uses data to answer questions and takes an inquiry-based stance toward educational improvement” (pp. 254-255).

Educational leaders are poorly equipped and often do not possess the necessary skills to lead continuous improvement initiatives (Frabutt & Holter, 2012). Frabutt and Holter (2012) recognized “scant focus and inconsistent delivery of courses related to data-based decision making in higher education preparation of school leaders” (p. 255). Researchers Best and Dunlap (2014) asserted future leaders of educational systems could be better supported through “policy that provides for the training of school and district leaders in continuous improvement that may help those leaders successfully incorporate continuous improvement into their work” (p. 3).

Conceptual Framework

Jack Stack’s (2013) business leadership system titled the “Great Game of Business” (GGOB) served as the guide for this study. Stack’s (2013) implementation of the GGOB was predicated upon the following two essential questions: “If leaders are so important, then how come we aren’t teaching people to lead all the time? Why don’t we have an everyday system that works on giving people the tools they need to become leaders?” (p. 11). Stack (2013) posited, “By using the Great Game of Business we can delegate information to make people responsible for making decisions” (p. 11). Stack’s (2013) systems thinking approach to leadership led him to surmise “the idea of working a system instead of a hierarchy is that when you have a variance or a deviation, you attack the reason for the discrepancy, not the person” (pp. 11-12). This theoretical change has allowed implementers of the GGOB to “quit trying to cover holes with Band-Aids and

instead lay the foundation for a whole new operating system for the company" (Stack, 2013, p. 18).

In the early 1980s, Springfield Remanufacturing Corporation experienced limited success, and leadership realized employees did not understand how their company's parts functioned as a whole, nor did employees have a voice to promote improvement (Stack, 2013). In response to this realization, Springfield Remanufacturing Corporation's leadership implemented the GGOB as a new operating system (Stack, 2013). The GGOB served as a system improvement structure to provide common verbiage, common company goals, systemic departmental goals, monitoring of progress, and a vehicle to respond to results (Stack, 2013). The foundation for the success experienced in the GGOB are the standards, or targets, departments and employees establish for their spheres of influence (Stack, 2013). Standards serve as the primary system improvement tool of system leaders (Stack, 2013).

In the GGOB, standards or targets are established, communicated to other employees, monitored, and acted upon as trends emerge (Stack, 2013). Additionally, standards are fluid and may be changed to address opportunities for improvement within the system (Stack, 2013). The systematic implementation of standards has increased employee efficacy, raised awareness of the systemic nature of the organization, and improved organizational performance (Stack, 2013).

The problems identified in 1982 that led to the implementation of the GGOB continue to persist in the field of education (Arnold & Marchese, 2011; Bryk, Gomez, Grunow, & LeMahieu, 2015; Eck, Bellamy, Schaffer, Stringfield, & Reynolds, 2011). School districts that have experienced success with systems improvement have utilized

tools aligned to the GGOB's standards called educational dashboards (Rothman, 2015). However, these educational dashboards are typically predicated upon the school or departmental measures and are not related to targets associated with individual behaviors such as the GGOB's standards (Rothman, 2015). Contrary to traditional educational dashboards predicated upon school or district outcomes, leadership dashboards are similar to the GGOB's structures, as they are predicated upon clearly stated system leader inputs that drive organizational improvement (Kirkpatrick & Kirkpatrick, 2014). This study was designed to identify the perceptions of school system leaders regarding the effectiveness of leadership dashboards in supporting continuous improvement.

Statement of the Problem

The rapid adoption of private industry's continuous improvement models has not empowered public schools to meet the federal government's mandates for school improvement as outlined in NCLB and the ESSA (Arnold & Marchese, 2011). Many have suggested the reason for this apparent lack of success may be attributed to the vast difference between private industry and public school systems (Arnold & Marchese, 2011). The many differences between these entities include tangible versus intangible products, quality control of raw materials, the distance between product and judgment, and determinate versus indeterminate cycles (Arnold & Marchese, 2011). Arnold and Marchese (2011) also found in addition to these differences, dissimilarities also exist in the result of the associated continuous improvement cycle and length of the cycle. The inherent goal of continuous improvement in most private industries is a reduction of redundancies that produce human error, while the typical end goal of continuous

improvement in public education is the intensification of efforts toward the product of student learning (Arnold & Marchese, 2011).

Further compounding the inherent differences between private industry and public education are the roles the associated employees maintain in the ultimate product and associated continuous improvement process (Park et al., 2013). Unlike private industry, employees of the public school system fill a number of roles that indirectly impact student learning (Park et al., 2013). In public education, there is no quality control department, and although most job descriptions may not reference student learning, it is still the ultimate bottom line for all departments (Park et al., 2013). This bottom line necessitates a holistic understanding of each employee's role in the product of student learning and the continuous improvement process (Park et al. 2013).

The ambiguity of the "bottom line," changes in raw resources, and diversity of roles educators assume have resulted in a disconnect between organizational data-driven decision-making processes and individual behaviors which drive organizational improvement (Bryk et al., 2015). This disconnect necessitates a crosswalk between organizational improvement structures and the monitoring of personal actions (Kirkpatrick & Kirkpatrick, 2014). The crosswalk must be aligned within the organizational improvement structures to promote the efficacy of the Plan Do Study Act improvement cycle inherent in all continuous improvement models (Goodwin, 2011). Additionally, Goodwin (2011) stated the crosswalk must contain fidelity and performance measures to ensure personal behaviors are congruent and authentic with the organization's efforts.

Leadership dashboards similar to those implemented in Jack Stack's (2013) "Great Game of Business" model have been modified to provide the aforementioned crosswalk (see Appendix A). These crosswalks allow individual employees, regardless of position, to determine quantifiable behaviors to address opportunities for progress to improve the bottom line of student learning (Kirkpatrick & Kirkpatrick, 2014). These personal leadership behaviors are often overlooked as the system leader focuses only on system goals and processes (Kirkpatrick & Kirkpatrick, 2014).

Purpose of the Study

The purpose of this study was to examine school administrators' perceptions of the impact of leadership dashboards on their efficacy to promote the systemic improvement of the buildings under their direction. Due to the myriad roles school administrators play in the daily operations and systemic improvement of schools, it is vital administrators be equipped with a systematic tool to focus leadership behaviors on specific needs of a school's continuous improvement plan (SIP) or departmental improvement plan (DIP).

The results of this study support the ability of educational leaders to meet the increasing demand by policymakers to utilize data to establish accountability and improve student achievement (Morrison-Danner, 2014). This study also supports and provides a potential counterpoint to research that has indicated data literacy of educational leaders is lagging and the capacity to properly utilize data must be improved (Mandinach & Gummer, 2013). Specifically, the investigation of leadership dashboards addresses the inadequacies identified by Morrison-Danner (2014) and Wayman, Spring, Lemke, and Lehr (2012), who stated, "Research indicated there is a need to provide in

more detail how principals use data in 'regular' settings. The field lacks a concrete research-based inventory of key principal behaviors that foster data use" (p. 35).

Research questions. The following research questions guided the research to examine the type of systemic improvement tool that could provide focus to administrative behaviors and increase administrator efficacy in continuous improvement:

1. How does the leadership dashboard enhance system improvement?
2. How does the leadership dashboard enhance the personal efficacy of system leaders?
3. How does the fidelity of implementation of leadership dashboards impact system improvement?

Definitions of Key Terms

For this study, the following terms are defined:

Continuous improvement. According to O'Day and Smith (2016), continuous improvement is the identification of a barrier in a system improved by repeated cycles of analysis in which a process to overcome the barrier is developed, assessed, revised, and implemented more broadly in an attempt to improve the condition.

Critical mass. Critical mass is defined as a process to reduce resistance through accrual of additional support and success (Coleman, Brooks, & Ewart, 2013).

Data-driven decision making (DDDM). As defined by Mandinach (2012), data-driven decision making is the systematic accrual, analysis, and response to data to inform practice and improve performance.

Data literacy. The North Carolina Department of Public Instruction (2013) defined data literacy as the capacity to find, evaluate, and utilize data to inform decisions.

High-reliability organization (HRO). Researchers Weick and Sutcliffe (2015) found high-reliability organizations are organizations consistent in realizing goals, avoiding tragic errors, and responding to crisis events.

Quality improvement. Park et al. (2013) referenced University Research Company, LLC (2017) in defining quality improvement as the structured use of qualitative and quantitative evidence to improve the desired outcome of a system for an end user.

Self-efficacy. Self-efficacy is the ability of an individual to organize actions and processes to achieve a goal and belief in one's ability, not the actual ability, to perform a task or meet a goal (McCray, 2014).

System. As defined by Monat and Gannon (2015), a system is a group of highly interconnected components, often possessing unique characteristics, which form a unified entity whose success is contingent on the arrangement and connectivity of the components.

Systems thinking. Systems thinking is defined as an approach that values the interconnections among the components of a complex entity and synthesizes a unified view of the entity (Monat & Gannon, 2015).

Significance of the Study

School administrators charged with ensuring continuous improvement will be the primary benefactors of this study. The significance of this study lies in the collection of perceptual data to contribute to the creation of a systemic improvement tool that links measurable administrative behaviors to broad organizational continuous improvement tools. This personal leadership tool is an essential and missing component of continuous

improvement plans typically implemented in public education. The personal leadership tool will increase the efficacy of participants and provide the necessary crosswalk to enable educators to implement and sustain continuous improvement models successfully.

A leadership dashboard is a quality tool currently missing from continuous improvement models and may provide the leadership supportive implementation strategy necessary for bridging the gap between system measures of school improvement processes and personal leadership behaviors (Bernhardt, 2016). Leadership dashboards require system leaders to identify specific areas of focus for their actions and to assign measures to monitor the fidelity of their actions and the subsequent performance of their actions (Stack, 2013). The system leader's efficacy to impact system improvement will be enhanced through the use of the leadership dashboard. An essential byproduct of this quality tool is the use of data to nurture the transition from managerial leadership to transformational leadership necessary for schools to excel in data-driven decision making processes for school improvement (Bernhardt, 2016).

The use of leadership dashboards will allow school leaders to focus their behaviors in a quantifiable manner on problematic areas in order to improve the organizational goal of student achievement. The addition of dashboards to the continuous improvement cycle personalizes the process and may likely increase the collective efficacy of administrators (Donohoo, 2017). The public posting of administrative dashboards also facilitates a culture of data-driven decision making and accountability (Brown et al., 2013).

Limitations

The primary limitation of a qualitative study is that the findings cannot be generalized to a population-at-large (Bloomberg & Volpe, 2016). Further compounding this component of qualitative research is the sampling size of this investigation. The sampling size included the selection of eight participants out of 20 school administrators in one school district who implemented the dashboard tool at the start of the 2013-2014 school year. Participants who volunteered for the study and were subsequently selected may not be indicative of the population.

Responses through perceptual data are also limited by the truthfulness of respondents, data-literacy of the researcher, and knowledge of the subject matter by the independent proctor (Bloomberg & Volpe, 2016). While the qualitative design adopted for this study was chosen to ensure anonymity of all participants, the researcher could not guarantee the willingness of participants to communicate their experiences fully. Participants may have been unwilling to be critical of the subject of research due to the fear of retaliation. The researcher attempted to assuage this limitation by employing an independent proctor to conduct interviews and by eliminating all identifying information.

However, the use of an independent proctor may have resulted in an additional limitation, as the proctor did not have significant knowledge capacity regarding the subject of research. The limited knowledge capacity led to a limited ability to prompt subjects to expand responses to interview questions. The limited ability to prompt subjects to expand responses was evident in some participant responses to interview questions that appeared to be overly concise.

Summary

This study was predicated upon Jack Stack's (2013) system of leadership development titled "The Great Game of Business." Stack's (2013) implementation of the GGOB was founded upon the following two essential questions: "If leaders are so important, then how come we aren't teaching people to lead all of the time? Why don't we have an everyday system that works on giving people the tools they need to become leaders?" (p. 11). The tools Stack (2013) referenced appear to be missing from the many continuous improvement models public educators have implemented in the federally mandated quest for improvement.

Chapter Two includes a review of literature about the impact of legislation on educational reform and the adoption of continuous improvement models in public education. This review includes a description of the prevalent continuous improvement models in public education and the data-driven decision making component inherent in each model. Chapter Two also includes a portrayal of the challenges and successes of public education entities while adopting the continuous improvement models of private industry. Chapter Two then includes information on the use of tools such as dashboards to enhance the capacity of leaders to implement and sustain continuous improvement in the field of education.

In Chapter Three, the methodology utilized in this study is presented. A presentation of the analysis of data is included in Chapter Four. The findings, conclusions, implications for practice, and recommendations for future research are discussed in Chapter Five.

Chapter Two: Review of Literature

Dr. Bill Daggett (2014), founder and chairman of the International Center for Leadership in Education, illustrated the dilemma of modern education: "American schools are data rich but analysis poor" (p. 7). Frickx (2015) further elaborated:

> Education institutions have a variety of continuous improvement frameworks from which to choose to improve quality and effectiveness in their processes and ultimately, their outcomes. There is, however, little research to identify how a framework might relate to organizational performance. (p. 3)

Dr. Daggett (2014) confirmed, "We have volumes of data but, unlike our counter parts in medicine, we have not learned how to monitor, track and introduce effective intervention based upon the data we have" (p. 7).

The U.S. Department of Education (2011) stated one of its six goals embedded in the 2011-2014 strategic plan was to "enhance the education system's ability to continuously improve through better and more widespread use of data, research and evaluation, transparency, innovation, and technology" (p. 47). According to Frickx (2015), "Continuous improvement has become a high priority in higher education, raised to the national level with its inclusion in the Department of Education's 2011-14 Strategic Plan" (p. 17). The inclusion of continuous improvement in the 2011-2014 strategic plan "demonstrates the belief that a continuous improvement culture benefits education institutions, and that its development is vital to U.S. education" (Frickx, 2015, p. 17).

Researchers Bryk et al. (2015) acknowledged the need for a leadership tool to simplify the many processes of a complex system when they identified the "key to

improvement is seeing the actual organization of work amidst this complexity" (p. 46). Chapter Two is organized to provide the reader with an overview of educational reform and the focus on accountability that has encouraged educational institutions to adopt continuous improvement processes. Chapter Two includes a description of the challenges educational organizations have experienced in adopting prevalent continuous improvement processes with inherent data-driven decision-making processes predicated upon system thinking. The chapter culminates in a description of high-reliability organizations and how a tool such as a leadership dashboard is essential for complex educational institutions to become institutions of high reliability.

Conceptual Framework

The highly systemic nature of educational organizations creates inherent challenges for leaders attempting to implement continuous improvement processes (Lillis, 2012). In addition to the systemic nature of educational organizations, Bryk et al. (2015) identified unique user needs and subsequent processes as challenges that must be addressed for system improvement. Frickx (2015) found these characteristics of educational organizations make it difficult to build consensus, develop common organizational goals, and cultivate subsequent improvement processes. Rothman (2015) asserted there is a need for a tool that establishes clear targets and monitors progress in incremental units.

Jack Stack's (2013) Great Game of Business (GGOB) has allowed system leaders in private industry to "quit trying to cover holes with Band-Aids and instead lay the foundation for a whole new operating system for the company" (p. 18). This system has empowered organizations to establish an improvement process that provides a common

vocabulary, succinct organizational goals, common subsystem goals, progress monitoring, and a tool to respond to results (Stack, 2013). The implementation of the GGOB has improved employee efficacy, awareness of systemic interactions between departments, and attentiveness to the impact of personal actions on system performance (Stack, 2013). The improvements above associated with the GGOB appear to address deficiencies in the self-efficacy of public school leaders and the connectedness of their actions in driving system improvement (Goodwin, 2011).

