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A Critical Perspective of Transformational Leadership and Safety Management Practices

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Abstract

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Larry D. Frazier

MS, The National Graduate School, 2003

MA, Troy University, 1999

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

A troubling trend has developed in the increasing number of commuter rail accidents causing injuries, fatalities, and safety concerns. The specific problem addressed in this study is that current leadership practices have not achieved success reducing safety violations and rail accidents. The purpose of this qualitative cross-sectional study was to explore the potential influence of perceived leadership styles of 16 frontline rail supervisors and 4 managers on safety management practices within a metro rail system. The conceptual framework was based on Bass's transformational leadership theory and Reason's human error model. The key research question dealt with how leadership style might influence safety management practices. Data collection involved a 45-question, Multifactor Leadership Questionnaire (MLQ) leader form administered to assess perceived leadership styles and a 10-question structured interview conducted to understand participants' attitudes toward safety management practices. MLQ analysis involved comparing results to normative population data. Key MLQ results indicated that participants were inside the ideal frequency ranges for the five transformational scales and outside for the two transactional scales. Coding and thematic analysis was used to identify emergent themes in the experiential data. The analysis indicated that safety management and leadership were primary concerns of participants. Further research on the relationship between transformational leadership models and improved system safety practices is recommended. Transformational leadership models could influence positive social change by improving system safety practices in the transit rail industry.

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Dedication

I dedicate this dissertation to my two wonderful and beautiful daughters, Talareah J. Campbell and Chelsea R. Young, and two brothers, Delacy and Gary Frazier. I also want to dedicate this doctoral journey to my late mother, father, sister, and eldest brother. As well, I dedicate my doctoral degree to my niece, Sunday Moore, nephew, Delacy Jr., and many cousins. I thank each of you for all your unwavering support and encouragement that helped get me to the finish line.

I hope that my journey inspired each of you to pursue your dreams. We know that nothing is achievable without our LORD and savior's direction. May each of you continue to aim at a higher life's purpose. Know that a dream deferred is NOT a dream denied. I thank GOD for helping me complete this journey.

Acknowledgments

As I write the final few sentences of my dissertation, my heart is filled with joy. I have been so fortunate to have such a wonderful support system. I am forever grateful to each of you. A very special thank you to my Dissertation Committee Chair and Faculty Mentor, Dr. Anthony Lolas, Committee Member and Content Expert, Dr. Robert Levasseur, and University Research Reviewer, Dr. Craig Barton.

Your timely feedback, direction, and inspiration in my doctoral journey and your demonstrations of professionalism, genuine leadership, and patience will never be forgotten. Your continued support and thoughtful words of encouragement were invaluable along the way. I will model your leadership prowess when working with future scholars.

I want to acknowledge the support of Lawrence Carnegie, Philena V. DeVaughn, Sandra Rose, Joseph Holmberg, Kevin Hamilton, Tracey A. Jordan, and Mr. William Catlett. Your unconditional support and friendship have been mainstays throughout my doctoral journey. For that, I say thank you, and I am forever grateful. I do not cross the finish line without your direct support!

Finally, I thank my doctoral cohorts to whom I am forever linked. I also want to thank my many friends and colleagues for all their encouragement. Thank you all for your enormous contribution to my doctoral journey.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

Contemporary organizational theorists Yukl (2012) and Avolio (2014) examined the seminal works of early scholars of management and the considerable research on top-down examinations of the effects of leadership style on organizational outcomes. These outcomes included financial performance, productivity, and innovation. Robbins and Coulter (2015) later examined leadership from the viewpoints of both social and industrial/organizational psychology.

Scholars continue to increase their understanding of the nature of leadership attributes to influence the development of employee training programs. Scholars have incorporated several lessons learned about employee engagement, trust, inclusion, and best practices to develop more committed and conscientious employees. Yukl (2012) found that the most effective leadership approaches included honesty and transparency, consensus building, and democratic principles. Management has typically measured success as a function of earnings, and, as noted by Cooper (2015), the focus of most leadership research has been on productivity, profits, turnover, and worker satisfaction outcomes. A factor that has received less focus is the effect of leadership style on safety management practices.

A review of the literature revealed that current research into the ways leadership style affects safety management practices is lacking. Most of the early research in this area focused on the energy and manufacturing sectors (Cooper, 2015). Cooper contended that workplace safety was an organizational issue that costs companies in all industries in both financial and human capital resources. Tristan (2016) later found that management's

actions directly affected the perceived safety climate and noted that the safety climate was an accurate predictor of safety-related events. In their study of the relationship between facets of psychological safety, climate, and safety behavior in the rail industry, Call, Nyberg, Polyhart, and Weekley (2015) noted that rail-specific safety research is sparse.

Cooper (2015) found that management directed more attention to safety protocols rather than to the effects of an individual manager's style. Cooper noted the modest number of studies relating safety management practices to the influence of leadership styles. Gordal, Nelson, and Siino (2015) identified consistent themes in their study, including the prioritization of safety in the organization, the involvement of people in safety, and the organization's identification and dissemination of lessons learned about safety. Tristan (2016) amplified this work by identifying the most likely causes of workplace safety violations (i.e., shortcuts, workarounds, and noncompliant behaviors) as uniquely human rather than organizational failures.

Coupled with existing rail industry research, the findings from the present inquiry contributed to advancing available literature on leadership styles and safety management practices. This objective was particularly relevant given the limited number of studies referencing current leadership approaches and safety management practices. This inquiry helped fill the dearth of literature on the relationship between leadership styles and safety management practices in a transit rail system. Given the noticeable absence of studies in which leadership styles were propitious factors in enhancing safety management practices, this study may warrant further inquiry. The attendant improvements in

leadership development and safety management practices and awareness could contribute to positive social change.

In Chapter 1 I describe the background of the study, the problem statement and purpose, the research questions, and the conceptual framework. The chapter also includes a statement of the nature of the study, its scope and limitations, and the assumptions and definitions. Chapter 1 concludes with the significance of the study.

Background

Organizational leaders spend more than $400 billion annually to enhance worker safety by focusing on safety policies and procedures, training workshops, user manuals, and similar initiatives (Cooper, 2015). Despite the dollars spent, more than four million occupational injuries occurred in 2014 (U.S. Department of Labor, 2015). Companies across the United States pay nearly a trillion dollars annually because of workplace safety violations (National Safety Council, 2015). Although researchers have made tremendous strides in areas such as new reporting programs, investigative procedures, and innovative safety initiatives, the number of industrial injuries and fatalities continues to increase (Lawson, 2015).

In work environments in which safety is a critical job function, effective communication between supervisors and employees is paramount (Tristan, 2016). To maximize safety in the work environment, employees must perceive that they are free to discuss safety concerns (Cooper, 2015). Mearns et al. (2013) found that the safety climate can influence safety performance, often regarded as a subset of both organizational climate and organizational performance. Cooper (2015) concentrated on the subjective

experience of role overload and its correlation with injuries at work and found that employees affected by role overload reported that their managers emphasized productivity over safety. Zohar (2016) contended that a failure on the part of management to convey dedication to safety as a core value may prompt employees to minimize their commitment to the overall importance of safe role behavior. More than a decade earlier, Gardner (1990) emphasized the mediating roles of trust, satisfaction, group cohesiveness, commitment, personal identification, and perceived fairness on followers' attitudes toward their leaders. Avolio (2014) indicated that organizational leaders seeking to compete in an ever-changing work environment that includes the globalization of markets, increasing diversity of the workforce, and the evolving nature of job complexity and task characteristics, must emphasize trust and employee engagement as core competencies in the development of managers.

In a similar manner, Hogg, Knippenberg, and Rast (2012) discussed the demand for a leadership approach that motivates employees to take ownership of a shared vision and that inspires them to higher levels of productivity. As part of their approach, Hogg et al. (2012) indicated that organizational leaders and employees must accept and embrace a workplace environment that is constantly changing. Zhang, Wang, and Shi (2012) noted that leaders have the capacity to motivate followers and colleagues to participate in the growth and promotion of an organization through increased levels of commitment to a shared, articulated vision.