Impact of Legislation on Educational Reform

The launch of Sputnik on October 4, 1957, initiated the first modern school reform, which precipitated the National Defense Act in Education of 1958 (Conti, Ellsasser, & Griffin, 2000). This act officially placed public education under the umbrella of the federal government and ushered in the modern era of educational reform (Conti et al., 2000). Concerned about the nation's ability to compete in an emerging global economy, Secretary of Education T. H. Bell ushered in the second reform of public education in 1983 by creating the National Commission on Excellence in Education (Conti et al., 2000). The purpose of the National Commission on Excellence in Education was to rate the quality of the nation's public education system (Conti et al., 2000). T. H. Bell's concerns regarding America's ability to compete in an emerging global economy were confirmed in the commission's report titled *A Nation at Risk* (Conti et al., 2000). Unlike the results of the country's first report on public education, *A Nation at Risk* proposed deficiencies were evident in nearly every aspect of public education including curriculum, instruction, school leadership, and funding (Conti et al., 2000).

Unlike its predecessors, the No Child Left Behind Act of 2001 (NCLB) was centered on student performance-based outcomes on standardized assessments to show continuing improvement (Mrachko, 2015). The rapid expansion of accountability and the associated ties to state and federal funding dictated both accreditation and revenue assigned to public school districts (Mrachko, 2015). The NCLB Act's unprecedented mandate to disaggregate grade 3-12 assessments created an unofficial mandate for structures to support data-driven decision making and research-based programs for improvement (Mrachko, 2015).

Regardless of intent, legislation necessitated educational institutions develop a culture of evidence predicated upon a continuous improvement process (Eaton, 2012). The assessments mandated by NCLB did create a national movement toward the adoption of systematic improvement models by local school districts after illustrating weaknesses in student performance data (O'Day & Smith, 2016). The use of data and associated continuous improvement processes was deemed a necessary component of NCLB to improve the quality of education and provided stakeholders with information to evaluate educational institutions (U.S. Department of Education, 2011).

Dr. Bill Daggett (2014), founder and chairman of the International Center for Leadership in Education, summarized the impact and challenge of the aforementioned legislative policies:

> From the aftermath of the 1983 *A Nation at Risk* to the *No Child Left Behind Act* of 2001 to the CCSS, TEKS, and SOL, new initiatives in education have always been accompanied by strong reactions and emotionally packed debate. However the need for continuous improvement and shifts in instructional practices is clear.

> If we cut through the distractions, most people agree on the urgency and the intent of these current initiatives: to prepare students to be successful in the rapidly evolving economy. (p. 2)

The unprecedented collaboration among congressional leaders resulted in the passage of the ESSA and officially marked the end of NCLB (Missouri Association of School Administrators, 2015). Public education organizations such as the Missouri Association of School Administrators (2015) applauded the abolition of NCLB by stating, "No Child Left Behind's approach to education relied heavily on standardized tests and lacked the flexibility that states, school districts, and educators said they need in order to support student success" (p. 1). This transition supported the research of Park et al. (2013), who affirmed the need for "policy that allows education leaders to manage change via staff training and promote stakeholder investment via shared decision making can help ensure the successful integration of continuous improvement into schools and districts" (Best & Dunlap, 2014, p. 4).

According to the White House Office of the Press Secretary (2015), the fundamental purpose of the ESSA and reasoning for deviation from NCLB is to accomplish the following:

> The bill will target resources, attention, and effort to make gains for our students attending schools most in need of help. Consistent with the policies in place under the Administration's ESEA flexibility agreements, the bill moves away from NCLB's one-size-fits-all accountability and ensures that states undertake reforms in their lowest performing schools, in high schools with high dropout rates, and in schools where subgroups are falling behind. It includes provisions

> that would require districts to use evidence-based models to support whole-school interventions in the lowest-performing five percent of schools and schools where more than a third of high school students do not graduate on time and includes dedicated funding to support interventions in these schools. In schools where subgroups of students persistently underperform, school districts must mount targeted interventions and supports to narrow gaps and improve student achievement. If such schools are not showing improvement, the state will ensure more rigorous strategies are put in place. Moreover, the Department of Education has the authority it needs to ensure that states carry out their responsibilities. (p. 1)

The ESSA unraveled much of the federal oversight of education established in the 1958 National Defense Act in Education and was credited with "the end of an era in which the federal government aggressively policed public school performance and returning control to states and local districts" (Huetteman & Rich, 2015, p. A25).

Although the ESSA transferred much of the oversight of educational accountability away from the federal government, individual states were mandated to submit accountability plans to the U.S. Department of Education for approval prior to the 2017-2018 school year ("The Every Student Succeeds Act: Explained," 2015). Accountability plans included goals to address academic proficiency on tests, English-language proficiency, and graduation rates ("The Every Student Succeeds Act: Explained," 2015). At a minimum, proficiency tests must include assessments in the areas of mathematics and English language arts in grades 3-8 and once in high school ("The Every Student Succeeds Act: Explained," 2015). Additionally, a science

assessment must be administered one time in the elementary, middle, and high school grade levels ("The Every Student Succeeds Act: Explained," 2015).

The ESSA's inherent flexibility and the July 2017 deadline for state accountability plans necessitated the quick transition of state education departments from the role of compliance officers for the federal government to innovators (Burnett, 2016). The transition of roles was made more difficult by understaffed state education departments previously downsized in response to the recession (Burnett, 2016). Burnett (2016) illustrated the impact of understaffed state education departments in an interview with Brenda Cassellius, Minnesota Educational Commissioner, who stated, "I have one math specialist and one reading specialist and one person working standards" (p. 23). Compounding the challenges associated with understaffed state departments of education is the continual turnover of department leaders as evidenced by the national average tenure of 3.2 years (Burnett, 2016).

While the ESSA transferred additional local control to state local educational agencies (LEAs), it replicated the problems associated with previous federal legislation by creating legislation with no associated regulations (Eck et al., 2011). Eck et al. (2011) illustrated the dilemma this created for LEAs in the following description:

> With federal educational legislation, states more often look to the non-regulatory guidance to determine how to meet legal requirements. States then developed new testing schemes and established new regulatory requirements of their own, which they passed on to LEAs. Meanwhile, colleges of education across the country were changing requirements in various courses and developing new programs to assist schools and districts in meeting the requirements. More

> aggressively, a broad range of for-profit corporations (such as text and software publishers and consulting firms) and not-for-profit entities (such as the regional laboratories and various foundations) began developing products, workshops, and other materials to assist schools and LEAs in addressing the changes required in NCLB. LEAs received this range of information and federal funds and made diverse new requirements on schools, which in turn made new demands on teachers. (pp. 10-11)

Eck et al. (2011) found LEAs are too often left to develop methods of meeting broad legislative requirements absent of specific regulations.

Background for Continuous Improvement

Frickx (2015) defined continuous improvement as "the process by which an organization improves its processes and performance on a systemic basis" (p. 16). The difference between competing continuous improvement frameworks lies in the value each framework places on organizational components such as leadership, feedback loops, workforce development, and systems thinking (Frickx, 2015). Regardless of the value assigned to these components, each continuous improvement framework is predicated on the use of data and the systemic integration of continuous improvement processes into the processes of the organizational structure (Baldrige Performance Excellence Program [BPEP], 2011, 2013). When organizations meet these requirements for continuous improvement, they transition from "making discrete changes to developing an institution-wide culture of continuous improvement" (Frickx, 2015, p. 16).

Four primary differences exist among typical approaches to continuous improvement and accountability by education systems (O'Day & Smith, 2016). Mark Elgart (2016) outlined the four fundamental differences in the following manner:

#1. Focuses on root causes, not just outcomes. Rather than focus exclusively on collecting and analyzing data on student outcomes without information about what happens in the system to produce those outcomes, continuous improvement provides detailed information about particular practices to identify important connections between actions and results.

#2. Sees failure as a means to improve, not a reason to assign blame or sanctions. Rather than seeing failure as an opportunity for blame and negative consequences, continuous improvement uses failure as a means to identify needed assistance and learning.

#3. Enables informed decision making based on rich context and evidence. Rather than mandate solutions about what should be done when something fails without considering what caused the problem or the strength of the evidence, continuous improvement approaches enable educators to make decisions based on context, so participants understand which solutions are likely to work for whom and under what conditions.

#4. Places the source of accountability and decisions about action for improvement within the system. Rather than placing the source of accountability far from the district and school and removing local actors from setting goals and identifying solutions to problems, the main source of accountability in a continuous improvement approach resides within the system – with key players

> within the organization focused on the practices and feedback loops they have put in place. (p. 28)

As the national discussion regarding accountability increases, it is important to differentiate between continuous improvement and accountability (O'Day & Smith, 2016).

Before investigating the premise of continuous improvement, one must delineate the difference between continuous improvement and quality improvement. Quality improvement focuses on a specific population of customers encountering a problem the organization is attempting to solve (Park et al., 2013). To maximize success, standard practices must exist so variation in system performance may be attributed to improved processes and not to random acts of improvement (Park et al., 2013). This necessitates the system be seen in its entirety and that the product, as well as standard processes, exist so the "results are the natural products of the current state of affairs" (Park et al., 2013, p. 4). The systems perspective "implies that, in order to achieve improved results, one must of necessity alter the system and the ways of working in it" (Park et al., 2013, p. 4). To monitor achievement and meet quality improvement requirements, the system must possess the capacity to measure and track key processes and outcomes on a day-to-day basis (Park et al. 2013).

Lastly, quality improvement must include "the application of an evidence-based methodology, with its inherent standards, protocols and guidelines" (Park et al., 2013, p. 5). Formal methodologies include Lean, Six Sigma, and the Model for Improvement (Park et al., 2013). The type of methodology is typically dependent on factors such as purpose, work focus, scale of implementation, and desired effect size (Park et al., 2013).

Total Quality Management

Many researchers have identified Edward Deming's Total Quality Management (TQM) as an early continuous improvement framework still prevalent today (Frickx, 2015). Total Quality Management incorporates the Plan-Do-Check-Act process improvement model and is considered the foundation upon which other continuous improvement models have been built (BPEP, 2011, 2013). Lunenburg and Ornstein (2012) stated, "The concepts formulated by TQM founder W. Edwards Deming, have proved so powerful that educators want to apply TQM to schools" (p. 194).

Deming's principles not only apply to corporations, but they also translate to any organization, including schools (Lunenburg & Ornstein, 2012). Lunenburg and Ornstein (2012) posited:

> [Deming's work] is based on the assumption that people want to do their best and that it is management's job to enable them to do so by constantly improving the system in which they work... it is an opportunity to conceptualize a systematic change for a school district. (p. 5)

Deming's philosophy of TQM "provides a framework that can integrate many positive developments in education, such as team-teaching, site-based management, cooperative learning, and outcomes based education" (Lunenburg & Ornstein, 2012, p. 194). Lunenburg and Ornstein (2012) wrote school leaders have found Deming's principles can provide the formula for improving America's schools. As educational leaders search for methods to increase academic achievement, Deming's principles have been identified as the chosen method (Lunenburg & Ornstein, 2012).

Baldrige Model for Continuous Improvement

The emergence of the Baldrige Model for Continuous Improvement as one of the TQM models of choice is substantiated by the number of school districts and states that have embraced this model as their official school improvement program (Schumpelt, 2011). According to Frickx (2015), "The Baldrige Performance Excellence Program (BPEP) was founded as the Malcolm Baldrige National Quality Award (MBNQA) in 1987 as a public-private partnership" (p. 21). The purpose of the BPEP and the subsequent MBNQA was to increase "awareness of performance excellence as an increasingly important element in U.S. competitiveness and the sharing of successful performance strategies and information on the benefits of using these strategies" (BPEP, 2013, p. 55). Researcher Gretchen Frickx (2015) defined the BPEP as based "on the principals of TQM and uses a framework of seven criteria against which institutions assess their performance" (p. 18). Although similar to TQM, the BPEP relies on third-party evaluation to qualify for the MBNQA, while TQM is entirely an internal process (Frickx, 2015).

Institutions may choose to adopt and utilize the BPEP to improve performance or may apply for the MBNQA that necessitates a third-party review process (Frickx, 2015). Frickx (2015) found institutions choosing to pursue the MBNQA must implement the following applications process and evaluation procedures:

> The institution must prepare a self-study addressing all seven criteria. The self-study is submitted, reviewed and scored by a team of examiners trained in the criteria. Institutions may be selected for a site visit, during which the team evaluates and scores the institution against the Baldrige Criteria utilizing a pre-set

> rubric. A key element of the BPEP is the scoring guideline published with its criteria... This scoring guideline requires the institution to show not only that it has a process to satisfy the criteria (an approach), but also that the approach is systematically shared across the organization (deployment), that it has been evaluated and improved (learning) and that the approach works with and informs other processes in the institution. (p. 22)

The third-party review process is "unique among continuous improvement frameworks, and allows the evaluation to take into account how well an organization has integrated the identified processes into its activities" (Frickx, 2015, p. 22). Since 1999, five public school districts, one charter school, and three higher education institutions have earned the MBNQA (National Institute of Standards and Technology [NIST], 2015).

The Baldrige criteria are "leadership, strategic planning, customer focus, measurement, analysis and knowledge management, workforce and operations and results" (NIST, 2015, p. 18). The Baldrige criteria were initially established for use in the manufacturing, service, and small business sectors; however, the criteria were expanded in 1999 to support the education and health care sectors (Frickx, 2015). Since 1999, the Baldrige criteria have been implemented in systems supporting primary, secondary, and higher education throughout the United States (BPEP, 2011).

Systems Thinking Component to Continuous Improvement Processes

While researching the struggle of public school in America, Eck et al. (2011) stated, "This is both a people problem and a system problem; some suggest it is mostly a system problem" (p. 37). Bryan Goodwin (2011) summed up the importance of systems thinking as related to continuous improvement when he stated one must think

systemically while acting systematically. Goodwin (2011) reiterated the importance of this behavior when he noted, "Improvement efforts are most successful when organizations remain focused on simple changes, building on them as they progress toward a coordinated, systems wide response" (p. 14).

Educational institutions experiencing improved performance via continuous improvement processes actively engage in breaking down silos inherent in their organizations (Park et al., 2013). Park et al. (2013) posited these institutions utilize systems thinking in the following method to enhance performance:

> These institutions apply a systems-thinking approach to their work; as a result, of breaking down the silos and bringing together individuals from across the system is a natural part of how they do business. This allows them to understand the root causes of the problems they face, develop a collective vision for the entire organization, and to execute on strategies that recognize the interdependency of the organization's key processes. Most importantly, it builds a clear sense of shared accountability among all that workers and larger constituency. (p. 23)

Researchers Ellen Mandinach and Edith Gummer (2013) summarized the research of Park et al. (2013) when they stated systems thinking encourages organizations to "examine the structure or the interrelationships among components that influence behavior over time" (p. 33).

Bryk et al. (2015) concluded oversimplification of the term "system" by educators often causes them to overlook the significance of system components for improved outcomes. Bryk et al. (2015) stated the improvement of outcomes by an organization "is the product of interactions among the people who engage with it, the tools and materials

they have at their disposal and the processes through which these people and resources come together to do work" (p. 58). In simple systems, this oversimplification does not hinder improvement, as the interactions are few in number and the outcomes can be easily traced (Bryk et al., 2015).

In contrast, educational systems resemble complex systems where "the interactions are many in number and densely interconnected" (Bryk et al., 2015, p. 58). These systems "can manifest behaviors that one intentionally designed, and often it is hard to predict fully the outcomes that may ensue from attempts to change them" (Bryk et al., 2015, p. 58). This seemingly minor difference necessitates educational organizations transition from a focus of efforts for improvement to a focus of efforts on learning to improve (Bryk et al., 2015). The refocus of efforts on learning to improve demands educational organizations transition "toward a *design-development orientation,* in which we try out change ideas quickly, analyze what happens, modify the ideas based on what we think we have learned, retry, and continue this learning cycle towards system improvement" (Bryk et al., 2015, p. 58).

This transition necessitates the system be viewed in its entirety so desired outcomes may be achieved reliably on the appropriate scale (Bryk et al., 2015). Bryk et al. (2015) summarized this premise by asserting the addition of quality components to the system does not assure a quality result. Atu Gawande (2012) provided an analogy to the research findings of Bryk et al. (2015) in the following statement from his TED Talk address:

What if you build a car from the very best car parts? Well, it would lead

> you to put Porsche brakes, a Ferrari engine, a Volvo body, a BMW chassis. And you put it all together and what do you get? A very expensive pile of junk that does not go anywhere. (10:59)

Bryk et al. (2015) further corroborated Gawande's (2012) comments by stating organizations must attend to how the system components join "productively together for the people charged with carrying out this work and for those that they seek to serve. In short, we must make the system better" (p. 59).

The systems thinking component of continuous improvement assures a focus on the system for improvement before a focus on personnel (Bryk et al., 2015). Organizational improvement specialist Tom Nolan (2012) asserted poorly performing personnel typically only account for approximately 6% of an organization's performance problems. This finding led organizational researchers to identify disorganized work processes as the predominant cause of organizational failure (Bryk et al., 2015). The systems thinking component of continuous improvement empowers organizations to avoid "attribution error," which is the tendency for organizations to assign blame to the employees most closely associated with the unsatisfactory results (Bryk et al., 2015). This avoidance results in a realization that "improving productivity in complex systems is not principally about incentivizing more individual effort, preaching about better intentions, or even enhancing individual competence" (Bryk et al., 2015, p. 61).

Inherent Data-Driven Decision-Making Component in Continuous Improvement

Data-driven decision-making (DDDM) processes are an essential element of continuous improvement, as these processes "expose inequities, create transparency, and help drive organizational improvement" (Hess & Mehta, 2013, p. 72). Regarding

education, Mandinach (2012) affirmed, “It is no longer acceptable to simply use anecdotes, gut feelings, or opinions as the basis for decisions” (p. 71). The importance of DDDM processes in school improvement was illustrated by Ben Jensen (2013):

> Data-driven analysis is vital to a successful school turnaround. Before improvements can be made it is necessary to know what the problems are and where they lie. Continuous assessment helps to ensure that small failures do not snowball into major failures. (p. 12)

In the *U.S. Department of Education Strategic Plan for Fiscal Years 2011-2014*, Secretary of Education Arne Duncan demonstrated the importance of data-driven decision making when he stated, “I am a deep believer in the power of data to drive our decisions. Data gives us the roadmap to reform. It tells us where we are, where we need to go, and who is most at risk” (U.S. Department of Education, 2011, p. 1). The importance of the leader in utilizing DDDM was evidenced when Frabutt and Holter (2012) proclaimed, “A truly effective leader is one who systematically uses data to answer questions and takes an inquiry-based stance educational improvement” (pp. 254-255).

Mandinach (2012) described the importance of the systemic use of DDDM processes:

> It is a generic process that can be applied in classrooms to improve instruction as well as in administrative and policy settings. It can be applied by teachers, principals, superintendents, other administrators, data entry clerks, chief state school officers, and federal education officials. DDDM crosses all levels of the educational system and uses a variety of data from which decisions can be made.

> These include instructional, administrative, financial, personnel, transportation, welfare, health, demographic, perceptual, behavioral, process and other kinds of data. (p. 71)

Mandinach (2012) alleged DDDM processes should be implemented in all subsystems of an organization. This system-wide implementation of DDDM processes facilitates continuous improvement of highly systemic organizations (Mandinach, 2012).

The DDDM processes provide the inputs which empower organizations to create better procedures for conducting common work processes and creating mechanisms to respond to change in a rapid manner (Rosenberg, 2015). A key component of utilizing data in this manner is the organizational commitment to view failures as opportunities for improvement, as opposed to opportunities to cast blame (Bryk et al., 2015). Bryk et al. (2015) surmised, "Data are not blunt instruments for imposing sanctions and offering rewards; they are resources used to deepen understanding of current operations and to generate insights about where to focus efforts to improve" (p. 61).

Mandinach's (2012) research found that DDDM processes increase the capacity of individuals to improve the system within their sphere of influence. Mandinach (2012) asserted the system processes that enable the successful use of data by educators at local levels must include the following:

> Infrastructure aligned to educational goals, (c) making sure that the right data exist, (d) determining what the right data elements are to address educational questions and planning for their collection before a stakeholder requests an impact or return-on-investment study, (e) having an explicit vision for data use that

> address (f) an explicit need, and (g) providing the needed support and resources to make data-driven practices possible. (p. 82)

Further, Mandinach (2012) asserted, "The objective in DDDM is to move educators, schools, districts, and states from being data rich but information poor to using data and transforming them into actionable knowledge" (p. 82).

Challenges of Implementing Continuous Improvement Processes in Schools

Best and Dunlap (2014) cited Park et al.'s (2013) definition of continuous improvement in education as "a school, district, or other organization's ongoing commitment to quality improvement efforts that are evidence-based, integrated into the daily work of individuals, contextualized within a system, and iterative" (p. 1). Unfortunately, the inherent structures of educational institutions are not organized in ways to promote continuous learning (Park et al., 2013). Park et al. (2013) suggested the barriers associated with the implementation of continuous improvement frameworks include the following:

> Work is often done in silos, policy demands push for quick results, data isn't provided frequently or quickly enough for it to meaningfully inform and change practice, and poor outcomes are viewed as individual failures rather than a by-product of a misaligned system. (p. 7)

Although continuous improvement processes are less prevalent in educational institutions than other industries, the impetus on improved student performance amidst fiscal constraints is motivating the educational industry to consider continuous improvement frameworks (Park et al., 2013).

Also debilitating to the implementation of continuous improvement in education organizations is the need to build organizational capacity for implementation (Park et al., 2013). To build organizational capacity to ensure sustained continuous improvement processes, the entity must "invest time and energy in training staff to embed this process into day-to-day work and to create an organizational structure that supports the approach" (Park et al., 2013, p. 24). Evidence of the success educational institutions experience upon this investment is apparent in the practices of the School District of Menomonee Falls and Montgomery Country School District, which represent two of five public schools to win the prestigious MBQNA award (NIST, 2015; Park et al., 2013). The investment of time and resources in the building of this capacity is not indicative of the historical culture of educational organizations (Park et al., 2013). Eck et al. (2011) corroborated the importance of allocating sufficient time to the implementation of continuous improvement practices by citing a "lack of multi-year commitment to intensive, shared professional development" as one of the five predictors of reform failure (p. 21).

The diversity of user needs and processes in education often proves a challenge in implementing continuous improvement in education (Bryk et al., 2015). Consequently, attention must be given to identify unique user needs and associated processes for the educational system to realize success with continuous improvement (Bryk et al., 2015). Educational institutions have cited "long timeline[s] for implementation, the high cost in time and resources of committing to the process, and the inability to trace results to the use of the framework" as concerns associated with implementing TQM and Baldrige continuous improvement frameworks (Frickx, 2015, p. 23).

While elements and measures of organizational effectiveness are readily agreed upon in industry, consensus is difficult in the field of education (Frickx, 2015). The inherent difficulty in reaching consensus in the field of education originates from departmentalized missions, varied data measures, and differing purposes for the data (Lillis, 2012). Eck et al. (2011) emphasized even when goals are developed through broad participation, "school leaders have the challenge of fostering internal coherence. This is challenging because of the sheer number and variety of educational goals" (p. 26). Compounding these challenges is the expansion of roles the public education system are now expected to fill beyond those directly linked to student learning (Eck et al., 2011). In addition to student learning, "communities count on public schools to ensure students' safety and well-being; support social, civic, and ethical development; and to help students pursue individual talents and interests" (Eck et al., 2011, p. 25).

Additional contributing factors to the failure of schools to implement continuous improvement models on a large scale are extensive training requirements, unfamiliar vocabulary, and lack of incremental or gradual change (Ibach, 2014). Contributing to these inhibitors is the unwillingness of public school entities to embrace the possibility of sub-system failure in the interest of improvement (Eck et al., 2011). Eck et al. (2011) further illustrated this debilitating component of public education by stating, "The need to create and maintain safe reporting cultures" is a major factor in establishing high-performing educational systems (p. 40). The comfort level of persons to "identify errors in the system, even if they are the ones to commit them," is a key indicator of a safe reporting culture (Eck et al., 2011, p. 42).

Ultimately, Arnold and Marchese (2011) surmised the difficulty in education of duplicating the success of continuous improvement processes lies in the "disconnects between the continuous improvement model as operationalized in business and industry and the attempt to apply it in an unexamined fashion to educational environments" (p. 16). Bryk et al. (2015) corroborated this finding by stating the need for educational organizations to get "smarter about how to successfully replicate results under diverse conditions is the key analytic challenge for quality improvement" (p. 45). Unfortunately, Bryk et al. (2015) discovered, "No governmental or professional infrastructure currently exists for engaging educators in developing and testing such practice-based knowledge and synthesizing what is being learned along the way" (p. 46).

Success of Continuous Improvement Processes in Schools

Numerous researchers have provided evidence educational organizations have achieved impressive results after implementing continuous improvement processes (Best & Dunlap, 2014; Flumerfelt & Green, 2013; Park et al., 2013; Wilka & Cohen, 2013). Best and Dunlap (2014) identified "decreased failure rates, increased homework completion rates, increased Advanced Placement exam participation, increased kindergarten readiness, increased college enrollments, and more efficient use of funds" as performance goals achieved through continuous improvement processes (p. 1). This evidence should merit further consideration of continuous improvement processes by both education policymakers and practitioners (Best & Dunlap, 2014).

In any organization dedicated to continuous improvement, "change occurs both quickly and incrementally, as organizations learn from experience while testing and refining strategies to produce better results" (Best & Dunlap, 2014, p. 1). According to

Best and Dunlap (2014), "At the classroom level, continuous improvement may refer to using timely, accurate data to inform and improve teacher practice regularly" (p. 1). In addition, "At a school or district level, continuous improvement may refer to ongoing efforts to improve operational practices and processes related to efficiency, effectiveness, and student outcomes" (Best & Dunlap, 2014, p. 1).

Self-Efficacy and Data-Driven Decision Making

Self-efficacy is defined as belief in one's ability, not the actual ability, to perform a task or meet a goal (McCray, 2014). According to McCray (2014), an abundance of studies exist about self-efficacy, and researchers have determined self-efficacy impacts motivation, persistence, and performance (Federici & Skaalvik, 2012). McCray's (2014) research indicated in underperforming school districts there existed ambiguity "as to whether principals in this district believe that they have the ability to employ data driven decision making (DDDM) practices to improve student achievement" (p. 5).

The need to address self-efficacy of system leaders is evident in the following quote by a principal interviewed by Ginsberg and Multon (2011):

> It is impossible to make cuts in a district and not have it impact teachers and students. We cut a secretary and many tasks are now falling to teachers. This takes up their precious time to prepare for students. We cut a technology integration person, and now teachers are having to spend more time researching web sites and online projects. We cut a mail delivery person, and now secretaries and paras are having to do curbside pickup and drop-off of mail so the mail can travel on buses. It has further added to our already reduced office staff. (p. 45)

Ginsberg and Multon (2011) illustrated the need for a tool such as the leadership dashboard to support self-efficacy of principals through a response from a building principal who stated, “We are expected to do more and more with less and less, and the challenges are not getting any less while societal pressures on staff and student increase” (p. 45). Ginsberg and Multon (2011) identified a consistent trend of growing stress and concern among building principals associated with having to meet increasing demands with decreasing resources.

Impact of Accountability on Educational Leaders

McCray (2014) found sanctions associated with growing accountability have an adverse impact on the schools most in need of improvement. McCray (2014) cited the following evidence that inexperienced principals are ill-equipped to lead underperforming schools:

> Empirical knowledge is limited in terms of how to help inexperienced principals in low performing schools overcome the barriers of progressive NCLB sanctions and a lack of district support to improve student achievement. As a result, these schools do not show the growth called for by the law. (p. 2)

McCray (2014) proposed the negative impact is a result of the most underperforming schools being led by the most inexperienced principals.

A primary consequence of the accountability movement is that it demands building and district-level administrators seek out new strategies for using data effectively (McCray, 2014). Unfortunately, many educational leaders do not have the personal capacity to lead effective data processes to increase organizational capacity and improve educational performance (McCray, 2014). To build organizational capacity,

system leaders must be able to "read, understand, disaggregate, and teach other school level staff how to use assessment data to improve student achievement" (McCray, 2014, p. 3). McCray (2014) indicated increased accountability has undeniably led to a focus on DDDM, but it is still "unknown as to whether principals fully understand and have the capability to follow through on DDDM practices" (p. 5).

Tenets of a High-Reliability Organization

High-reliability organizations (HROs) are characterized by a preoccupation with failure where mistakes have catastrophic consequences and often end in human tragedy or widespread destruction (Eck et al., 2011). Eck et al. (2011) asserted an HRO incorporates multi-tiered structures within organizational processes to prevent errors and respond immediately. In addition to preventing errors, the HRO's multi-tiered structures exist to enable the organization to respond rapidly when errors occur in order to prevent tragedies and subsequent system failure (Eck et al., 2011). According to Eck et al. (2011), "Constant monitoring for the early signs of failure and responding quickly is another way HROs demonstrate the characteristic of mindfulness" (p. 3).

Researchers Eck et al. (2011) captured the relevance of HRO principles as they apply to public education with the following questions:

> What if school systems considered student failure as catastrophic as an airplane failing to land safely or a patient failing to recover from surgery? Moreover, what if educators viewed student failure not as the fault of the child, but as a failure of the system? For many, this will require changing core beliefs and assumptions about education. (p. 38)

Eck et al. (2011) cited the definition of an HRO as it applies to education as "high levels of student performance, achieved as a result of high-quality instruction, delivered through superior execution of effective research-based practices, with low variability in the quality of instruction within and between schools" (p. 3). Eck et al. (2011) proposed the principles of HROs that currently exist in other industries will enable public education to transition from "compliance driven organizations to world-class organizations" (p. 1). This transition will essentially be accomplished by "benchmarking against top performing education systems from around the globe" (Eck et al., 2011, p. 1).

This benchmarking of top-performing education systems provides the foundation for developing HROs in public education by providing public schools with a clear understanding of what has proven effective in high-performing education systems (Eck et al., 2011). Two necessary components of effective processes include the use of high-effect instructional strategies and the reliability of delivery of high-effect size instructional strategies (Eck et al., 2011). Researchers Eck et al. (2011) created the following pragmatic equation to illustrate the necessary components of effective processes: "Effectiveness of schooling = Effectiveness of the 'Technology' x Reliability of Delivery" (p. 6).

Leadership Dashboards as Improvement Strategies

Small-scale improvement strategies and tools are essential components of success and provide the foundation for large-scale improvement efforts and subsequent results (Goodwin, 2011). Bryan Goodwin (2011) illustrated the importance of small-scale improvement strategies:

> In fractal experiences, schools implement small-scale improvement processes that generate quick wins – which, in turn, encourage those implementing the changes to take on larger challenges. Because fractals are small, simple, and completed in a short time, it's easier for stakeholders to "connect the dots" between actions taken and outcomes produced. Moreover, the quick wins help to create a can-do attitude or a sense of academic optimism, which is a key predictor of school success. Quick wins encourage school staff members to undertake ever more complex and substantive improvement efforts which have the dramatic effect of transforming the school's culture. (p. 131)

Goodwin (2011) summarized schools with embedded management systems to identify and generate quick wins are most likely to realize sustained improvement.