Prominent researchers have documented the potential positive association between leadership and follower behaviors (Zhang et al., 2012). Kath, Marks, and

Ranney (2010) reported that by simply paying more attention to human factors, leaders in highly reliable organizations can identify and capture potential hazards before they manifest as accidents. Given the number of accidents involving serious injuries and fatalities, workplace safety and implementation of measures that increase the likelihood of safe behaviors are critically important in any industry (Zohar, 2016).

Contemporary leaders have promoted employee development through engagement initiatives to enable new ways of working, encourage novel problem solving, provide coaching, and encourage specific behaviors (Fast, Burris, & Bartel, 2014). Cooper (2015) identified trust as the most critical mediating variable in the effectiveness of leadership on safety. Gordal et al. (2015) indicated a link between managerial approach and positive individual and group performance.

The principal objective of this investigation was to contribute research and expand the body of knowledge in management thought by exploring leadership styles and safety management practices. With evidence that leadership styles could impact safety management practices, organizational leaders could leverage the strength of the impact to develop safety management training programs. Such a finding could improve employee efficiency, effectiveness, and safety management practices. Table 1 below summarizes the elements of the research framework of this study.

Table 1

Research Approach

Bass's tenets of transformational leadership	Reason's human error model – safety management practices	Reason's human error model – safety violations
Idealized influence Attributed behavior	Unsafe supervision	Unsafe Acts
Inspirational motivation	Organizational Influence	Preconditions for Unsafe Acts
Intellectual stimulation Individualized consideration		

Problem Statement

The general problem that was the focus of this study was that the number of commuter rail accidents has steadily increased in the past decade. The impact of these rail accidents was tragic in terms of lost lives and lost revenue. For example, three people were killed and approximately 100 were injured in a fatal December 19, 2017, Amtrak crash near Tacoma, WA. This accident mirrored a 2015 Philadelphia crash that killed eight people when an Amtrak train took a turn much too fast and jumped the tracks. The rail community and industry came under further safety scrutiny around safety management practices because of the most recent February 5, 2018, fatal South Carolina rail accident. The tragic Cayce, South Carolina, rail accident highlights the immediate need for the rail industry to reassess current safety management practices.

In these three cases, the National Transportation Safety Board (NTSB) reported that distractions and the lack of situational awareness contributed to the accidents. Increasingly, the NTSB is reporting distractions are the culprits in many rail accidents;

distractions include texting, cell phone usage while driving, and interactive on-the-job training. These distractions are growing problems for rail safety supervisors and managers.

The rise of accident rates is likely to continue, and the impact of these accidents is expected to become more horrific because of increased rail speeds and ever-growing ridership. The specific problem is that current leadership practices have not achieved success in reducing safety violations and rail accidents. My assumption was that leadership styles could have an impact on effective safety management practices. These practices could lead to reductions in safety violations, which ultimately could lead to reductions in rail accidents. This assumption also underscored the impact leadership styles could have on improving workforce trust, communication, rapport, situational awareness, and managerial support.

The number of deadly rail occurrences prompted investigations that revealed the possible causes were failures in safety education and compliance, inadequate safety oversight, and a decrease in organizational safety culture (NTSB, 2015). The results of an NTSB investigation in 2015 indicated that 9% of rail operators commit safety violations within their first year of employment. The same investigation revealed that approximately 90% of the 9,300 rail workers surveyed had witnessed a safety breach in the past year. Of these employees, 30% failed to report the problem because of fear of retaliation, lack of confidence that managers would address the violations, or general reluctance of the newest employees to the most tenured managers to report safety violations (NTSB, 2015).

Another NTSB investigation in 2015 exposed a continued casual and inattentive approach toward safety training and skills development. The researchers of the study found that the skills of experienced operators diminished significantly over time because of underuse. Tristan (2016) found that leaders were failing to develop or promote followers based on their skills, knowledge, and competencies due to the lack of shared trust. In this study, I proposed that leadership styles could help create a work environment that fostered trust, conscientiousness, and engagement among workers. In turn, the newly created environment could help improve safety management practices.

A review of the pertinent literature showed that accident and injury rates are the traditional measurements used to assess the safety performance of industrial organizations. Leaders in the rail industry used these traditional data to measure levels of organizational safety (Zohar, 2016). In his examination, Cooper (2015) described workplace safety measures, safety audits, hazard analysis, and safety manuals as similarly lagging criteria. Cooper also noted that the focus of most leadership research has been on productivity, profit, turnover, and worker satisfaction outcomes.

Few researchers have examined safety outcomes as a factor for evaluating leadership effectiveness (Kath et al., 2010). A limited number of studies existed on employee engagement related to safety management practices and on the influence of leadership styles on organizational safety culture (Zohar, 2016). Although these studies were inconclusive, they may contribute to further investigations into a possible relationship between perceived leadership styles and attitudes toward safety management practices.

In this qualitative study, I investigated a transit rail system environment and capitalized on the experiences, perspectives, and training of 16 frontline rail supervisors and 4 managers. Violations by experienced workers, recent hires, and managers can foreshadow a major rail incident that may lead to fatalities, serious injuries, or major damage (NTSB, 2015). For this inquiry, exploring a possible link between perceived leadership styles and frontline rail supervisors' and managers' attitudes toward safety management practices could foster positive social change in the transit rail industry.

Purpose of the Study

The purpose of this study was to explore the potential influence of perceived leadership styles of 16 frontline rail supervisors and 4 managers on safety management practices within a metro rail system. The assumption was that leadership styles could have an impact on safety management practices. These practices could lead to reductions in safety violations, which ultimately could lead to reductions in rail accidents. In this study of a transit rail system, I administered the Multifactor Leadership Questionnaire (MLQ) to 16 frontline rail supervisors and 4 managers at the operational level. I used the MLQ to assess supervisors' and managers' perceptions of their leadership styles. I also conducted structured interviews to understand their attitudes toward safety management practices. Contemporary research into safety management indicated that leadership styles can engender positive organizational change in rail safety management (Gordal et al., 2015). Given the critical safety challenges and obstacles that frontline rail supervisors and managers routinely encounter, this study provided a context for enhancing leadership development training in system safety.

As frontline rail supervisors and managers incorporate their awareness of the various leadership styles and the importance of associated safety practices, they can help mentor and coach other transit rail managers. Associated practices included inclusion, trust, innovation, and open communication. This professional development of supervisors and managers could affect their approach and attitudes toward safety management practices. Zohar (2016) noted that ineffective safety management practices by rail workers can portend an industrial accident that may result in the loss of human life. This study will add to the existing limited body of knowledge on the link between various perceived leadership styles and attitudes toward safety management practices that could possibly help minimize safety violations. As such, the findings of this study will contribute to a potential social change in the transit rail industry.

Research Questions

In examining the experiences, perspectives, and training of frontline rail supervisors and managers, I administered the 45-question, self-rating MLQ to assess leadership styles and conducted 10-question, structured interviews to understand their attitudes toward safety management practices. These processes supported the general research question (GRQ): How can leadership style help improve safety management practices? Several researchers have investigated the effects of the transformational leadership style on followers since the 1970s when Burns (1978) first used classification of legislative leaders to differentiate between transactional and transformational leaders. To expand upon Burns's effort and on the influence of transformational leadership, I

examined the previously mentioned GRQ and the following four key subresearch questions:

RQ1: What influence can leadership style have on workers' attitudes toward safety?

RQ2: What challenges and obstacles might frontline rail supervisors and managers encounter in improving rail safety?

RQ3: What leadership actions might frontline rail supervisors and managers take to overcome the challenges and obstacles that could improve rail safety operations?

RQ4: What suggestions might frontline rail supervisors and managers have to improve rail safety operations that could help reduce safety violations?

Conceptual Framework

The primary basis for the conceptual foundation of this qualitative research was Bass and Avolio's (1995) multifactor leadership framework. I considered the seminal works of Bass's (1985) four dimensions of the transformational leadership model and Reason's (1990) four-level, human error model. I examined safety management practices through the prism of Reason's (1990) study of unsafe supervision and organizational influences. Moreover, I reviewed safety management practices through the lenses of Reason's (1990) unsafe acts and preconditions for unsafe acts.