Use of data dashboards in education. Data dashboards have become increasingly prevalent in education, as NCLB created an unprecedented focus on accountability (Rothman, 2015). Before the dissolution of NCLB, 43 states had received waivers, many of which included data dashboards as evidence for improvement (Rothman, 2015). The data dashboards have been implemented as a way to "track performance and hold schools, principals, and teachers accountable" (Rothman, 2015, p. 28). Prior to the passage of the ESSA, 43 states received waivers predicated upon the use of data dashboards to provide accountability (Erpenbach, 2014).

In addition to accountability, data dashboards convey transparency by providing tangible evidence of school performance in the areas of focus to internal patrons, external patrons, and public officials (Rothman, 2015). The areas of focus are typically predicated upon areas of low performance such as school operations, grades, and attendance

(Rothman, 2015). Although the areas of focus are often easy to ascertain, an effective dashboard must be comprised of appropriate indicators and performance targets (Rothman, 2015). Rothman (2015) confirmed for the data dashboard to be a tool of continuous improvement, the indicators and performance targets must ultimately be used to perpetuate the culture of continuous improvement.

Rothman (2015) stated appropriate indicators must "reflect the most significant measures of a school's performance. To that end, they rely on what are considered the most crucial outcome measures for that school, as well as research on the factors that contribute to high performance" (p. 30). Dr. Maggie Glennon, consultant for the Georgia Leadership Institute for School Improvement, reiterated the importance of narrow focus when she stated, "You have to prioritize. You can't do everything" (as cited in Rothman, 2015, p. 30). Limitation of the number of indicators embedded in the data dashboard provides additional assurance "schools continue to monitor the indicators and address the most crucial problems in school performance" (Rothman, 2015, p. 31).

Although the focus of individual dashboards must be succinct, each school district's dashboard is unique in regard to its choice of indicators (Rothman, 2015). The Monroe County dashboard, titled a "balanced scorecard," includes 70 individual measures associated with four indicators of student learning outcomes, organizational effectiveness, public engagement, and professional learning (Rothman, 2015). Alberta, Canada's district dashboard, titled the "school report," includes six indicators of "safe and caring schools; student learning opportunities; student learning achievement; preparation for lifelong learning, the world of work and citizenship; parental involvement; and continual improvement" (Rothman, 2015, p. 30).

California school districts qualify for the state funding formula by providing evidence they are monitoring indicators relevant to resources such as instructional materials, adequate facilities, and access to coursework associated with higher education prerequisites (Rothman, 2015). These districts utilize data dashboards to monitor the lead indicators and to comply with state funding guidelines (Rothman, 2015). Regardless of indicator selection, effective dashboards are fluid and allow organizations to modify indicators as desired results are achieved and additional performance concerns are identified (Rothman, 2015).

Appropriate performance targets for dashboard indicators must be established for the dashboard to serve as a tool for continuous improvement to drive performance over time (Rothman, 2015). Performance targets for dashboard indicators must be realistic, collaboratively identified, and easily measured (Rothman, 2015). The Monroe County School District established realistic performance targets based on current performance and expected growth toward an ultimate performance goal, as opposed to assigning 100% to any category (Rothman, 2015). Additionally, the performance target was established through collaborative negotiations between sub-system leaders and district administrators (Rothman, 2015). However, district administrators in Monroe County School District may require performance targets to be raised if the initial proposal is deemed too low (Rothman, 2015). Performance targets and associated progress are easily discerned through a color-coordinated scorecard that utilizes red, yellow, and green to demonstrate current status (Rothman, 2015).

When implemented as a tool for system improvement, the data dashboard has been credited with transforming the manner in which school districts address

accountability (Rothman, 2015). School districts utilizing data dashboards as a tool for improvement transcend the use of data for threats of intervention and utilize data to identify areas in need of improvement (Rothman, 2015). Assistant superintendent of the San Jose Public School District, Dr. Willis, credited data dashboards with the shift from accountability as punitive to accountability for improvement regarded much more favorably by building principals (Rothman, 2015). Dr. Willis identified the emerging culture of continuous improvement as the "polar opposite of the culture of mistrust that characterized the previous system" (Rothman, 2015, p. 32). In addition to providing further accountability, a data dashboard "enables educators to focus on particular problems and, equally important, to monitor and address all the issues that affect performance" (Rothman, 2015, p. 28).

The need for leadership dashboards. The era of accountability has caused educational leaders to "re-conceptualize their roles from managers of educational organizations to active collaborators in the management and improvement of instructional practice" (Mrachko, 2015, p. 14). Contrary to traditional educational dashboards predicated upon school or district outcomes, leadership dashboards are predicated upon clearly stated leadership inputs which drive school improvement initiatives (Kirkpatrick & Kirkpatrick, 2014). The lack of focus on specific implementation drivers has been identified as the source of fragmented implementation of system change in education (Kirkpatrick & Kirkpatrick, 2014). Bryk et al. (2015) illustrated the need to simplify the many processes of a complex system by stating, "The key to improvement is seeing the actual organization of work amidst this complexity" (p. 46).

Westover (2014) corroborated this finding in the following summary of McChesney, Covey, and Huling's (2012) research:

> Research points to the fact that if an organization focuses on more than three goals at one time, few if any will be attained. Three questions have proven instrumental for school districts in defining goals and strategies that build capacity to achieve desired results: 1. What is the compelling vision that defines what our school district strives to achieve? 2. How does data convey root causes of the constraints within our district-wide systems? 3. Which priorities are believed to have the greatest impact on student achievement? (p. 25)

Mrachko (2015) illustrated the dilemma of growing accountability by stating, "Policy makers have created a new paradigm for school leadership without providing all of the guidance or tools to effectively enact the imposed changes" (p. 17). The need for a tool such as the leadership dashboard was further illustrated in Brown et al.'s (2013) investigation of continuous school improvement, when researchers identified modeling, confronting, and monitoring as three of Rick DuFour's five activities leaders should focus upon to be effective change agents.

Brown et al. (2013) defined modeling as the leaders' "own commitment to continual development. Principals should act upon and assist in carrying out the prescribed plan for improvement" (p. 36). For leaders "to convey the importance of improvement, they must be willing to confront behavior which is detrimental to the improvement. Once a school has made a commitment to a particular improvement program, the boundaries of acceptable behavior have been set" (Brown et al., 2013, p.

36). Brown et al. (2013) further illustrated the importance of the dashboard's primary role of monitoring:

> One of the most powerful means by which a leader can convey the importance of something is by paying attention to it. The principal who devotes time and effort to the continual improvement sends a message that improvement is important. Defining measurement is one way a principal can monitor change. (p. 37)

Brown et al. (2013) found the overt monitoring of a defined measure empowers the principal to have a greater impact on the chosen focus for continual improvement.

Theoretical basis supporting leadership dashboards. To fully illustrate the need for leadership dashboards, one must investigate how "tools and processes scaffold effective ways of thinking and acting on complex systems" (Bryk et al., 2015, p. 65). Understanding the impact of this scaffolding on complex systems "is essential context for identifying promising changes and testing specific courses of action aimed at sustained, meaningful improvement" (Bryk et al., 2015, p. 2016). Bryk et al. (2015) provided an introduction to this foundation for networked improvement communities (NICs) and the proposed leadership dashboard in the following commentary:

> Three tools that can help a network represent its current understanding of a problem and identify key levers for change. When these tools and processes are used, knowledge held by different individuals can be unearthed, explicated, and the warrants for each examined. Along the way collective commitments form to guide the work ahead. (p. 66)

For this to occur, a NIC must develop a working theory of practice improvement (Bryk et al., 2015).

The foundation for establishing an educational NIC is the protocol termed "causal system analysis," which is utilized to investigate the sources of unsatisfactory outcomes in the education system (Bryk et al., 2015). The question, "Why do we get the outcomes that we currently do?" is used to drive the causal system analysis process (Bryk et al., 2015, p. 66). This questioning process necessitates "participants [to] develop a common understanding of the specific problem or problems they are trying to solve" (Bryk et al., 2015, p. 66). The natural evolution is for participants to first see the system through the lens of their perspective and then through conversations gain a system-wide view of the systemic processes (Bryk et al., 2015). This process provides the first litmus test to determine if the team can become a focused NIC (Bryk et al., 2015).

The first step in the causal analysis process is to determine the specific problem the team must address to improve outcomes (Bryk et al., 2015). The natural tendency of teams first engaging in this step is to describe the problem in very broad terms resembling a goal rather than a specific improvement target (Bryk et al., 2015). Broad goals at this step in the process are too general to serve as improvement problems, as they are the "aggregation of countless processes over extended periods of time and multiple contexts" (Bryk et al., 2015, p. 66). Bryk et al. (2015) proposed sufficient time and attention be allocated to description of a problem, as system improvement undeniably requires a specific improvement target.

The fishbone diagram is the primary collaborative tool teams utilize to visibly represent the product of discussions associated with the aforementioned question, "Why do we get the results observed?" (Bryk et al., 2015, p. 66). According to Bryk et al. (2015), "Each major bone represents a key factor thought to contribute to the

unsatisfactory outcomes. The smaller bones capture the details that emerge from conversations about these factors" (p. 68). Typically a fishbone diagram consists of five or six key factors represented as major bones, and multiple contributing factors are represented as smaller bones (Bryk et al., 2015). Researchers Bryk et al. (2015) stated practitioners who have been past victims of attribution error might attempt to skip this causal system analysis procedure and focus immediately on potential solutions. This tendency reinforces the need to develop a proper culture of continuous improvement to view data as essential tools to identify opportunities for improvement (Bryk et al., 2015). Bryk et al. (2015), reiterated although this analysis procedure "can be trying, it is a critical prelude to tactical action" (p. 70).

Following the brainstorming session associated with construction of a fishbone diagram, the next step in the causal system analysis procedure is to create a system improvement map (Bryk et al., 2015). A system improvement map is an analytic tool that "represents what we learn through these discussions about how the institution is organized to carry out work in a particular area" (Bryk et al., 2015, p. 70). The system improvement map is not intended to provide an exhaustive depiction of the system, but is intended to identify essential interactive subsystems that will likely encompass future improvement work (Bryk et al., 2015).

In the following text, Bryk et al. (2015) provided an overview of the interactive subsystems associated with the complex educational system:

> For educational institutions such as school districts and colleges, the subsystems most germane for student success consist of an instructional core (i.e., courses, programs of study, and various materials and technologies to support this); a

> human resources subsystem that provides staff to teach and support this core; an information infrastructure that collects and organizes data to guide and manage institutional activity, a vast array of academic, social-behavioral, and psychological support services for students and their families; and institutional governance, including budgeting, financial aid, internal policy making, and external relations. Mapping these subsystems provides one conceptual organizer for the system improvement map. (p. 70)

As the system causal analysis proceeds, the organization enters into the second phase focused on identifying a working theory of practice improvement (Bryk et al., 2015). With the material gleaned from the fishbone diagram and the system improvement map, the team must now determine how and where changes might be introduced for maximum impact (Bryk et al., 2015). Due to the complexity of the system, it is impossible to address each item on the map at one time, so the intent is to identify a limited set of powerful drivers to initiate improvement (Bryk et al., 2015).

Bryk et al. (2015) summarized the system improvement activity process:

> Building a working theory of practice improvement is neither straightforward nor obvious. It requires blending observations from the causal systems analysis with relevant research and wise judgments from expert educators. The most compelling improvement hypotheses often exist at the intersection of these "three voices" – how does the system appear to work; what does relevant theory and empirical research suggest about promising changes; and what seems plausible to educators who might try out these changes in these changes in their classrooms, schools, and colleges? (p. 73)

Drivers not initially identified for targeted improvement may be moved to the forefront as the improvement process proceeds (Bryk et al., 2015).

The third step in the causal system analysis is to utilize a driver diagram, which organizes the improvement efforts the networked improvement community will implement (Bryk et al., 2015). The driver diagram "gives participants a common language as they build toward a solution to a shared problem" (Bryk et al., 2015, p. 73). According to Bryk et al. (2015), "The diagram focuses on a small set of hypotheses about key levers for improvement, specific changes that might be attempted for each, and the interconnections that may exist among them" (p. 73). Each component or step of the diagram is logical, but the sum of the parts can become quite complex depending on the spectrum of the proposed changes (Bryk et al., 2015). Primary drivers are selected for concentrated improvement efforts (Bryk et al., 2015). Bryk et al. (2015) continued, "In essence, the primary drivers are a network's best initial bets about what to target in the context of causal system analysis" (p. 74). A goal termed the measurable improvement aim is established for the primary drivers selected (Bryk et al., 2015).

Even with the intentional elaboration associated with the selection of primary drivers, it is necessary to further dissect the focus for improvement efforts by identifying secondary drivers (Bryk et al., 2015). Secondary drivers are the key levers the team feels will yield the most production from improvement efforts (Bryk et al., 2015). According to Bryk et al. (2015), "Finally, building off each secondary driver, and moving into finer detail are the actual change ideas to be developed, tested, and refined" (p. 76).

Bryk et al. (2015) summarized the initiation of the theory of practice improvement:

> The theory of practice improvement considers new work processes that may be added, existing processes that may be changed, new tools that may need to be designed and tested, and new norms required to sustain productive change. Since variability in performance often starts here, this is a place to consider opportunities for introducing standard work. (p. 76)

Fullan and Quinn's (2016) research of recent whole educational system improvement efforts identified "right drivers" for school improvement initiatives. The right drivers identified by Fullan and Quinn (2016) for whole system improvement are "capacity building, collaboration, pedagogy, and systemness" (p. 3). The holistic nature of the right drivers and the systemic nature of schools require school leaders to adopt a very intentional approach to monitoring these drivers (Fullan & Quinn, 2016). The intentional approach is evidenced in the following statement from Laura Schwalm, Superintendent of Garden Grove Unified School District, and cited by researchers Fullan and Quinn (2016):

> You need to be preoccupied with focus, a state or condition permitting clear perception or understanding; to direct your attention or effort to something specific; a main purpose or interest to focus is often overwhelmed by the number and magnitude of the problems faced by the system leader. You need "one main thing" or central improvement strategy that consists of the leaders' non-negotiable view of what, over time, will have the greatest impact on improving the system's performance for children. (pp. 8-9)

Although the system improvement process identified by Fullan and Quinn (2016) is complicated, it does provide the framework to identify and manage focused improvement drivers.

Summary

Public education entities are faced with significant challenges in their pursuit of becoming high-reliability organizations. This pursuit has resulted in public education adopting many continuous improvement processes proven successful in private industry. This chapter included a review of legislation that has increased accountability of public education, continuous improvement processes adopted by public education, and inherent differences between public education and private industry.

Federal legislation such as the NCLB Act and the ESSA have resulted in greater accountability for public education (Mrachko, 2015). Enhanced accountability has resulted in the increased use of data and a culture of evidence predicated upon continuous improvement processes (Eaton, 2012). Proliferated use of data in the form of data-driven decision making by public educators has resulted in mass adoption of continuous improvement methodologies proven successful in private industry (Bryk et al., 2015).

This chapter also included an exploration of the highly systemic nature of public education organizations and the low self-efficacy of public school leaders for leading continuous improvement processes (McCray, 2014). Each of these characteristics has inhibited the successful implementation of continuous improvement processes (Bryk et al., 2015). Bryk et al. (2015) also surmised a tool such as the leadership dashboard might provide the foundation for a network improvement community essential in sustaining continuous improvement in a highly systemic organization.

Chapter Three includes detail on methodology and research design of this study. The population, sample, and instrumentation are presented. Then, the process of collecting and analyzing data are discussed. Chapter Four contains information collected

from the interviews of school system leaders regarding their perceptions of leadership dashboards. The findings, conclusions, implications for practice, and recommendations for future research are presented in Chapter Five.

Chapter Three: Methodology

Researchers have documented numerous cases of school districts achieving success through system-wide continuous improvement strategies (Flumerfelt & Green, 2013; Park et al., 2013; Wilka & Cohen, 2013). However, Arnold and Marchese (2011) stated the inability of educational organizations to replicate the success of private industry can be attributed to five disconnects between the two entities. The five disconnects include reduction versus intensification of effort, tangible versus intangible products, determinate versus indeterminate cycles, closeness versus distance between production and judgment, and focus on inputs and processes versus outcomes (Arnold & Marchese, 2011).

In Arnold and Marchese's (2011) description of disconnects, what is often lacking in the application of continuous improvement to the highly systemic field of education is the ability of the system leader to immediately apply effort and intuition and to rapidly monitor the subsequent impact on the processes in question. Park et al. (2013) validated this finding by citing system leaders who succeeded in deploying effective continuous improvement strategies "set the agenda, provided the conditions in which it could be pursued, and monitored progress in adopting the continuous improvement perspective" (p. 23). Jay Westover (2014) credited researchers Kirkpatrick and Kirkpatrick (2014) with identifying a lack of clearly defined implementation drivers as the primary cause of fragmented implementation in schools. Kirkpatrick and Kirkpatrick (2014) categorized the implementation drivers into four levels of formative feedback that require the leader to possess a skillset or tools to monitor and quickly respond to feedback. The Every Student Succeeds Act (ESSA) confirmed the need for this tool by charging state

departments and school districts with “more hands-on work in a variety of policy areas where the federal government called the shots in recent years” (Burnett, 2016, p. 1).

Problem and Purpose

In the interest of school accountability, policymakers throughout the nation have expanded legislation impacting the country’s schools without providing the necessary guidance or system tools to implement change (Mrachko, 2015). Researchers in the area of educational system improvement have identified the following drivers as essential components for whole-system improvement: “capacity building, collaboration, pedagogy and systemness” (Fullan & Quinn, 2016, p. 3). The holistic nature of the “right drivers” and the systemic nature of schools necessitate school leaders adopt a very intentional approach to monitoring these drivers (Fullan & Quinn, 2016).

The purpose of this study was to examine the perceptions of school administrators and directors regarding the effectiveness of leadership dashboards in focusing their actions in a manner congruent with their organizational improvement plans. Mrachko (2015) found the mounting emphasis on accountability by legislators has increased the expectations and job description of educational leaders without providing “guidance or tools to effectively enact the proposed changes” (p. 17). Brown et al. (2013) validated the need for additional leadership tools to guide leadership efforts by identifying modeling, confronting, and monitoring as three of Rick Dufour’s five activities leaders should deploy to be effective change agents. Leadership dashboards have been implemented to increase leadership capacity to meet accountability measures and to enable effective change agents.

Research questions. The following research questions guided the research to examine the type of systemic improvement tool that could provide focus to administrative behaviors and increase administrator efficacy in continuous improvement:

1. How does the leadership dashboard enhance system improvement?
2. How does the leadership dashboard enhance the personal efficacy of system leaders?
3. How does the fidelity of implementation of leadership dashboards impact system improvement?

Research Design

The qualitative research approach was deemed appropriate to investigate the perceptions of school administrators and directors of a Missouri public school district regarding the effectiveness of leadership dashboards in guiding continuous improvement (Creswell, 2014). Participants who were selected and who agreed to participate in the study were asked to provide their opinions regarding the effectiveness of leadership dashboards. Interviews were conducted by an independent proctor to assure anonymity of participants and their responses.

Before beginning any research, Institutional Review Board approval was obtained (see Appendix B). Permission was granted from central office administration in the participating school district in Missouri (see Appendix C). Additionally, permission was granted from the Board of Education of the participating school district in Missouri (see Appendix D).

Perceptions of leadership dashboards are not easily quantified through the accumulation of data or statistics. A qualitative research methodology was selected, as it

"does not forecast what is to happen in the future; rather, it is an analysis that provides a depth of understanding for those who are interested in the events of a particular setting and time" (Zeeck, 2012, p. 32). Qualitative research also "focuses on a specific situation or people [with an] emphasis on descriptions rather than numbers" (Maxwell, 2013, p. 30). Additionally, Robert Baker (2016) cited Fraenkel, Wallen, and Hyun (2014) when he stated, "Qualitative methods are best when researchers are hoping to study the quality of activity as opposed to how often the activity occurs" (p. 47).

Ethical Considerations

Following approval by the Lindenwood Institutional Review Board, a process was implemented to assure anonymity of the participants in the study. Participants received a letter of participation (see Appendix E) and an Informed Consent for Participation in Research Activities form (see Appendix F) from the researcher. The letter of participation requested potential research participants respond directly to an independent proctor employed by the researcher.

The independent proctor selected for this research was an executive administrative assistant employed by a local municipality. The independent proctor's job duties for the local municipality included participation and documentation of confidential meetings. The independent proctor had also received training in the Family Educational Rights and Privacy Act (FERPA) requirements as part of his employment. The independent proctor conducted a random number identifier to select participants for the research. All interviews were conducted by the independent proctor; responses were transcribed and then forwarded to the researcher. Any personal information regarding the research participants and their responses to the interview questions remained confidential

throughout the study. All data and documents relating to the research participants were housed in a secure location under the supervision of the independent proctor.

Population and Sample

The research for this study was site-specific. The site for the research participants was a public school district in Missouri that began the deployment of continuous improvement strategies in the fall of 2012. The district enrollment was 4,717 students with a free and reduced price meal rate of 44.5%. The student ethnic composition was 90.8% White, 3.4% Hispanic, 3.0% Multi-Racial, 1.6% Black, 0.8% Asian, 0.3% Native American, and 0.1% Pacific Islander. The special education rate was 12.42%. The district employed 390 certified staff members and 267 classified staff members. Prior to the fall of 2012, the district did not utilize continuous improvement strategies such as systems thinking, data-driven decision making, customer feedback protocol, plan-do-study-act plans, or system improvement plans.

Purposeful criterion-based sampling was utilized, because the expectation of phenomenological studies is "that all participants share the same experiences or specific characteristics" (Dawson, 2015, p. 34). This type of sampling involves recognizing and choosing the participants who are most knowledgeable of the item of interest or experienced in the area of interest (Creswell, 2014). Criterion-based sampling assured each of the research participants possessed the same experiences associated with the research site and leadership dashboard tool.

The research sample included 23 school administrators from a school district that implemented leadership dashboards starting in the 2012-2013 school year. The potential research participants included the following positions: one Assistant Superintendent of

Academic Services, one Executive Director of Operations, one high school principal, one middle school principal, one Director of Early Childhood, one Director of Special Education, one Director of Curriculum Instruction and Assessment, one Director of Informational Technology, five elementary principals, five elementary assistant principals, two middle school assistant principals, and three high school assistant principals. Due to mobility, the participants have utilized leader dashboards for differing periods of time. Table 1 summarizes the participants and the amount of time each has utilized the leadership dashboard.

Table 1

School Administrators and Length of Time Utilizing Leadership Dashboards

Position	School-Year Implementation
Assistant Superintendent of Academic Services	2013
Executive Director of Operations	2012
Director of Curriculum, Instruction, and Assessment	2014
Director of Special Education	2014
Director of Early Childhood	2013
Director of Informational Technology	2014
High School Principal	2015
Middle School Principal	2013
Elementary Principal 1	2012
Elementary Principal 2	2013
Elementary Principal 3	2012
Elementary Principal 4	2013
Elementary Principal 4	2013
High School Assistant Principal 1	2014
High School Assistant Principal 2	2014
High School Assistant Principal 3	2015
Middle School Assistant Principal 1	2012
Middle School Assistant Principal 2	2015
Elementary Assistant Principal 1	2012
Elementary Assistant Principal 2	2013
Elementary Assistant Principal 3	2015
Elementary Assistant Principal 4	2015

The potential research participants acknowledged their willingness to participate in the study by responding directly to the independent proctor. Of the 23 potential research participants, 18 agreed to take part in the study. The independent proctor assigned a number to each potential research participant who agreed to participate. The independent proctor then utilized a random number identifier to identify eight research

participants. The independent proctor then contacted the research participants and established times to conduct the research interviews by phone.

Instrumentation

Interview questions were created to elicit the perceptions of school administrators and departmental directors (see Appendix G). Interview questions were field tested by two area superintendents and by the dissertation committee chairpersons. Field testing was utilized to ensure the reliability of the research by improving the appropriateness of the interview questions (Fraenkel et al., 2014). Appropriateness of interview questions was enhanced by making modifications following the field tests. Modifications were made to ensure the interview questions adequately addressed each of the primary research questions.

Research question one. Does the leadership dashboard enhance system improvement?

Research participants were asked if their leadership dashboards impacted the performance of the systems under their leadership. This question was asked to determine if leaders perceived their leadership dashboards contributed to system improvement and assisted them in overcoming the inability of educational systems to replicate the success of continuous improvement strategies in private industries. Park et al. (2013) found the organizational structures of educational systems are not structured in a manner to promote continuous improvement and actually hinder growth. Bryk et al. (2015) followed up these findings by stating for a system to improve it must create a working theory of practice improvement that identifies and addresses key drivers for system

improvement. The intent of a leadership dashboard is to determine and monitor the key drivers for system improvement (Rothman, 2015).

Participants in the study were asked if the leadership dashboard assisted them in sustaining system improvement plans. This question was asked to determine if research participants perceived the dashboard assisted them in sustaining improvements in the highly systemic educational system where legislation results in frequent changes to accountability measures. Sustained improvement in educational organizations is made more difficult by highly systemic structure and departments with varied goals and work processes (Park et al., 2013). Eck et al. (2011) surmised continued federal legislation aimed at public education has perpetuated the barrier to sustained improvement by creating additional legislative requirements with no clear accountability measures.

Research question two. Does the leadership dashboard enhance the personal efficacy of system leaders?

Participants in the research study were asked what barriers make it difficult to focus leadership actions on improvement processes such as departmental or school improvement plans. This question was posed to investigate the types of inherent distractions that prevent system leaders from focusing on actions that directly impact system improvement. Eck et al. (2011) indicated the significant expansion of expectations and roles in public education has hindered the ability of school leaders to focus on specific school improvement drivers. The expanded role of public education and the inability to focus on specific drivers have resulted in more difficulty achieving consensus in the field of education (Frickx, 2015).

Research participants were asked if the leadership dashboard assisted them in linking daily leadership actions to system improvement tools such as building or departmental improvement plans. This question was asked to investigate if the leadership dashboard served as a crosswalk between specific leadership actions and system improvement processes. The difficulty for leaders in a systemic system is the inability to establish a unified vision or to establish specific priorities that have the greatest impact on student achievement (McChesney et al., 2012). Bryk et al. (2015) further corroborated this finding by stating it is imperative individuals in a system establish a system-wide view of processes by creating clear individual perspectives of their impact on system improvement.

System leaders engaged in the research were asked if leadership dashboards enhanced their effectiveness as leaders. The question was asked to determine the impact of leadership dashboards on each leader's self-efficacy to promote system improvement. Ginsberg and Multon (2011) recognized self-efficacy of school leaders is of primary concern in leading school improvement amidst the growing scope of responsibility in public schools. McCray (2014) defined self-efficacy as one's belief in one's ability to perform a task or meet a goal. McCray (2014) confirmed the research of Ginsberg and Multon (2011) by stating leaders in underperforming districts possess a lack of confidence in their ability to lead system improvement.

Research question three. Does the fidelity of implementation of leadership dashboards impact system improvement?

Research participants were asked during what period they utilized the leadership dashboard. This question was chosen to investigate the importance of sustained

leadership focus. The research of Brown et al. (2013) confirmed the importance of sustained leadership focus by illustrating the importance of monitoring key improvement targets over time. Bryk et al. (2015) supported this research in their identification of the three steps of causal analysis to drive improvement and confirmed the system improvement map must be implemented over a period of time.

Participants engaged in the study were asked if the staff under their leadership were aware of their dashboard measures. This interview question was chosen to examine the impact of overt leadership actions on system improvement. Brown et al. (2013) found the most impactful way a leader can communicate the importance of an improvement measure is by publicly monitoring it. Brown et al. (2013) also asserted leaders must follow-up on the monitoring phase by consistently responding to the measures and by modeling system improvement behaviors.

Leaders engaged in the research study were asked to share the current focus of their leadership dashboards. This question was asked to determine the variety of leadership dashboard targets among the system's leaders. Robert Rothman (2015) found leadership dashboards must be specific to a system's needs and ability to monitor improvement. The leadership dashboard must contain specific system measures if it is to serve as a crosswalk between personal behaviors and system improvement processes (Goodwin, 2011).

Research participants were asked to explain how their leadership dashboards have evolved. This question was posed to determine if leaders modified the focus or implementation of leadership dashboards over time. Bryk et al.'s (2015) investigation of system improvement revealed teams typically begin the improvement process by

establishing broad system goals too general to monitor or to address successfully. Teams and leaders experienced in system improvement establish specific improvement targets easier for all members of the team to conceptualize and monitor (Bryk et al., 2015).

Data Collection

Before the interviews, a meeting was held between the researcher and independent proctor. The purpose of the meeting was to educate the independent proctor on the nature of the research, familiarize the independent proctor with interview questions, review the research process, review the process to assure anonymity of the research participants, and allow the researcher to ask questions. The independent proctor utilized this opportunity to determine appropriate prompting to be used during the interview process.

The independent proctor contacted each of the research participants via phone to conduct research interviews. Responses from research participants were recorded by the independent proctor. Bloomberg and Volpe (2016) stated, "As a further indication of validity, where possible, researchers should document feedback on their interpretation of data from study participants" (p. 159). The independent proctor provided further indication of validity by repeating the responses from the research participants following each question. Upon completion of the interviews, the independent proctor transcribed the responses and provided an electronic transcript to the researcher. This process ensured anonymity of all research participants.

Data Analysis

The interviews were recorded and transcribed by the independent proctor. The completed transcripts were then sent electronically to the researcher. Responses were

analyzed using coding methods to "identify significant patterns and construct a framework for communicating the essence of what the data revealed" (Bloomberg & Volpe, 2016, p. 159). Open-ended interview questions accompanied by evolving themes resulted in a more comprehensive qualitative study (Creswell, 2014).

Data analysis necessitates keen attentiveness to the data and objectivity in identifying recurring themes or trends (Guest, MacQueen, & Namey, 2012). Responses were analyzed using coding methods to identify trends, themes, and key descriptors. Coding is a method of arranging data into categories to permit the qualitative researcher to make sense of the data (Creswell, 2014).

The responses of participants to each interview question were reviewed several times. Following the reviews of responses, key descriptors were identified and coded using colored pencils for key descriptors, as suggested by Creswell (2014). The color-coded key descriptors were then grouped into common themes and categories. The common themes and categories were placed in a table to facilitate interpretation of the data.

Summary

This qualitative study involved system leaders in a Missouri public school district. Qualitative data were collected through interviews conducted by an independent proctor. The interviews were constructed to elicit responses regarding the participants' perceptions of leadership dashboards. Responses to the interview questions were transcribed by the independent proctor and forwarded to the researcher. The responses were then recorded and coded to reveal common themes.

In Chapter Three, the methodology used in this qualitative study was delineated, and a summary of the problem and purpose of the study was provided. Descriptions of the population, sample, and instrumentation used to gather data were provided. Lastly, data collection and description of data analysis methods were provided. Participant responses to surveys and a subsequent analysis of responses are included in Chapter Four. Chapter Five includes findings, conclusions, implications, and recommendations for future research.