Leadership theory has been the subject of wide-ranging, extensive, and intense research (McClean, Burris, & Detert, 2013). The conceptual framework for this research review was transformational leadership theory that serves as the foundation for Bass and

Avolio's (1995) multifactor leadership framework. For this inquiry, I applied Bass's and Avolio's framework and MLQ at the operational level. Figure 1 below illustrates the relationship between tenets of the transformational leadership model and safety management practices.

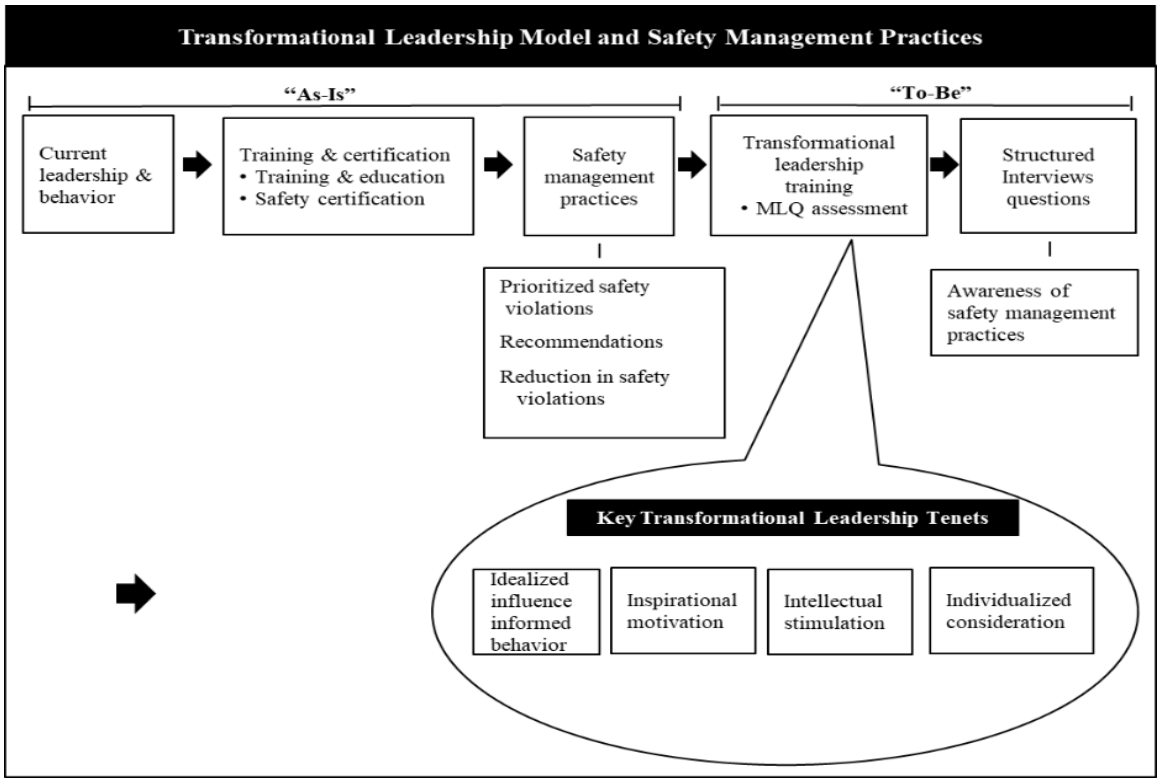

Figure 1. Transformational leadership and safety management practices.

Various formal theories of leadership emerged over time in response to social changes, evolution of the study of human behavior, and emergence of different organizational changes and challenges. One of the consistent findings across the theoretical spectrum was the importance granted to leadership (Bass, 1985). Bass frequently identified leadership as the most critical element in the success or failure of every organization. Leaders' proficiency at managing attention and meaning, articulating

a vision of what was possible, and empowering the collective effectiveness of their employees all factor into organizational success (Yukl, 2012; Zhang et al., 2012). In this study I examined each of these factors.

Burns (1978) and Bass (1985) both described leadership styles as varying across transformational or transactional axes, while Yukl (2012) later categorized transactional and transformational leadership as distinct dimensions rather than opposite ends of one continuum. Burns characterized transformational leadership as a blend of various behavioral theories with a thread of trait theory. Burns stressed the systematic, intentional nature of this approach and illustrated a process of purposeful examination and analysis of change and capacity. Burns (1978) asserted that transformational leadership involved moving human capital resources from areas of less productivity to areas with greater efficiency through modeling ideal traits that followers wish to experience. The charisma and vision of a transformational leader inspire followers to support the interest of the organization above their own (Burns, 1978).

Burns (1978) conceived that leaders cannot be categorized as either transactional or transformational. Rather, for Burns, leaders operate along a spectrum ranging from transactional to transformational. Bass (1985) proposed that transformational leadership practices augment the effects of transactional leadership on the efforts, satisfaction, and effectiveness of subordinates. Yukl (2012) noted the importance of competence in managing attention and meaning, articulating visions of what is possible, and empowering the collective effect of leadership.

Tenets of Transformational Leadership Theory

Transformational leaders model the behavior they wish to cultivate. They conduct themselves in a manner that achieves results by drawing on one or more of the four tenets of transformational leadership: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass, 1985). Bass and Avolio (2004) believed leaders potentially perform in ways that allow followers to display levels of commitment that exceed management expectations, thereby amplifying Burns's (1978) theory that leaders are responsible for more than planning exchanges and agreements. In Figure 2 below, Bass describes Burns's four dimensions of transformational leadership and their interactions with the dimensions of transactional leadership.

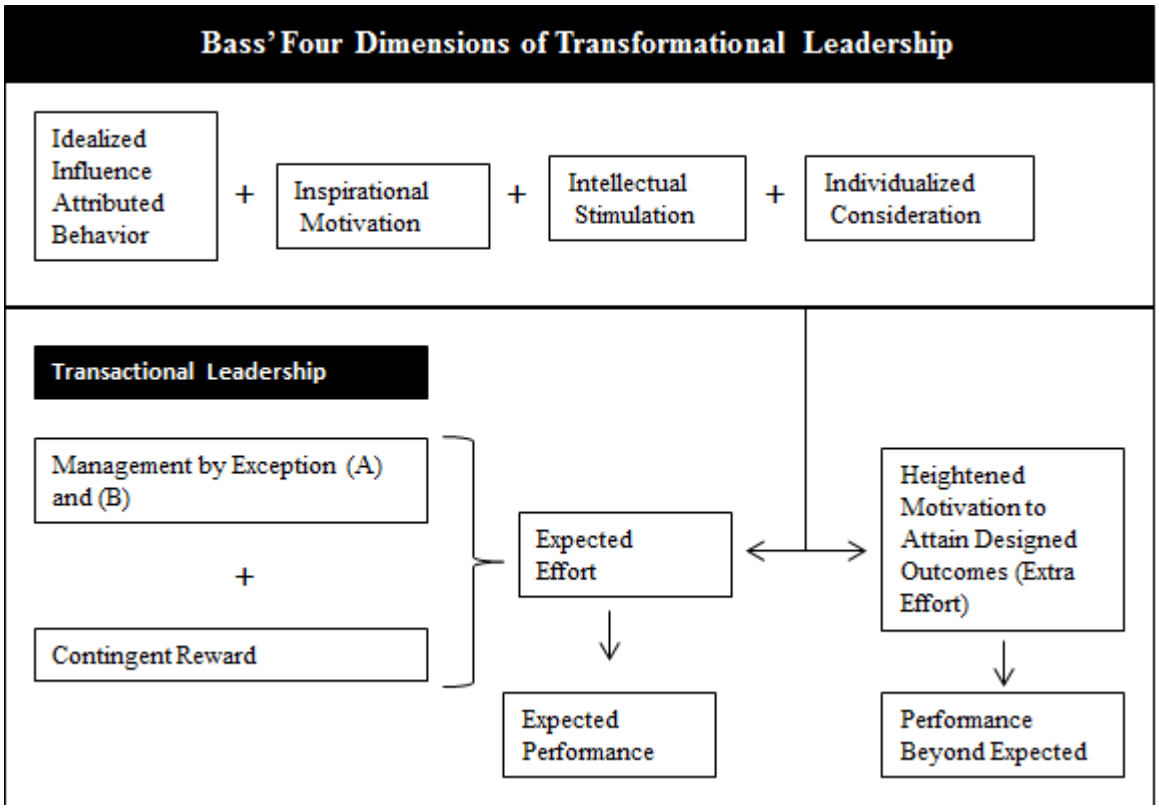

Figure 2. Bass's four dimensions of transformational and transactional leadership.