Chapter Four: Analysis of Data

The purpose of this study was to examine the perceptions of school administrators and directors regarding the effectiveness of leadership dashboards in focusing their behaviors in a manner congruent to their organizational improvement plans. Arnold and Marchese (2011) illustrated the difficulty in replicating private industry's success of continuous improvement methodologies in public education in the following posit:

> The standard response to doubt is to be urged to do more: collect more data, act more frequently, document more thoroughly − this *has* to work. But the problem may not be insufficient effort. It may lie instead in disconnects between the continuous improvement model as operationalized in business and industry and the attempt to apply it in an unexamined fashion to educational environments. (p. 16)

As their name suggests, the essential goal of continuous improvement methodologies is to sustain improvement of an organization so it may be deemed highly reliable in terms of producing desired results (Eck et al., 2011). Eck et al. (2011) defined a high-reliability organization as it applies to educational systems: "high levels of student performance, achieved as a result of high-quality instruction, delivered through superior execution of effective research-based practices, with low variability in the quality of instruction within and between schools" (p. 3). The culture of all high-reliability organizations is a preoccupation with failure and subsequent prevention of failure (Eck et al., 2011).

Federally mandated accountability systems have created a need for public education systems to pursue the tenants of high-reliability organizations (Eck et al., 2011). Paramount to the successful creation of a culture of continuous improvement and

high reliability is the dedication of central office leadership to support increased organizational capacity (Wayman, Cho, Jimerson, & Snodgrass Rangel, 2010). To successfully implement continuous improvement structures, central office leaders must provide systematic processes to ensure systemic improvement and a clear focus on specific organizational goals (Wayman et al., 2010). Unfortunately, the field of education does not lend itself to specific, measurable organizational goals, nor does it systematically equip system leaders with the necessary tools to lead continuous improvement initiatives (Mrachko, 2015). Bryk et al. (2015) found these items are all representative of a complex system characterized by an abundance of interactions between loosely related and densely interconnected systems.

Bryk et al. (2015) proposed the hurdle in leading complex systems toward high reliability is the difficulty to "predict fully the outcomes from attempts to change them" (p. 58). Compounding this difficulty is the additional challenge of "seeing the actual organization of work amidst this complexity" (Bryk et al., 2015, p. 46). Central to the success of complex system leaders in meeting the aforementioned challenges is the identification of high-leverage processes (Bryk et al., 2015). High-leverage processes possess the following properties: "(1) they consume substantial resources, especially teacher or student time; (2) their execution and outcomes vary considerably; and (3) there are reasons to believe that changes in these processes might yield significant improvements" (Bryk et al., 2015, p. 47). Bryk et al. (2015) suggested high-leverage processes abound in education, and "improvement research here can make a big difference" (p. 47).

Bryk et al. (2015) asserted high-leverage processes should be detailed out as standard work to ensure the systematic nature of associated processes. The concept of standard work was further explored in the following research by Bryk et al. (2015):

> The concept of standard work is central to quality improvement, but it is also a multifaceted and carefully nuanced idea. It can be easily confused, for example, with efforts to de-skill professional practice. Its goal is exactly the opposite. The development of standard work aims to better support the activities that professionals engage in so that they are more likely to achieve positive outcomes reliably over and over. (p. 47)

The systemic nature of high-leverage processes and the challenge of developing associated standard work in the complex educational system may be the primary inhibitors to continuous improvement in education (Bryk et al., 2015).

For the purposes of this study, the potential of leadership dashboards in monitoring standard work and impacting high-leverage processes was examined. The investigation of leadership dashboards addresses the aforementioned need for additional research in the area of high-leverage processes (Bryk et al., 2015). The impact of leadership dashboards was studied to determine if they aid school leaders in providing a systematic focus on leadership actions to facilitate school improvement.

The researcher wanted to gain a more thorough understanding of the system leader perceptions of leadership dashboards through a qualitative approach based on the following research questions:

1. Does the leadership dashboard enhance system improvement?

2. Does the leadership dashboard enhance the personal efficacy of system leaders?
3. Does the fidelity of implementation of leadership dashboards impact system improvement?

Qualitative data were collected through phone interviews conducted by an independent proctor. Research participants included central office administrators, building principals, building assistant principals, and departmental directors. All participants were asked open-ended questions regarding their perceptions of the effectiveness of leadership dashboards in organizational improvement.

Interviews were the primary data collection tool for this study. All interviews were conducted by an independent proctor. The independent proctor audio-recorded all interviews and provided a transcription of interviews to the researcher. All participants in the study were active administrators in a Missouri school district that has deployed leadership dashboards.

Research Question One

Does the leadership dashboard enhance system improvement?

Interview question three. Has the leadership dashboard assisted you in sustaining improvement plans? If so, how?

Seven of the eight leaders acknowledged the leadership dashboard assisted them in sustaining improvement plans. The dissenting leader did not answer "no" to this question but did state, "The biggest thing that has driven our school improvement is our Building School Improvement Plan and not our dashboards." All of the assenting leaders acknowledged the leadership dashboard assisted them in sustaining improvement plans

by overtly linking leadership behaviors to actions that impact the desired improvement. Leader 4 demonstrated the personal nature of the leadership dashboard and the dashboard's impact on his or her sphere of focus in the following manner:

> My dashboard last year had to do with communication, and before I had that as a dashboard I did not pay a lot of attention to communication, and when I did, it was in a very haphazard way. Having that dashboard that measured the amount of communications that I did and through what channels really focused me on what I was trying to accomplish.

Leader 1 summarized the experience in a like manner by stating the leadership dashboard "reminds us every day and every week and every month of the goals that we set for ourselves and the behaviors that we wanted to monitor."

In the following statement, Leader 7 credited the leadership dashboard with providing structure to identify and monitor seemingly small behaviors to aid him or her in moving the system forward:

> I came on mid-year; I didn't have the training for the evaluation process, so I didn't have that type of dashboard like many of the administrators had. Mine was more on relationship building since I came into a new school half-way through the year. Mine was more about relationship building with the staff, leaving positive notes in all the classrooms monthly, also riding the buses to help build relationships with the bus drivers to try to reduce discipline and show that we are supporting them when they do provide us discipline referrals.

Leader 7's responses echoed many of the other six leaders who indicated the leadership dashboard benefitted them by acting as a driver for leadership behaviors that impact system improvement plans.

Seven of the eight leaders interviewed for this study stated the leadership dashboard assisted them with sustaining system improvement plans. Seven of the eight leaders suggested the leadership dashboard assisted them by monitoring actions that directly impact system improvement plans, and three of the leaders mentioned the dashboard reminded them of the goals contained in system improvement plans (see Table 2). Only one leader indicated the leadership dashboard did not assist him or her in sustaining system improvement plans.

Table 2

Manner in Which Leadership Dashboard Assisted in Sustaining Improvement

Participant	Assistance	Reminder of Improvement Goals	Focused Leadership Behaviors
Leader 1	Yes	X	X
Leader 2	No		
Leader 3	Yes		X
Leader 4	Yes	X	X
Leader 5	Yes		X
Leader 6	Yes	X	X
Leader 7	Yes		X
Leader 8	Yes		X

Interview question four. Has the performance of the system under your leadership been impacted by your leadership dashboard? If so, how?

Seven of the eight leaders in the study stated the performance of the system under their leadership had been positively impacted by their leadership dashboards. Assenting leaders credited enhanced focus on personal actions as the primary leadership dashboard driver in improving system performance. The response from Leader 6 summarized the collective feedback of assenting leaders:

> The dashboard kind of keeps me focused on what's really important, and I also use that data to show to the teachers or my fellow administrators when they inquire about why I am doing things the way that I am doing them.

Leader 4 echoed this statement by replying, "[The dashboard] allowed me to stay focused on what is important, which is teachers and student learning." The dissenting leader credited increased emphasis on Building School Improvement Plans rather than dashboards as the reason for improved performance.

Seven of the eight leaders responded the leadership dashboard impacted the performance of the system under their leadership. Six of the eight leaders shared the system under their leadership was affected by the enhanced focus of leadership actions (see Table 3). One leader indicated the system had not been significantly impacted by the use of a leadership dashboard.

Table 3

Impact of System Performance by Leadership Dashboard

Participant	Assistance	Focused Leadership Behaviors
Leader 1	Yes	
Leader 2	No	
Leader 3	Yes	X
Leader 4	Yes	X
Leader 5	Yes	X
Leader 6	Yes	X
Leader 7	Yes	X
Leader 8	Yes	X

Research Question Two

Does the leadership dashboard enhance the personal efficacy of system leaders?

Interview question one. What are the barriers that make it difficult to focus leadership actions on improvement processes?

Although the eight leaders participating in the study identified various items as barriers, they were consistent in addressing several items. Six of the eight leaders made statements that identified the highly complex nature of public schools as the primary barrier in focusing their leadership actions. Leader 1 stated, “Goals are not easy to track, and therefore sometimes the behaviors that you want to monitor are even harder to track.” Leader 8 noted complexity was also evident in the varying skillsets of the individual staff

members and overall team. In addition to varying skillsets of intradepartmental staff members, Leader 6 referenced the difficulty in meeting the various needs of departments as a barrier in focusing leadership behaviors. Leader 6 explicitly referenced ongoing difficulty in identifying and consistently meeting the varied needs of instructional, administrative, and custodial staff.

Five of the eight leaders referenced time and interruptions as barriers that make it difficult to focus leadership actions on improvement processes. Leader 8 summarized the issue of time by stating, "You might start the day knowing what you want to spend your time on, and the next thing you know it is 5:00 p.m. and you didn't get it done, but you have been busy all day." Two of the leaders in the study also shared securing "buy-in" from staff was a barrier (see Table 4).

Table 4

Obstacles that Inhibit Leadership Focus on Improvement Processes

Participant	Systemic Nature of Education	Lack of Time	Staff "Buy In"
Leader 1	X		
Leader 2		X	
Leader 3	X		
Leader 4	X	X	X
Leader 5	X	X	
Leader 6	X	X	
Leader 7			X
Leader 8	X	X	

Interview question two. Has the leadership dashboard assisted you in linking daily leadership actions to system improvement tools such as the Building or Departmental Improvement Plan? If so, how?

All of the eight leaders indicated the leadership dashboard assisted them in linking leadership actions to system improvement tools such as Building or Departmental Improvement Plans. Six of the eight leaders specifically mentioned "focus" when asked how the leadership dashboard assisted them in linking daily leadership actions to system improvement tools. Leader 4 stated the dashboard "is a constant reminder of what my focus is and the fact that I am measuring that data and recording it on a constant basis…

There is never a point where it leaves my mind for very long." Leader 1 echoed the enhanced focus on leadership actions by responding,

> It helps to focus when you have the dashboard because it connects the behaviors to achieving the goals that you are monitoring. So, I think it helps leaders focus on the task at hand and trying to achieve those goals they have set forth.

Leader 5 further stated the leadership dashboard has "allowed me as a leader to focus, to determine what exactly I need to focus on."

Six of the eight leaders also referenced increased accountability or alluded to greater accountability as a primary dashboard outcome that has assisted them in linking leadership actions to system improvement tools. Leader 7 acknowledged the enhanced accountability associated with the leadership dashboard in the following statement:

> I know each thing that I am responsible for whether it be every week, every quarter, every semester, so it helps hold myself accountable and make sure that I am meeting all of the weekly checks, monthly checks, whatever they are, to make sure that we are fully implementing our Building School Improvement Plan (BSIP) and our Comprehensive School Improvement Plan (CSIP).

Leader 3 corroborated the previous leader's statement by surmising the leadership dashboard "holds me accountable for making sure that I am working toward meeting my goals, but it also helps me assist the district in reaching our goals as well."

Table 5 illustrates the common themes provided by leaders in response to interview question two. Interview question two posed the following question: Has the leadership dashboard assisted you in linking daily leadership actions to system improvement tools such as the Building or Departmental Improvement Plan?

Table 5

Manner in Which Leadership Dashboard Links Actions to Improvement Tools

Participant	Assistance	Improved Focus	Improved Accountability	Behavior Monitoring
Leader 1	Yes	X		
Leader 2	Yes	X	X	
Leader 3	Yes		X	
Leader 4	Yes	X	X	X
Leader 5	Yes	X	X	
Leader 6	Yes	X		
Leader 7	Yes		X	X
Leader 8	Yes	X	X	

Interview question nine. Has the leadership dashboard enhanced your effectiveness as a leader? If so, how?

Seven of the eight leaders indicated the leadership dashboard enhanced their effectiveness as leaders. Six of the eight leaders acknowledged the leadership dashboard enhanced their effectiveness as leaders by providing structure for accountability of their leadership actions. Five of the eight leaders indicated the leadership dashboard improved accountability through the visual placement and representation of data to illustrate leadership actions. Leader 5 articulated, "[The leadership dashboard] has allowed me to show what I was going to do, show them (teachers) that I am doing it and then give them (teachers) proof that it is being done." The importance of the visual nature of the

leadership dashboard in providing accountability was identified in the response of Leader 7, who indicated the dashboard provided "something that I am actually collecting data on so I know at the end of the week to enter if I did it or not."

Five of the eight leaders recognized the leadership dashboard enhanced their effectiveness as leaders by improving the focus of their leadership actions. Leader 1 summarized this effect by stating the leadership dashboard "keeps me focused, it keeps me on track, it reminds me every day of the behaviors that I have set forth for myself so that I can help achieve goals and meet expectations." Leader 8 corroborated this statement by indicating the leadership dashboard "keeps in front of me the work that I've prioritized as important." One leader stated the leadership dashboard had not enhanced his or her effectiveness as a leader (see Table 6).

Table 6

Improved Effectiveness as a Leader

Participant	Improved Effectiveness	Improved Focus	Improved Accountability	Evidence of Actions
Leader 1	Yes	X	X	X
Leader 2	No			
Leader 3	Yes	X	X	X
Leader 4	Yes		X	X
Leader 5	Yes		X	X
Leader 6	Yes	X		
Leader 7	Yes	X	X	X
Leader 8	Yes	X	X	

Research Question Three

Does the fidelity of implementation of leadership dashboards impact system improvement?

Interview question five. For what period of time have you utilized the leadership dashboard?

Leaders participating in the study had utilized leadership dashboards for a range of time. Leader 1 had used a leadership dashboard for seven years, while Leader 7 had utilized a leadership dashboard for seven months. The majority of leaders participating in the study had utilized the leadership dashboard for approximately four years (see Table 7).

Table 7

Leaders' Experience in Implementing Leadership Dashboards

Participant	Length of Experience
Leader 1	7 Years
Leader 2	4 Years
Leader 3	3.5 Years
Leader 4	3 Years
Leader 5	4 Years
Leader 6	4 Years
Leader 7	7 Months
Leader 8	3 Years

Interview question six. Is the staff under your leadership aware of your dashboard measures? How has this impacted your leadership?

Each of the eight leaders participating in the study acknowledged staff were aware of their dashboard measures. Five of the leaders indicated their leadership dashboards were posted in a visible place, and six of the eight leaders responded they verbally communicated their dashboards to staff within their system of supervision. In addition to the posting of leadership dashboards in a visible place and communicating the content of dashboards, three leaders referenced the active modeling of dashboards to employees working within the system (see Table 8).

Table 8

Method of Communicating Leadership Dashboards

Participant	Posted in Visible Place	Verbally Communicated	Modeling
Leader 1	X	X	X
Leader 2	X	X	
Leader 3		X	X
Leader 4	X	X	
Leader 5		X	X
Leader 6	X		
Leader 7		X	
Leader 8	X		

Interview question seven. What is the current focus of your leadership dashboard?

The present focus of leadership dashboards was varied depending on position and perceived needs. Leader 1 categorized his or her leadership dashboard in the area of "personal, professional, and school." The personal focus area was the participation in one family dinner per week and attendance at all events in which his or her children participated. The professional focus area was further professional learning regarding Six Sigma. The school focus area included visiting classrooms in each district school a minimum of two times per quarter.

Several leaders indicated their leadership dashboards included communication as the primary focus or contributing focus. The leadership dashboard of Leader 2 was predicated upon the execution of an agreed-upon communication plan. The communication plan included external and internal communication to staff and parents. Additionally, the dashboard of Leader 2 included the tracking of completed teacher evaluations with a new assistant principal. Leader 3 indicated the primary focus of his or her dashboard was to "communicate with all of our patrons in a very systematic and intentional way utilizing appropriate methods of communication to meet their needs." Leader 5 also stated the primary focus of his or her dashboard was communication to fellow leaders in order to stay informed of the progress of projects.

The dashboard of Leader 6 also included communication to internal and external patrons using social media. In addition to communication, the dashboard of Leader 6 monitored the completion of scheduled teacher evaluations and "early release agendas." Leader 6 added the purpose of monitoring "early release agendas" was to ensure the time was being utilized "effectively for remediation and data collection."

Leader 4 was very specific in outlining the content of his or her leadership dashboard that included monitoring the updating of online grade books, Canvas accounts, and teacher calendars. Leader 4 monitored and communicated these components by reporting the percentage of teachers who updated their grade books, Canvas accounts, and teacher calendars within 10 days. Leader 4 stated he or she communicated via email to any teachers who had not updated these items within 10 days.

Leader 7 indicated his or her dashboard was predicated upon fostering relationships with parents and learning more about Leader in Me. Leader 7 monitored

the building of relationships with parents by tracking the number of positive phone calls made to parents. Leader 7 monitored new learning about Leader in Me by reading and communicating informational material regarding the program. Leader 8 indicated his or her dashboard was predicated upon the monitoring of "participation and system process so that I have a hand in those processes so that I can monitor and make sure they are running effectively." Leader 8 gave no additional commentary to the referenced processes.

Interview question eight. How has your leadership dashboard evolved?

Six of the eight leaders participating in the study used the terms "strategic" or "intentional" in describing how their leadership dashboards have evolved. Two participants used the term "more specific" to describe the evolution of their dashboards. In addition to these descriptors, leaders also indicated their dashboards evolved to be more effective, to include shorter monitoring cycles, and to possess the appropriate metrics.

Leaders utilized different explanations to describe how their dashboards had become more strategic or intentional. Leader 1 indicated his or her leadership dashboard had become more strategic by reducing the monitoring cycle from 90 days to weekly. Leader 5 indicated his or her leadership dashboard had become more intentional by providing a structure that supported long-range planning and allowed the leader to "think further out as far as my leadership planning." Leader 4 indicated his or her dashboard had improved the intentionality of his or her actions by providing a structure causing the leader to be more "intentional on holding the line" in the area of focus (see Table 9). One leader did not give a specific example of how his or her leadership dashboard evolved.

Table 9

Evolution of Leadership Dashboards

Participant	More Strategic	More Specific	Shorter Review Cycle
Leader 1			X
Leader 2			
Leader 3	X		
Leader 4	X	X	
Leader 5	X		
Leader 6	X		
Leader 7	X	X	
Leader 8	X		

Summary

This qualitative study was designed to elicit the perceptions of system leaders regarding leadership dashboards. The responses to interview questions were analyzed to provide data on the perceived effectiveness of leadership dashboards and the manner in which leadership dashboards supported leaders in improving system performance. In the study, seven of the eight participants valued leadership dashboards as a tool to enhance their effectiveness as system leaders. Participant responses revealed several common themes as to how leadership dashboards increased their effectiveness as system leaders.

This chapter consisted of the perceptions of eight system leaders. Each of the system leaders interviewed was a current administrator in a Missouri public school

district. The responses of those interviewed were transcribed and analyzed to determine common themes and differences.

Chapter Five includes the findings of this study. The three research questions are revisited, and conclusions are deliberated. Implications of the conclusions are addressed, and recommendations for further research regarding leadership dashboards are suggested.

Chapter Five: Summary and Conclusions

The implementation of continuous improvement structures is crucial to the success of U.S. education systems (Frickx, 2015). A primary component of all continuous improvement structures is the ability to systemically apply data-driven decision-making (DDDM) processes (McCray, 2014). McCray (2014) suggested education system leaders do not possess the self-efficacy to effectively lead DDDM processes in the highly systemic structures of public education.

Dr. Bill Daggett (2014), founder and chairman of the International Center for Leadership in Education, confirmed public education entities have been unable to realize the same success associated with continuous improvement as other high-reliability organizations (HROs) found in industries such as medicine. Dr. Bill Daggett (2014) summarized public education has not been able to replicate the successes of other HROs in monitoring, tracking, and responding to data. Goodwin (2011) suggested there exists a need for a tool to connect small-scale improvement strategies to large-scale improvement efforts.

The purpose of this qualitative study was to examine the perceptions of public education system leaders regarding the benefits of leadership dashboards. Each of the system leaders in the study had utilized a leadership dashboard for a period of seven months to seven years. The answers to the research questions that guided the study are found in Chapter Five. Supporting data are provided to substantiate these findings. Conclusions, implications for practice, and recommendations for future research regarding leadership dashboards are also provided.

Findings

This qualitative study involved investigation of the perceptions of public education system leaders regarding leadership dashboards. The study was predicated upon three guiding research questions. Participants were interviewed by an independent proctor, and those interviews were transcribed to provide data. These data were then studied to gain a better understanding of how system leaders perceive the effectiveness of leadership dashboards. These findings were summarized and then applied to the corresponding research questions. Supporting data from Chapter Two are provided in this chapter to offer further comparisons with the results of this study.

Research question one. Does the leadership dashboard enhance system improvement?

State and national leaders have continued to promulgate legislation necessitating the implementation of systematic improvement processes (Eaton, 2012). The passage of the ESSA complicated the issue of system improvement by transferring the accountability of improvement goals and measures to individual states (AASA, 2016). Burnett (2016) suggested the transfer of accountability to states will further complicate improvement efforts, as state educational agencies are ill-prepared to be initiators of innovation in meeting ESSA accountability plans. These changes may further inhibit the public school system's ability to reduce the number of goals due to the many competing demands the modern school system must manage (Best & Dunlap, 2014).

Each of the eight participants was asked questions about perceptions of the impact of leadership dashboards on system performance. Finally, each of the participants was asked if leadership dashboards assisted in sustaining system performance. The

participants were then asked if the systems under their leadership had been impacted by their leadership dashboards.

Seven of the eight participants indicated the use of leadership dashboards enhanced system improvement. Although the seven participants differed in the perceived manner in which leadership dashboards assisted them, they did affirm leadership dashboards had a positive impact on system improvement. Six of the seven assenting participants credited a heightened focus on specific leadership behaviors as the most prominent reason for enhanced system improvement. This feedback echoed the research of Park et al. (2013), who stated successful leaders must have a formal methodology for communicating vision and monitoring progress.

When asked about the manner in which leadership dashboards assist in sustaining system improvement, six of the seven participants referenced an increased focus on specific leadership behaviors. Leader 1 expressed the benefit of heightened leadership focus and claimed the leadership dashboard "reminds us every day and every week and every month of the goals that we set for ourselves and the behaviors we want to monitor." This response indicated leadership dashboards support system leaders by clarifying leadership actions within the complex system of public education. Arnold and Marchese (2011) suggested the ambiguity of improvement structures, goals, and measures in the highly systemic structure of public education often inhibit the success of improvement efforts.

Research question two. Does the leadership dashboard enhance the personal efficacy of system leaders?

Best and Dunlap (2014) found an abundance of evidence to support system leaders as having the pivotal role in the implementation and sustainability of improvement processes. Unfortunately, Frabutt and Holter (2012) suggested educational leaders are ill-equipped and frequently do not possess the necessary skills to lead system improvement initiatives. Frabutt and Holter (2012) proposed educational leaders lack preparatory courses in higher education that provide data-based decision-making content essential to all continuous improvement structures. This has contributed to diminished leader efficacy in the area of system improvement (Frabutt & Holter, 2012).

Each of the eight research participants was asked questions about perceptions of personal efficacy. The participants were asked questions to determine the existing barriers that inhibit their focus on specific leadership actions and if leadership dashboards assist them in linking leadership actions to improvement plans. Finally, the participants were asked if leadership dashboards enhanced their effectiveness as leaders.

All eight of the participants in the study identified barriers that made it difficult to focus leadership actions on improvement processes. Six of the eight participants identified the ambiguity of goals and diversity of goals as barriers. Leader 1 specifically indicated, "Goals are not easy to track and therefore, sometimes, the behaviors that you want to monitor are even harder to track." These responses corroborated the research of Park et al. (2013), who found public education is highly systemic and employees fill a multitude of roles that indirectly impact student learning. Bryk et al. (2015) further stated this results in an ambiguity in the roles educators must assume in managing

organizational data-driven decision-making processes and in individual behaviors which drive organizational improvement processes.

All research participants claimed leadership dashboards assisted them in linking daily leadership actions to system improvement tools. Increased focus and accountability emerged as the two primary drivers for improved congruence between leadership actions and system improvement tools. Improved focus and accountability were identified by six of the eight research participants. Four of the eight research participants referenced both improved focus and accountability in their responses. These responses suggested leadership dashboards supported the research participants in decreasing the ambiguity of improvement measures and roles identified by Park et al. (2013) and Bryk et al. (2015).

Seven of the eight research participants responded leadership dashboards improved their effectiveness as leaders. The importance of leadership effectiveness and the subsequent impact on perceived self-efficacy are critical to the success of continuous improvement efforts. The significance of leadership effectiveness was illustrated in the research of Branch, Hanushek, and Rivkin (2013), who found effective principals increased achievement of an average student by two to seven months in an average school year. Of the seven participants who indicated the leadership dashboard enhanced their effectiveness as leaders, six answered the leadership dashboard provided additional structure for personal accountability. These responses validated the research of Goodwin (2011), who found successful school improvement strategies must involve a management structure to track "quick wins" and address fractal needs.

Research question three. Does the fidelity of implementation of leadership dashboards impact system improvement?

Each of the research participants was asked questions to determine the fidelity of implementation of leadership dashboards. All participants were asked for the period during which they had utilized leadership dashboards, the current focus of their dashboards, and how their leadership dashboards had evolved. Finally, participants were asked how they communicated the focus, measures, and progress of leadership dashboards to staff.

All participants answered their dashboards were either placed in a visible area or verbally communicated to employees on a consistent basis. Kirkpatrick and Kirkpatrick (2014) found clearly stated and communicated leadership inputs are essential drivers for improvement initiatives. Westover (2014) further indicated leadership inputs should be limited to three or fewer to have the greatest potential for sustained improvement.

Three of the eight research participants indicated their leadership dashboards were posted in a visible place, and progress was verbally communicated to staff on a consistent basis. Three of the eight participants also answered they consistently modeled their leadership dashboards by discussing the implementation and monitoring with staff in an effort to implement leadership dashboards within their system. Brown et al. (2013) identified modeling and confronting as two of the most powerful means by which a leader can convey the importance of a focus area. The Wallace Foundation (2013) identified cultivation of leadership in others as one of the five key tasks a school leader should initiate to establish high standards and learning expectations.

Conclusions

Conclusions were predicated on the responses of the research participants to the interview questions and research questions that directed the study. This section contains

some of the common perceptions among system leaders regarding leadership dashboards. The following themes arose following an analysis of interviews with research participants.

Leadership dashboards enhance system improvement. Following an analysis of the transcribed responses, it was found system leaders perceive leadership dashboards enhance system improvement. Seven of the eight leaders participating in the study responded leadership dashboards enhance system improvement. The same seven participants indicated leadership dashboards also assist in sustaining system improvement.

Bryan Goodwin (2011), the author of *Simply Better*, stated a crosswalk which contains fidelity and performance measures must be established to ensure personal behaviors are focused and congruent to organization improvement processes. The seven assenting participants stated the leadership dashboards enhanced system performance by providing a structure to clearly state and monitor leadership behaviors. This structure provided improved focus on individual leadership behaviors identified by the leaders as crucial to improving system performance. This structure also met the criteria established by Bryk et al. (2015), who stated a complex system must be monitored by simplifying processes so the organization of work may be monitored amidst the system's complexity.

Leadership dashboards enhance personal efficacy of system leaders. Examination of responses from research participants indicated the participants perceived leadership dashboards enhance their efficacy as leaders. McCray (2014) defined self-efficacy as the belief in one's ability to perform a task or meet a goal.

These findings support the research of Ginsberg and Multon (2011), who identified growing stress and concern among building principals associated with having to meet increasing demands with decreasing resources. Ginsberg and Multon (2011) illustrated the clear need for a tool such as the leadership dashboard to support self-efficacy concerning the growing demands placed on school leaders. Six of the eight research participants stated the leadership dashboard improved self-efficacy by establishing clear accountability measures. Five of the six participants who identified accountability also said public posting of the dashboard enhanced the accountability associated with the leadership dashboard.

Additionally, McCray (2014) found leaders in underperforming schools possessed ambiguity as to their ability to utilize data-driven decision making to enhance academic achievement. Five of the eight leaders participating in the research stated leadership dashboards improved their self-efficacy by providing additional focus on their leadership behaviors. Leader 8 articulated this by indicating the leadership dashboard "keeps the work in front of me that I prioritized." This statement affirmed the research of Kirkpatrick and Kirkpatrick (2014), who found the lack of focus on explicit implementation drivers has been identified as the source of fragmented implementation of system change in education. Five of the seven participants further supported this by stating the leadership dashboard improved self-efficacy by providing proof of action by the leader.

Public awareness of leadership dashboards enhance their effectiveness. Public posting of the leadership dashboard and its measures appeared to increase its effectiveness in supporting the leader. All of the eight participants in the research stated

staff members were aware of their dashboards. Six of the eight system leaders stated staff members were also aware of the specific goals or focus areas identified in the dashboards.

Each of the leaders who stated staff members were aware of specific goals or focus areas also responded positively to the following questions that addressed system performance or self-efficacy: 1. Has the leadership dashboard assisted you in linking daily leadership actions to system improvement tools such as the Building or Departmental Improvement Plans? 2. Has the leadership dashboard assisted you in sustaining system improvement plans? 3. Has the performance of the system under your leadership been impacted by your leadership dashboard?

It appears leaders who communicate the goals of their leadership dashboards to staff members have a positive perception of the leadership dashboard and its impact on system improvement. This would support the research of Brown et al. (2013), who bluntly stated, "One of the most powerful means by which a leader can convey the importance of something is by paying attention to it" (p. 37). Additionally, Brown et al. (2013) identified modeling, monitoring, and confronting as three of Rick DuFour's five activities system leaders should focus upon for sustainable improvement. The public posting and communication of dashboard content, goals, and progress appear to enhance the perception of dashboard impact on efficacy of leadership.

Enhanced efficacy could be attributed to the transparency associated with the public posting of leadership dashboard content, goals, and progress. Rothman (2015) stated publicly posted data dashboards improve the perception of organizational transparency. Rothman (2015) asserted perception of organizational transparency was

increased by providing visible evidence to internal patrons and external patrons of school focus and associated performance.

Leadership dashboards evolve. The most effective leadership dashboards are personalized and remain fluid based on the perceived needs of the leader. All of the leaders participating in this study indicated their leadership dashboards had evolved. Seven of the eight participants in this research study indicated their leadership dashboards had become more strategic or purposeful with time. Leader 2 did not attribute increased efficacy with the implementation of leadership dashboards but did state his or her leadership dashboard had become more effective with time.

The feedback from the research participants corroborated the research of Rothman (2015), who stated effective dashboards are fluid and allow organizations to modify indicators as desired results are achieved and additional performance concerns are identified. Kirkpatrick and Kirkpatrick (2014) posited dashboards must be focused on explicit leadership inputs that change to meet the needs of a complex organization. Bryk et al. (2015) proposed this flexibility allows leaders to have a holistic view of the system and to be strategic in leadership actions.