Idealized influence. Leaders' commitment to safety, as demonstrated by prioritizing safety concerns over all other matters, has a strong correlation to encouraging safer worker practices and trust in leadership (Bass, 1985). He posited that leaders who exhibit idealized influence act as role models for employees when their behavior displays the importance of safety above expedience and when the focus is on occupational safety rather than short-term results derived from productivity pressures. If leaders encourage followers to view their roles in improving safety management practices as a higher moral obligation, followers can observe the importance of adherence to safety management practices beyond the scope of their jobs.

Bass (1985) reasoned that these leaders can display elevated human and moral behaviors despite working in high-risk fields. Employees will see the effect they are initiating as affecting the entire community (Bass, 1985). Bass also advanced the notion that the personal commitment of leaders who display idealized influence facilitates higher levels of follower trust in leadership and the organization, which enhances followers' subsequent performance. Leaders who advanced the idealized influence dimension conveyed the significance of adhering to values, understanding individual and organizational purpose, and deferring to ethical consequences when making safety decisions. Bass indicated that leader-inspired followers tend to hold leaders in high regard and view them as role models, and leaders tend to garner followers' higher levels of personal commitment.

Idealized influence also supports the development of trust between leaders and followers, which reduces the need for formal contracts and hierarchical controls (Bass,

1985). Managers have perceived these hierarchical controls as necessary for maintaining a safe work environment. However, as organizations increasingly become more collaborative and less hierarchical, leaders must ensure that they resolve organizational challenges. By leveraging idealized influence, leaders can characterize safety training as an instrument of the leader's commitment to occupational safety, rather than as an organizational directive. In an environment of idealized influence, the safety climate improves, thus enhancing safe work performance.

Inspirational motivation. Bass (1985) contended that followers feel inspired to go beyond their individual needs for the collective good when challenged through leaders' inspirational motivation. Bass considered the propensity for coworkers surpassing the minimum safety guidelines while also influencing adherence to safety rules. Employees adopt a mindset that creates ownership through their desire to promote the team and the vision of a safe work environment. Bass contended that transformational leaders enhance meaning and promote positive expectations about workplace safety.

Bass's (1985) concept of inspirational motivation illustrated how a leader might inspire large-scale change initiatives and may encourage followers' self-assurance in reaching these goals. Leaders who model inspirational motivation convey their optimism about the future and use past team member safety management practices as teaching tools for future improvement, thus encouraging team members to take the initiative in choosing strategies that move toward the shared goals and vision of the team and the organization. Through this strategy, transformational leaders leverage the credibility and trust they

have established with their employees to promote the open discussion of employee concerns, including safety.

Intellectual stimulation. Bass (1985) contended that leaders can challenge followers to think differently about critical issues, including safety. In thinking differently, these followers may abandon long-held assumptions. Bass advocated for the creation of a culture of innovation among employees, facilitated by leadership but not necessarily dictated by it. Bass encouraged employees to question their own beliefs and, where appropriate, question their leader's beliefs, assumptions, and values. These followers may develop the capacity to address future safety concerns creatively without their leader's involvement, thereby establishing a foundation for intellectual stimulation and the exploration of original, creative methods of accomplishing the organization's mission. Bass added that readers who intellectually stimulate their followers evoke a greater recognition on the part of employees of the challenges and opportunities facing the organization in terms of beliefs, imagination, values, and tangents such as safety.

The approach Bass (1985) described encourages an atmosphere of empowered workers who take the responsibility for creating innovative solutions to routine safety concerns. By positively shaping employee attitudes toward expressing their own ideas, intellectually stimulating leaders create an environment in which employees value their own and their peers' opinions. This environment, leads to greater employee buy-in of the organization's safety goals and a sense of empowerment toward the realization of organizational outcomes. This approach is particularly useful in addressing the challenges created by the rapid pace of social and technological change. In a modern transit rail

system, a leader who distinguishes, understands, conceptualizes, and communicates to others the safety threats, prospects, assets, and weaknesses of the organization is intellectually stimulating. When a leader is intellectually stimulating, followers exhibit the capacity and willingness to independently comprehend and analyze the problems and provide solutions to them (Bass, 1985). Such transformational leaders can encourage followers to view routine issues in innovative ways. With repetition, this process and the mindset that underlies it become a self-supporting, self-replicating part of the workplace culture, which can produce a measurable impact on critical safety issues.

Individualized consideration. In the transformational style, leaders act as coaches or mentors and help followers develop successively higher levels of aptitude (Bass, 1985). Followers receive individualized consideration in the form of skill-level-appropriate tasks and the opportunities to learn new competencies in an environment of encouragement and support. Transformational leaders serve as a coach or mentor (Bass, 1985) and demonstrate an active, individual interest in their followers' well-being and physical safety. This environment encourages followers to view themselves as individuals within a team, each with differing needs, capabilities, and aspirations. As modeled by leaders, the team identity should influence team members to exhibit concern toward each other, thereby forming a cohesive bond that supports attentiveness to safety factors beyond minimal external requirements, such as government standards.

When followers receive social support from their leaders, they report feeling more satisfied with safety and contingency measures in the workplace and more willing to engage in conversations about safety with their leaders (Kammeyer-Mueller, Wanberg,

Rubenstein, & Song, 2013). Transformational leaders cultivate an atmosphere of empowerment and accountability that leads to enhanced decision making and increased safety compliance. Followers tend to work more carefully when they have specific and reasonable responsibilities, autonomy, and objectives. Lioukas and Reuer (2015) examined organizations transitioning from the traditional company-knows-best perspective to a system of rewarding worker creativity and innovation. As illustrated by the four dimensions previously discussed, Avolio identified leadership style as a key element in increasing the motivation of the workforce to contribute its best.

In this study, I applied the conceptual framework described in Figure 1, which incorporated Bass's (1985) model of the four tenets of transformational leadership. Bass expanded on the theory by identifying three essential behaviors for influencing followers: vision, framing, and impression management. Vision is the ability to bind people together with an idea. Framing is the ability to manage the meaning of the idea through communication. Impression management is the process by which leaders attempt to influence followers' perceptions by modeling positive role behaviors.

Weberg (2010) found that followers demonstrated higher levels of confidence, admiration, and commitment. Grant (2013) found that transformational leadership correlated with lower turnover rates, higher productivity, and higher employee satisfaction. Grant also declared that transformational leaders instill a commitment to action in followers, get involved only when a problem exists, and convert employees into leaders, thereby reducing the demand for active management. Transformational leaders instill a commitment to action in followers by developing the ability to shift parties in

conflict from a competitive position to a cooperative position through supportive, amiable compromise, and integrative efforts.

The increasing complexity of tasks, workforce diversity, and globalization has required organizational leaders to embrace change (Carton, Murphy, & Clark, 2015). Transformational leaders serve as agents of change in organizations by inspiring followers to share the vision and mission set before them (Yukl, 2012). Researchers have demonstrated that management's affirmative ethical and consistently moral conduct may markedly contribute to employees' positive workplace mentality (Fast et al., 2014). This encouraging psychological environment, as shaped by transformational leaders, has a link to employees' psychological well-being beyond the work setting (Wiltermuth & Flynn, 2013). Trefalt (2013) found that, in addition to attitude, employee health improved under transformational leadership.

These assertions support Day and Hamblin's (1964) seminal research in which they found a link between poor leadership and increased employee anxiety. Wiltermuth and Flynn (2013) found that obvious and more quantifiable negative links exist between poor leadership and increased employee blood pressure and absenteeism. Call et al. (2015) positively correlated outdated leadership styles with increased levels of employee distress and depression.

The encouragement derived from transformational leadership can lead to employees improving their psychological and physical well-being, ultimately resulting in better decisions by workers who are inspired to place organizational interests above personal interests (Iqbal, Long, Fei, & Bukhari, 2015). Transformational leaders who

model appropriate decision making in the workplace engender similar choices from their employees who feel motivated to avoid easy answers in favor of proper solutions (Tristan, 2016). This improvement in workplace motivation promotes an improvement in the organization's effectiveness and employees' personal well-being (Fast et al., 2014).

Leaders can more effectively influence and direct the behavior of their employees by modeling organizational values and self-concepts, rather than issuing directives and identifying sanctions. Effective leaders align workplace requirements with employees' values and self-concepts, which could affect workers' output. Leaders must navigate between and jointly influence these two ideas if they expect to gain higher efficiency from their subordinates. Similarly, an organization's culture will separately influence both the leadership mentality and the values within that organization. Effective leaders must model the balance of those factors against more personal, individual values if they are to influence the formation of similar attitudes among subordinates. If values conflict, they may adversely affect both employee behavior and the identity (self-concept) that these employees garner from work (Bacha & Walker, 2013).

Safety Management Practices

In this inquiry, I explored safety management practices based upon two elements of Reason's (1990) human error model: unsafe supervision (Level III) and organizational influences (Level IV). In Figure 3, Reason illustrates unsafe supervision and organizational influences as defined in Reason's human error model. The human error model is often referred to in the literature as Reason's swiss cheese model of human error causation.

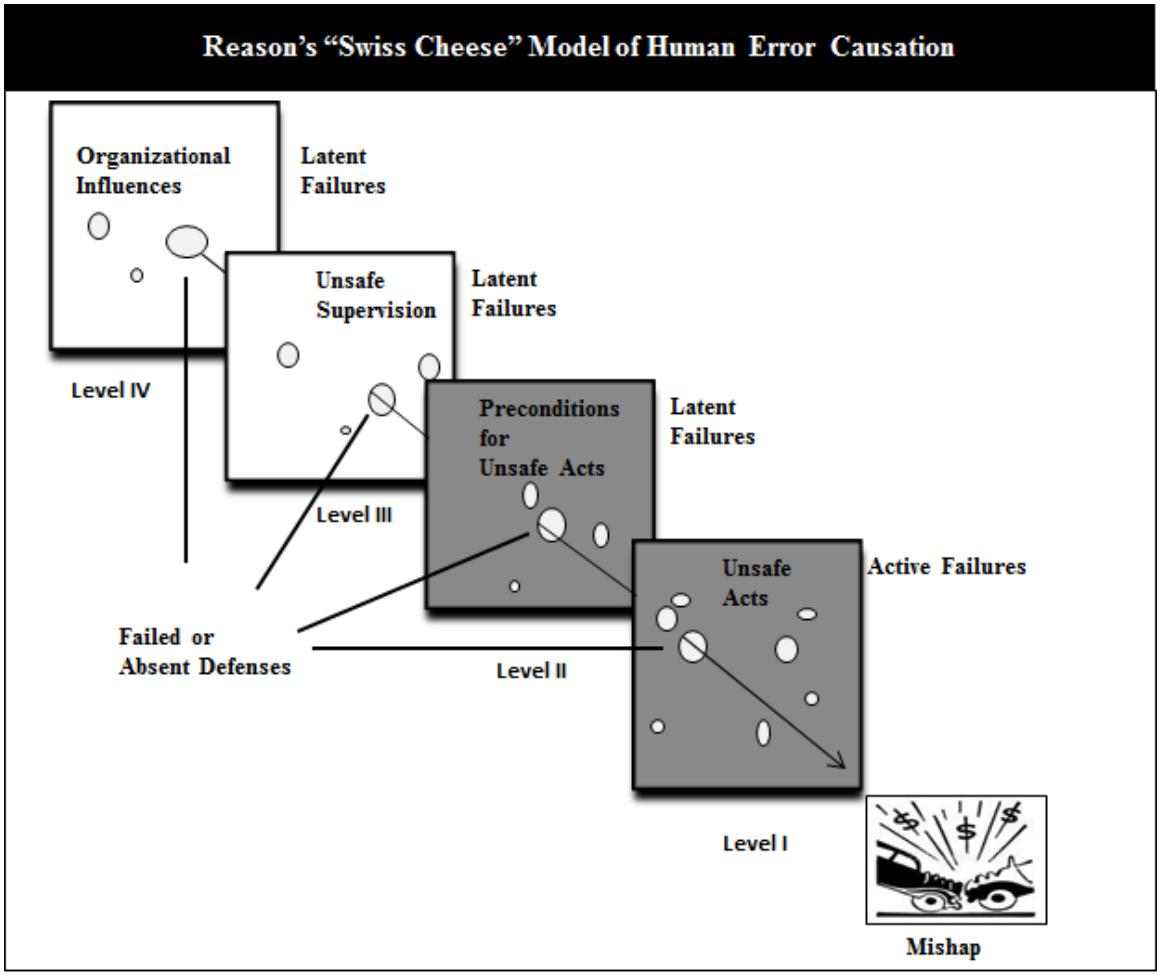

Figure 3. Levels III and IV of Reason's model of human error causation.

Reason placed unsafe supervision (Level III) in one or more of four categories: (a) inadequate supervision, (b) planned inappropriate operations, (c) failure to correct a known problem, and (d) supervisory violations (Reason, 1990). Inadequate supervision (Category I) occurs when a supervisor fails to be a proper role model or fails to ensure proper guidance, training experiences, leadership, or motivation. Planned inappropriate operations (Category II) are those in which supervisors purposely disobey rules and regulations and place individuals at risk. Failure to correct a known problem (Category

III) refers to deficiencies already identified by the supervisor and affects individuals, equipment, training, or other related safety areas left vulnerable by the supervisor's indifference. Supervisory violations (Category IV) are violations in which supervisors purposely disregard the existing rules and regulations (Reason, 1990).

In explaining organizational influences (Level IV), Reason characterized them as unsound senior management policies that affect supervisory practices. These policies generally relate to resource management, organizational climate, and operational processes at the corporate level. Resource management policies generally address the distribution of organizational assets, specifically human resources, capital, facilities, and equipment, in relation to the goals of safety and cost-effective operations. The organizational climate, also known as working atmosphere, encompasses an array of organizational variables that affect follower performance (Reason, 2016). Operational processes are the standardized policies, procedures, rules, and corporate decisions that regulate daily activities within an organization.

Reason's 1990 human error model presented errors in the context of personal cognitive processes. Pursuant to the model, violations must be viewed according to operating procedures, rules, and regulations governing worker behavior. Leaders can promote the reduction of safety violations by emphasizing the importance of safety over productivity goals in the allocation of resources by modeling adherence to safety protocols and prioritizing safety objectives. Reason's model maintains that violations can exist only in the context of regulated practices and procedures. In other words,

individuals commit violations against organizational norms and regulations. By contrast, errors are the product of individual cognitive processes (Reason, 2016).

Human Error Theory

Reason (1990) introduced the human failure term *violation* into Norman's standard taxonomy of slip and mistake (Reason, 2016), which ultimately defines the concept of safety violations in the workplace. In the review of safety violations, I examined unsafe acts (Level I) and preconditions for unsafe acts (Level II), as defined in Reason's human error model. As described in Reason's (1990) human error model, Figure 4 highlights unsafe acts and preconditions for unsafe acts. It also illustrates how Reason's 1990 human error model distinguishes between latent and active failures and identifies the first and second levels of his human error model: unsafe acts (Level I) and preconditions for unsafe acts (Level II).