Implications for Practice

The eight participants interviewed for this study offered varied opinions regarding their perceptions of leadership dashboards. All of the participants in the research study indicated their leadership dashboards had evolved to become more strategic, specific, or effective. Seven of the eight research participants interviewed for this study perceived implementation of leadership dashboards enhanced their professional efficacy and performance of their system.

Based on the data collected in this study, school superintendents and higher learning organizations should be prepared to expand professional learning opportunities through tools such as leadership dashboards. The tools should provide system leaders with the structure to focus, measure, and communicate leadership actions. This study did result in identification of a tool of this nature to be utilized as a standard operating procedure for public school districts or a standard component of higher education preparatory curriculum for educators. Based upon the responses of the research participants, a tool such as the leadership dashboard may provide a crosswalk between focused daily actions of the system leader and the system improvement plan.

Ideally, the system improvement plan is developed by all stakeholders and includes system goals, action steps, and measures to monitor progress (Bernhardt, 2016). Most educational systems recognize the importance of leaders in driving system improvement but fail to account for the many barriers to focused leadership in a highly complex system (Kirkpatrick & Kirkpatrick, 2014). This oversight fails to ensure daily actions of the system leader align with what is most important to accomplish the system improvement plan goals.

Although significant differences exist between private industry and educational organizations, many educational organizations are experiencing success with continuous improvement strategies. Educational organizations have implemented structured improvement strategies predicated upon measurable improvement cycles (Fullan & Quinn, 2016). Many educational entities have evolved to include shorter-term improvement cycles and improvement cycles at various levels of subsystems (Rothman, 2015). This evolution is the result of educational organizations responding to increased

accountability associated with the growing number of legislative mandates (Mrachko, 2015).

To continue the path of improvement, educational organizations must recognize the systemic nature of education and mentor educators in system improvement structures that will result in a culture of high reliability. This will necessitate a shift from transactional leadership to transformational leadership, where all employees recognize they are leaders of their system (Bryk et al., 2015). To realize success, leaders must possess the capacity to implement system improvement structures as well as a tool such as the leadership dashboard to identify and monitor system leader input.

Recommendations for Future Research

This qualitative study was designed to solicit the perceptions of educational leaders within one school district regarding leadership dashboards. Assessment of the perceptions of system leaders in other school districts is necessary to determine if these data are applicable throughout other school districts or are unique to leaders within the district of this scope of study. Additional study to investigate the presence and perception of leadership tools such as the leadership dashboard may prove beneficial to the field of education.

An additional qualitative study on the presence and perceptions of a culture of high reliability within the field of education could provide further insight into the difficulty in implementing private industry's continuous improvement strategies. A qualitative study focused on school districts with this culture identified within their strategic plans could provide further clarification regarding the benefits of system thinking. This study could involve investigation of the structures of these school districts

as they build the capacity of employees to implement system improvement structures within their highly systemic organizations.

Summary

The purpose of this study was to examine school administrators' perceptions of the impact of leadership dashboards on efficacy to promote the systemic improvement of the systems under their direction. Eight system leaders were randomly selected and interviewed by an independent proctor. The interviews were recorded, transcribed, and analyzed.

The analysis of data from this study revealed leadership dashboards are perceived to convey positive benefits to system leaders who have implemented leadership dashboards. Leadership dashboards were determined to support leaders in their effort to promote systemic improvement of the systems under their direction. Data indicated leadership dashboards provided leaders with structure to identify, communicate, and monitor specific leadership actions with the greatest impact on system improvement. Findings from this study confirm earlier research that leadership actions in a systemic organization must be succinct and known to other individuals within the system.

Continuous improvement structures to promote system improvement are integral to legislative accountability and more importantly to the growing needs of students. Although costly and time-consuming, programs to increase employee capacity to lead system improvement are worthwhile. School districts and school boards should invest in growing this capacity and equipping system leaders with a tool to assure daily actions of leaders are congruent with system improvement plans.

Appendix A

Jr. / Sr. High School Dashboard

Date:_____

Available data:_____

Evaluations 5 / 1:

Weekly completion: ☐ Short form: / Scheduled Formative: /

Discussion:

Celebrations:

Action Steps:

CWT / 10:

Weekly completion: ☐ Feedback regarding completion:

Discussion:

Celebrations:

Action Steps:

Weekly Website Update:

Completion: ☐

Discussion:

Action Steps:

Celebrations:

Appendix B

Institutional Review Board Approval

LINDENWOOD

LINDENWOOD UNIVERSITY ST. CHARLES, MISSOURI

DATE:	March 18, 2016
TO:	Chance Wistrom, EDD
FROM:	Lindenwood University Institutional Review Board
STUDY TITLE:	[855507-1] Leadership Dashboards: A Tool to Connect Individual Leadership Behaviors to Organizational Improvement Processes
IRB REFERENCE #:	
SUBMISSION TYPE:	New Project
ACTION:	APPROVED
APPROVAL DATE:	March 18, 2016
EXPIRATION DATE:	March 18, 2017
REVIEW TYPE:	Expedited Review

Thank you for your submission of New Project materials for this research project. Lindenwood University Institutional Review Board has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Expedited Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure.

All SERIOUS and UNEXPECTED adverse events must be reported to this office. Please use the appropriate adverse event forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to the IRB.

This project has been determined to be a Minimal Risk project. Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the completion/amendment form for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of March 18, 2017.

Please note that all research records must be retained for a minimum of three years.

Appendix C

Request for Approval to Conduct Research

[redacted] [redacted]

REQUEST FOR APPROVAL TO CONDUCT RESEARCH

[redacted] School District encourages educational research by advance degree candidates, agencies and institutions of higher learning. All research projects to be conducted in the schools must have prior approval by the Assistant Superintendent of Academic Services and the Director of Curriculum, Instruction and Assessment. The following instructions identify the forms/documents that must be submitted and describes procedures of the approval process.

I. Application for Request for Approval to Conduct Research

1. Name of Researcher: Chance Wistrom Date: March 12, 2016

2. Business Address of Researcher (City/State, Zip Code)
[redacted]

3. Email Address: chance.wistrom@republicschools.org

4. Telephone Numbers: (Area code and daytime phone number) [redacted]

(Area code and work phone number) [redacted]

5. Reason for conducting research:
   a. _____ Necessary to complete a Masters level graduate course
   b. _____ Necessary to complete the requirements for a Master's degree
   c. _____ Necessary to complete the requirements of a Specialists level graduate course
   d. _____ Necessary to complete the requirements for a Specialists degree
   e. _____ Necessary to complete a Doctoral level graduate course
   f. X Necessary to complete the requirements for a Doctorate degree
   g. _____ Necessary to complete research for a community project
   h. _____ Necessary as a component for a grant application

6. Name of participating institution/agency: Lindenwood University

7. Name of Research Advisor or Project Director Dr. Brad Hanson

Telephone Number: 417-235-7422 Email: bhanson@monett.k12.mo.us

8. Advisory or Project Director Signature _____

9. If your research proposal requires specific district data, please provide a brief description of your data needs: A nine question interview will be conducted with system leaders utilizing leadership dashboards. The purpose of the interview will be gather perceptual data on the effectiveness of leadership dashboards in enhancing leadership efficacy in guiding organizational improvement. Interviews will be conducted by an independent proctor and all responses will remain anonymous.

CONDITIONS FOR MAINTAINING ANONYMITY AND SHARING PROJECT RESULTS

I agree to maintain the anonymity of individual students, staff members and schools in any report(s) and in any publication(s), e.g., journal article(s), book(s), etc., which incorporate any information derived from the research conducted within the Republic School District. If permission is granted to conduct the research described is this request, I verify the research will be conducted in compliance with all federal and state statutes and the policies of the Republic School District.

I agree to provide the Curriculum, Instruction and Assessment Department with a summary of the research results, complete documentation and information on the location of the complete research and, in the future, subsequent publications.

Signature of the Researcher — Date: 3/15/17

II. Directions for Application:

1. This form must be completed to satisfy [redacted] District's Requests to Conduct Research.
2. The University advisor/organization administrator must sign this request. He or she will accept direct responsibility related to research activities.
3. This form and all supporting documentation should be emailed to [redacted] (scanned signature documents are acceptable).
4. The researcher may contact participating schools and/or departments for data collection only after the form has been officially approved by the district.

III. Guidelines:

1. Researchers may request to do research with specific staff members or buildings and efforts will be made to honor these preferences.
2. Data derived from tests, school records, interviews, or survey/questionnaires, which have potential for invasion of privacy of students or their families, must have advanced written authorization of parents or guardians. These releases will be collected and filed with the building principal before the project is initiated.
3. Personnel records of the school staff are confidential and information will not be released from these records.
4. Public information will be available to researchers and other interested parties, but if time or other expense is involved, the requesting party will be responsible for such costs.
5. Instructional activities will not be interrupted unless there is clear significance for the improvement of educational programs in the [redacted] School District.
6. Decisions of the review team will be granted within two weeks of formal review of the proposal.
7. Should a request be denied, the applicant will be offered an opportunity to make corrections/submit further documentation for review. Resubmitted requests will be subject to formal review and issued a decision within two weeks of the monthly committee meeting.
8. A copy of your final research report will be submitted to the Curriculum, Instruction and Assessment department.

IV. Please attach the following documentation with your completed Request for Approval to Conduct Research form:

1. _____ Research Title
2. _____ Purpose
3. _____ Methodology
4. _____ Statement of Problem
5. _____ Hypothesis and/or Research Questions
6. _____ Description of variables
7. _____ Description of Sample
8. _____ Method of Sample Selection
9. _____ Data Collection Instruments (if applicable)
10. _____ Data Collection Timetable
11. _____ Samples of Consent forms (if applicable)
12. _____ Names of participating schools
13. _____ Identification of target population (i.e. teachers, administrators, students, grade levels, and expected number of participants).
14. _____ Anticipated Start Date of Research
15. _____ Completion Date of Research
16. _____ Copy of Institution of Higher Learning Internal Review Board (IRB) application form approved and signed.

Return this completed form and supporting documentation to:

[redacted]

Appendix D

School Board Approval Letter

[redacted]

March 12, 2016

Dear Institutional Review Board,

The purpose of this letter is to provide notice that Chance Wistrom has been granted permission to pursue educational research for the completion of his doctoral program. The scope of research will include an interview to gain perceptual data from district system leaders who utilize a leadership dashboard. Anonymity of participants will be assured through the use of an independent proctor and random number identifiers to select participants. All identifying information will be removed from interview responses by the independent proctor prior to submission to Mr. Wistrom.

Please contact me if additional information is needed.

Sincerely,

[redacted]

Appendix E

Letter of Participation

September, 2016

Dear System Leader,

My name is Chance Wistrom, and I am requesting your participation in my doctoral dissertation research project at Lindenwood University. If selected, participants will be asked to participate in a 20-minute interview conducted by an independent proctor. I believe the information gathered through this study will positively contribute to the body of knowledge by identifying best practices for school leaders to assist in the successful implementation of continuous improvement practices.

The purpose of the study is to examine school leader perceptions of the impact of personal leadership dashboards on their efficacy to promote systemic improvement of the systems under their leadership.

Your participation in this research study is voluntary, and you may withdraw at any time. Anonymity will be assured through the service of Connie Moller as independent proctor. The independent proctor will utilize a random number identifier to select participants, conduct interviews, translate all audio recordings, and remove any personal identifying statements before submission to Chance Wistrom.

Please express your willingness to participate by replying to the independent proctor at the following email address: [redacted]. If you have questions, you can reach me at [redacted] or at [redacted]. Dr. Brad Hanson, the dissertation advisor for this research project, may be contacted electronically at [redacted] or by phone at [redacted].

Please open the enclosed attachment to view the Informed Consent form.

Thank you for your time,

Chance Wistrom
Doctoral Candidate
Lindenwood University

Appendix F

Informed Consent

LINDENWOOD

INFORMED CONSENT FOR PARTICIPATION IN RESEARCH ACTIVITIES

"Leadership Dashboards: A Tool to Connect Individual Leadership Behaviors to Organizational Improvement Processes"

Principal Investigator Chance Wistrom
Telephone: [redacted] E-mail: [redacted]

Participant_____Contact info_____

1. You are invited to participate in a research study conducted by Chance Wistrom under the guidance of Dr. Brad Hanson. The purpose of this research is to examine school leader perceptions of personal leadership dashboards and their impact on leader efficacy.

2. a) Your participation will involve the following:
   You will be contacted by an independent proctor to conduct an interview regarding your perceptions of leadership dashboards. The interview will consist of approximately nine questions and will last approximately 20 minutes.

   b) The amount of time involved in your participation will be approximately 30 minutes.
   Approximately eight subjects will be randomly selected to be involved in this research.

3. There are no anticipated risks associated with this research.

4. There are no direct benefits for you participating in this study. However, your participation will contribute to the educational leadership community gaining insight into a leadership tool that allows leaders to maximize the impact of continuous improvement processes on highly systemic organizations such as school districts. Personal benefits from your participation will include knowledge about how other participants utilize leadership dashboards to impact the systems in their charge.

5. Your participation is voluntary, and you may choose not to participate in this research study or to withdraw your consent at any time. You may choose not to answer any

questions you do not want to answer. You will NOT be penalized in any way should you choose not to participate or to withdraw.

6. We will do everything we can to protect your privacy. As part of this effort, your identity will not be revealed in any publication or presentation that may result from this study, and the information collected will remain in the possession of the investigator in a safe location.

7. If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Chance Wistrom, at [redacted], or the Supervising Faculty, Dr. Brad Hanson, at [redacted] You may also ask questions of or state concerns regarding your participation to the Lindenwood Institutional Review Board (IRB) through contacting Dr. Marilyn Abbott, Provost, at mabbott@lindenwood.edu or 636-949-4912.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I consent to my participation in the research described above.

_____	_____
Participant's Signature Date	Participant's Printed Name
_____	_____
Signature of Principal Investigator Date	Investigator Printed Name

Appendix G

System Leader Interview

The following questions are presented to garner your thoughts and opinions as they relate to leadership dashboards.

1. What are the barriers that make it difficult to focus leadership?
2. Has the leadership dashboard assisted you in linking daily leadership actions to system improvement tools? If so, how?
3. What structures have you implemented to link your leadership actions to system improvement processes?
4. Has the leadership dashboard assisted you in sustaining system improvement plans? If so, how?
5. Has the performance of the system under your leadership been impacted by your leadership dashboard? If so, how?
6. For what period of time have you utilized the leadership dashboard?
7. Are the staff within your system aware of your dashboard measures? How has this impacted your leadership?
8. What is the current focus of your leadership dashboard?
9. How has your leadership dashboard evolved?
10. Has the leadership dashboard enhanced your personal efficacy? If so, how?

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Vita

Chance Wistrom graduated from Webb City High School in 1989. After high school, Chance attended Central Missouri University in Warrensburg, Missouri. At Central Missouri University, Chance was a four-year letterman in football and graduated with his Bachelor's Degree in Industrial Hygiene. Chance returned to Central Missouri University and completed his Bachelor's Degree in Science Education. In August 1995, Chance earned his first teaching job with Carthage School District in Carthage, Missouri, as a high school science teacher, football coach, and track coach. In 1998, Chance completed his Master's Degree in Educational Administration from Missouri State University. He served as a teacher and coach in the Carthage, Joplin, and Seneca School Districts.

In 2001, Chance was selected to be the athletic director, assistant principal, and head football coach of Seneca High School in Seneca, Missouri. Chance served as principal at Nevada High School in Nevada, Missouri, and at Parkview High School in Springfield, Missouri. In 2010, Chance left building-level school administration to serve as Superintendent of the Miller School District in Miller, Missouri, for a period of two years. In 2012, Chance accepted the position of Superintendent of the Republic School District, where he continues to serve the Republic community.