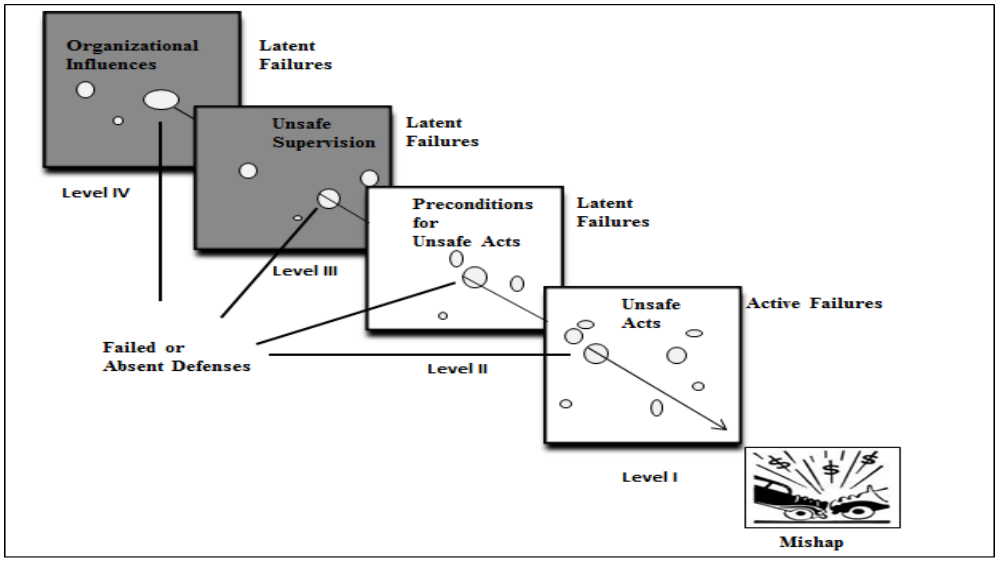

Figure 4. Levels I and II of Reason's human error model.

In this study, I examined leadership styles and safety management practices among frontline rail supervisors and managers. Reason (1990) indicated that unsafe acts (Level I) can be errors or violations. Errors occur when the mental and physical activities of an individual fail to achieve the expected outcome. Conversely, violations require a willful disregard for established rules and regulations. Reason further subdivided these concepts to include three basic error types (skill-based, decision, and perceptual) and two forms of violations (routine and exceptional).

Skill-based errors result from a lack of attention during highly automated behavior, memory failures, or technique errors. Decision errors represent a deliberate action or inaction that is inappropriate to the circumstances and that occurs when an individual lacks sufficient knowledge to make suitable decisions. Perceptual errors result from deficient sensory input (e.g., lack of light, overwhelming noise, or some other unusual sensory stimulation or deprivation). Routine violations are frequent and usually tolerated by the manager; exceptional violations are abnormal and not tolerated by management (Reason, 2016).

Level II of Reason's human error model involves preconditions for unsafe acts. Preconditions include substandard conditions and practices committed by individuals (Reason, 1990). Examples of contributing preconditions can include improper or unreliable equipment, insufficient training or job skill, and lack of clear guidance from management.

Nature of the Study

In this qualitative, cross-sectional study, I examined the perceived leadership styles and attitudes toward safety management practices of frontline rail supervisors and managers. In doing so, I used the self-rating, 45-question MLQ to assess leadership styles and structured interviews to understand participants' attitudes toward safety management practices. The assumption was that leadership styles could have an impact on safety management practices that could lead to reductions in safety violations, which ultimately would lead to reductions in rail accidents.

Although researchers have often cited Sir Francis Galton as the author of the concept of correlation coefficients, Bravais (1846) is credited with pioneering the concept. Correlational research involves determining the relationship between variables using various techniques such as cross-tabulation (Dixon, Singleton, & Straits, 2016) and examining one or more characteristics of a group to discern the extent to which the characteristics vary together.

In this qualitative study, I collected MLQ query results and structured interview responses from 16 frontline rail supervisors and 4 managers. To assess their leadership styles, I administered the self-rating, 45-question MLQ. To understand their attitudes, ideas, and perspectives toward safety management practices, I conducted one-on-one, structured interviews. Both processes elevated supervisors' and managers' awareness of the potential relationship between leadership styles and safety management practices. To recruit participants, I used the convenience sampling technique. The selection criteria for

the rail supervisors and managers entailed their position in the organization, requisite availability, safety training certification status, and willingness to participate in the study.

After comparing four popular research approaches: case study method, cross-sectional design, causal-comparative research, and correlational method, I decided to use the cross-sectional approach for this investigation. The case study and cross-sectional research approaches both focused on a moment in time. However, the case study method failed to allow for a comparison of data over time and precluded a thorough investigation of the research questions. Furthermore, researchers typically employ a case study method in deductive research designs, whereas this inquiry involved a research design that best supports inductive research. As such, the cross-sectional design was suitable for this study as it allows for the analysis of data collected from a population or a representative subset at a specific point in time. As described by Creswell (2015), Figure 5 summarizes the types of cross-sectional and longitudinal survey designs.

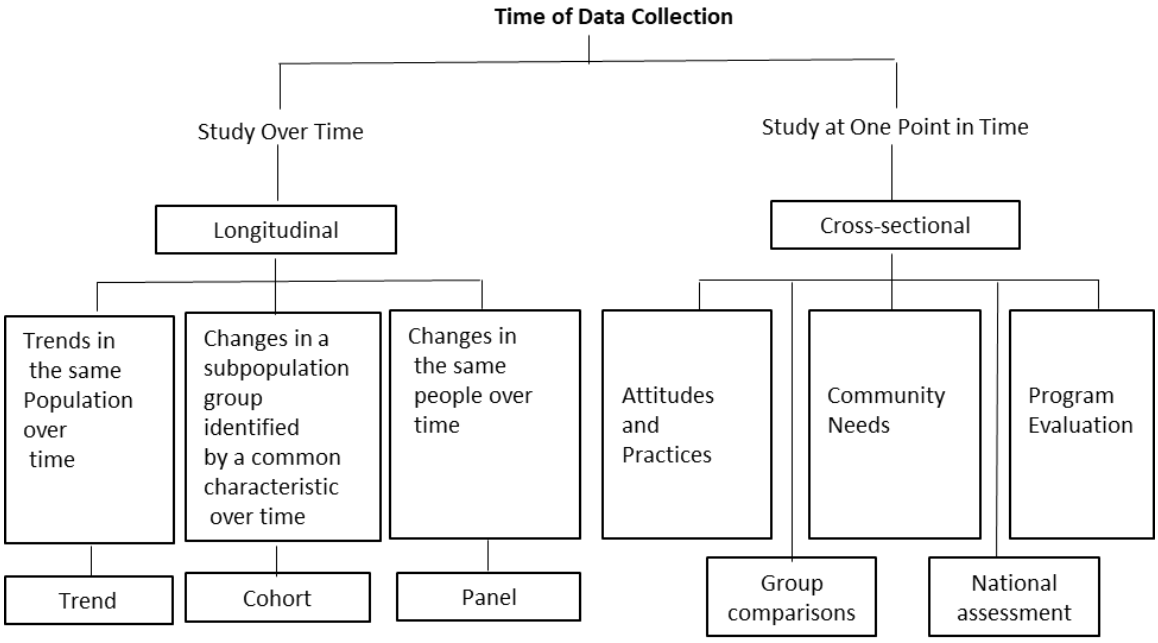

Figure 5. Types of cross-sectional and longitudinal survey designs.

The causal-comparative method is a nonexperimental method that researchers use to establish cause-and-effect relationships rather than an independent variable. Also, the correlational method is a nonexperimental method not used to affect an independent variable. By contrast, researchers do not use the correlational method to establish a cause-and-effect relationship; therefore, the causal-comparative method was inappropriate for this inquiry. Simon (2013) noted that researchers conducting correlational research try to establish whether or to what degree a relationship exists between multiple quantifiable variables. For this reason, the causal-comparative method was incompatible for this investigation. Although the correlational and the causal-comparative methods have adequate research characteristics**,** they were unsuitable for this study.

This inquiry explored frontline rail supervisors' and managers' leadership styles and safety management practices. The specific questions for this study were structured

and open-ended to examine frontline rail supervisors' and managers' viewpoints, work environment, and safety management practices. I administered the self-rating MLQ to assess rail supervisors' and managers' leadership styles and conducted individual structured interviews to understand their safety management practices.

Definitions

Cross-Sectional Survey Design: The researcher collects data at one point in time (Creswell, 2015).

Distracted driving: Any activity that diverts attention from driving, including talking or texting on your phone, eating and drinking, talking to people in your vehicle, fiddling with the stereo, entertainment, or navigation system—anything that takes your attention away from the task of safe driving (National Traffic Law Center, 2017)

Job complexity: Job complexity is the extent to which job tasks are more difficult to perform than expected (Morgeson & Humphrey, 2006).

Leadership: Burns (1978) defined leadership as individuals inducing followers to act for certain goals that represent the values and motivations—the wants and needs, the aspirations and expectations—of both leaders and followers. Burns insisted that to have the greatest impact on the followers, leaders must motivate them to action by appealing to shared values and satisfying the higher order need of followers, such as their aspirations and expectations.

Multifactor Leadership Questionnaire (MLQ): The MLQ consists of an array of leadership styles defined through nine leadership components measured by four highly intercorrelated factors, each of which has virtually no correlation to the other eight

components (Bass & Avolio, 2004). The questionnaire has two formats: the 5X Short form (45 items) and the 5X long form (63 items). This study included a modified MLQ 5X Short form because it is the more useful of the two formats for research purposes (Bass & Avolio, 2004). Researchers use the MLQ to assess leadership styles and effectiveness behaviors, and research suggests that the application of leadership styles and behaviors are linked to individual and organizational success (Bass & Avolio, 2004).

Bass and Avolio (2004) incorporated both leadership and outcome items into the MLQ, which allows a comparison of leadership attributes with performance outcomes in the same instrument. The instrument includes 36 leadership items consisting of four items per scale coupled with nine outcome items. The MLQ items are rated on a frequency scale, such that receiving a lower score on intellectual stimulation equates to the individual exhibiting this leadership style less (Bass & Avolio, 2004). The MLQ is self-explanatory, but participants completing the MLQ should have a minimum ninth-grade reading level (Bass & Avolio, 2004). If researchers cannot ensure all participants meet this minimum standard, they can still administer the instrument with allowances made.

Organizational commitment: The psychological affection an employee exhibits toward an organization (Fulford, 2005).

Qualitative structured interview: The qualitative research interview seeks to describe the meaning of central themes in the life world of the subjects. The main task in interviewing is to understand the meaning of what the interviewees say. It seeks to cover both a factual and a meaning level (Babbie, 2016).

Safety climate: Employees' perceptions of safety policies, procedures, and practices (Zohar, 1980).

Safety culture: The fundamental underlying beliefs and values of a group of people in relation to risk and safety (Zohar, 1980).

Safety management practices: Includes level III and level IV. Level IV, organizational influence, is defined as unsound senior management policies that affect supervisory practices and that relate to resource management, organizational climate, and operational processes on the corporate level. Level III, unsafe supervision, falls into one or more of four categories: Category 1, inadequate supervision, occurs when a supervisor fails to be a proper role model or to ensure proper guidance, training experiences, leadership, and motivation; Category 2, planned inappropriate operations, occurs when a supervisor purposely disobeys rules and regulations and places individuals at risk; Category 3, failure to correct a known problem, occurs when deficiencies already identified by the supervisor exist and encompasses individuals, equipment, training, or related safety areas left vulnerable by the supervisor's indifference; and Category 4, supervisory violations, occurs when supervisors purposefully disregard the existing rules and regulations (Reason, 2016).

Safety violations: The deliberate, though not necessarily reprehensible, deviations from those practices deemed necessary by designers, managers, and regulatory agencies to maintain the safe operation of a potentially hazardous system (Reason, 1990).

Task characteristics: The accomplishment of the work and the range and nature of tasks associated with a particular job (Morgeson & Humphrey, 2006).

Transactional leadership: A quid pro quo relationship between leaders and followers based on a value exchange construct (Burns, 1978).

Transformational leadership: Defined by Burns (1978) as a style of leadership demonstrated by leaders and followers engaged in a mutual process of raising one another to higher levels of morality and motivation.

Assumptions

The basis for this research comprised four conceptual and three operational assumptions. The first conceptual assumption was that this qualitative study was ideal for determining the presence and covariance of a relationship between leadership styles and attitudes toward safety management practices. The second conceptual assumption was that each of the participants grasped the concept of leadership and honestly answered each question in the MLQ. The third conceptual assumption was that experienced frontline rail supervisors and managers have significant and well-founded competence to provide credible perspectives on the prioritization of safety management practices. The fourth conceptual assumption was that the current workforce responds more effectively to the transformational leadership style than to other leadership approaches, the corollary being that the contemporary workforce expects supportive leaders to coach and mentor them.

The first operational assumption was that the convenience sampling approach is optimal for identifying frontline rail supervisors and managers who can identify the practices that should lead to successful leadership development outcomes. The second operational assumption was that the complexity of job tasks requires more collaboration

between employees and management. The third operational assumption was that a significant shift from an historical service workforce to a digitally-based economy has transpired.

Scope and Delimitations

The scope of this study included 16 experienced, frontline rail supervisors and 4 managers with varied safety and operational competencies, perspectives, and formal and on-the-job training and certifications. The study focused on frontline rail supervisors and managers in a single metropolitan region. I chose to collect data on a single rail transit system, although a comparison of multiple systems might have proved more valuable. The decision to select only one was due to limited time and resources. I used one-hour, individual sessions to administer the self-rating MLQ to assess frontline rail supervisors' and managers' leadership styles and conducted structured interviews to understand their attitudes toward safety management practices.

The focus of the inquiry was to examine frontline rail supervisors' and managers' leadership styles and safety management practices. A larger population of the rail system's transportation divisions was unavailable for this study because of conflicting operational schedules. Frontline rail supervisors' and managers' responses to the self-rating MLQ helped assess their perceived leadership styles. Responses to structured interviews helped understand their attitudes toward safety management practices.

Limitations

I selected the survey design to describe a potential relationship between frontline rail supervisors' and managers' perceived leadership styles and their attitudes toward

safety management practices. The survey design for this study presented at least six limitations: (a) supervisors and managers self-reported MLQ and structured interview responses, (b) the cross-sectional design method allowed examination of the data at one point in time only, (c) study design did not attempt to establish causation between leadership styles and safety management practices, (d) structured interview questions did not permit supervisors and managers much flexibility in their responses, (e) a dearth of empirical evidence existed on the efficacy of the relationship between leadership styles and attitudes toward safety management practices, and (f) a potential source of bias was the researcher's partiality toward the transformational leadership style over other contemporary leadership approaches.

Significance

A gap existed in the current literature and in the understanding of the potential scope of leadership styles on safety management practices. The potential significance of this research was the advancement of the theory that leadership styles can influence attitudes toward safety management practices. Also, practices and policies addressed the benefit of advancing the understanding of how to use the tenets of leadership styles to enhance organizational performance. Social change implications included increased ridership comfort, security, and trust and positive environmental impact, such as reduced traffic, carbon emissions, and gridlock.

Significance to Practice

Yukl (2016) put forth the notion that leadership is critical in creating the environment of trust. Employees are more likely to share violations and suggestions

concerning safety in a trusting environment. Cooper (2015) stressed the importance of effective communication between manager and employees in safety-sensitive work environments. Role overload is experienced by employees in a safety-critical work environment in which employees perceive that managers emphasize productivity over safety (Cooper, 2015).

Significance to Theory

Leaders and researchers in the rail industry have failed to address the impact of leadership style on accident and injury rates (Zohar, 2016). Cooper (2015) indicated that a limited number of studies have focused on issues concerning safety violations and the influence of leadership. Tristan (2016) asserted that an environment of trust, attentiveness, and engagement promoted by transformational leadership is a mitigating factor for unsafety practices.

Significance to Social Change

This study provided insight for policymakers, researchers, and transit rail authority into factors that could support improvement in leadership development and safety management practices. This study also highlighted the critical nature of leadership for engaging the workforce and for improving and increasing attention to safety criteria. Leaders who increasingly attend to human factors in organizations in which safety reliability is critical more readily capture potential safety hazards (Kath et al., 2010).

Other potential social changes included the examination of a transformational leadership approach that models best practices in safety leadership. The findings were consistent with previous studies showing that transformational leadership has an

affirmative effect on employees' performance. Thus, this research could be a baseline to develop leadership training and mentorship programs and leadership and managerial practices that might eventually influence organizational culture at large. This study is a valuable contribution to the existing body of knowledge on how well organizational leaders implement transformational leadership approaches.

Furthermore, the results of this study contribute to the research literature on leadership that could improve curriculum development of future leadership management training programs. The research also provides additional data that advances leaders' interpersonal relationships with followers and that advances knowledge of the significance of various leadership approaches and safety management practice initiatives. Coleman and Kugler (2014) noted that individuals typically develop, rather than inherit, leadership characteristics. The likely contribution of this investigation could be the enhanced training on safety management practices. Advancements in training policies may help managers deepen their commitment to safety management practices. Such a commitment could reorient the accountability of the workforce to an engaged, safety-first mind-set.

Summary

As stated, leadership styles can be key elements of a rail system's organizational safety management practices. Leaders' awareness of their own leadership styles could influence team members' job satisfaction and organizational commitment. Leadership styles could influence the attention employees direct toward safety management

practices. Thus, employees' readiness to embrace leadership styles could enhance workplace safety, compliance, and productivity.

Given the impact of railway tragedies and particularly the increase in safety violations, managers must become more aware of the emphasis placed on safety management practices. To instill more confidence in the commuter rail industry, frontline rail supervisors and managers might embrace different leadership approaches to improve safety management practices that might filter down to employees. Leadership styles could also impact ethical and change-oriented behaviors to increase organizational innovation, collective learning, and adaptation to external changes.

In individual sessions, I administered the MLQ to assess supervisors' and managers' leadership styles. Later in the same session, I conducted structured interviews to understand better their attitudes toward safety management practices. The intent of these processes was to elevate supervisors' and managers' awareness of the potential relationship between leadership styles and safety management practices.

This study included a conceptual view of leadership styles and safety management practices. In the study, I suggested areas for follow-on research. Additionally, the study consisted of pathways and contemporary thinking that researchers might use for further consideration. Success in this effort may lead to positive social change in the commuter rail industry.

Chapter 2 will include a review of journal articles, safety review investigations, and books germane to this study. Reviews of research on leadership approaches and safety management practices are included. The aggregate literature review, the catalyst

for this research, served as a baseline to begin examining other researchers' work on this topical area.

In Chapter 3, I discuss the research methodology, appropriateness of the qualitative study, and research presentation. In Chapter 4, I include a report of the data analysis and findings. In Chapter 5, I provide an overview of the conclusions of this study in relation to the research questions and literature review. Finally, I recommend further research and discussed the implications of the research findings for social change.

Chapter 2: Review of the Literature

Introduction

The general problem that was the focus of this study was that the number of commuter rail accidents has steadily increased in the past decade. The specific problem was that current leadership practices have not achieved success in reducing safety violations and rail accidents. To address these problems, I designed a study focused on leadership styles and rail safety. The purpose of this study was to explore the potential influence of perceived leadership styles of 16 frontline rail supervisors and 4 managers on safety management practices within a metro rail system.

As noted in Chapter 1, a significant upsurge in the number of commuter rail accidents has occurred in the U.S. public rail transportation system since 2015. These accidents have disquieted the confidence of riders of the public commuter rail system. A review of a 2015 NTSB investigation revealed a casual and inattentive approach toward transportation safety training and operational skills development. The conceptual framework presented in Chapter 1 included an overview of the prospective influence of leadership styles at the operational level. In addition, Chapter 1 included a discussion of Reason's (1990) human error model.

To assess the participating frontline rail supervisors' and managers' leadership styles and understand their attitudes toward safety management practices, I convened individual, one-hour sessions with them, administered the MLQ, and conducted structured interviews. The intent of these sessions was to gather information that could be

used to elevate rail supervisors' and managers' awareness of the potential relationship between perceived leadership styles and attitudes toward safety management practices.

The problem of rail safety prompted at least four inquiries between 2012 and 2016. Pater (2012) found that employees' fears of reporting and communicating safety infractions indicated the difficulty of resolving the culturally ingrained problem of accident prevention and highlighted the importance of leaders building trust with followers. Later, Bienefeld and Grote (2014) cited the human factor again as the cause of several tragic accidents. Lawson (2015) cited managerial incompetence in a critique of the causes of railway mishaps. Finally, Saujani's (2016) findings reflected those of the 2015 NTSB investigation. Both findings concluded that the lack of leadership and fears of reporting safety infractions led to a culture of unsafe management practices.

In the review of literature in this chapter I noted topics on the transit rail industry that could contribute to scholarly literature in the field of leadership development and safety management practices. Additionally, the literature in the review defined the nature of leadership and determined how well the definition applied to the transit rail industry. This inquiry also examined various thought leaders' descriptions of the tenets of transformational leadership and the strength of the tenets' applicability to a contemporary leadership model. Finally, this literature review included the foundational underpinnings of several key researchers' impressions and thoughts from earlier qualitative studies on leadership development.

Chapter 2 also includes a description of the scope of the literature review and an analysis of the impact of leadership styles and safety management practices. The

significance of understanding the possible leadership style-safety management practice relationship could help enhance leadership development and safety management training competencies. In this regard, I investigated the five research questions listed in Chapter 1. In doing so, I considered supervisors' and managers' leadership styles and actions, attitudes toward safety management practices, challenges and obstacles, and suggestions for improving rail safety operations that could help reduce safety violations. Researchers' greater understanding of leadership principles could enhance safety management practices, employee safety training, and leadership development. Finally, Chapter 2 included a review of the available literature and empirical data on leadership development and safety management practices.

Literature Search Strategy

In the literature search, I examined journal articles from various online databases, including *Journal of Management*, *Academy of Management Journal*, and *Journal of Organizational Behavior*, as well as Academy of Management Review publications. I accessed the journals using EBSCOhost and ERIC online research databases. Scholars and professional experts in the fields of safety management and leadership theories authored the selected books and industry journals. This inquiry added to the limited body of safety leadership knowledge, although the topic remains an area that needs additional investigation.

The literature presented in Chapter 2 evaluated topics related to the transit rail industry and contributed to the existing scholarly literature on the field of safety leadership. For the literature review, I included thought leaders' descriptions of the tenets

of transformational leadership and evaluated the strengths of these tenets and their applicability to a contemporary leadership model. Finally, in this inquiry, I included the foundational underpinnings of several key researchers' impressions and thoughts from earlier studies associated with transformational leadership.

Considerable research was readily available on the effects of leadership styles on many aspects of organizational goals, yet a notable lack of research exists linking leadership theory to safety management practices. Since the mid-1980s, transformational leadership has been among the most widely researched topic in the field of management (Gordal et al., 2015). Yet researchers have conducted few studies on safety management over the past three decades. Research on safety management decreased in the 1990s, and very few studies focused on leadership's influence on safety management practices.

This examination may add to the limited existing body of knowledge on safety leadership's association with safety management practices. To explore the five central research questions in Chapter 1, I used the MLQ results to assess supervisors' and managers' leadership styles. I used structured interview results to understand their attitudes toward safety management practices.

The opportunity for social change stemming from this inquiry could lead to increased workplace safety and add to the body of literature for future researchers investigating the relationship between leadership styles and safety management practices. The tenets of transformational leadership are widely accepted as a conceptual basis for the study of leadership development. As such, my literature search included periodicals published since the mid-1990s and more heavily weighted studies published after 2014.

This qualitative study included an assessment of collected MLQ self-rater reports and an analysis of the structured interview data.

In this research, I narrowed the selected materials to those related to the relationship between leadership styles and safety management practices. Contemporary researchers are beginning to openly question the legitimacy and effectiveness of traditionally accepted leadership styles. Researchers are also questioning the unique value of leadership styles and the effects on employees' perceptions of managers.

Theoretical Foundation

One focus of this research was on transformational leadership styles and the examination of Bass's (1985) extension of Burns's (1978) seminal work. Bass posited that transformational leadership is not the opposite of transactional leadership. Instead**,** Bass contended that transformational leadership constitutes a linear progression along the same management continuum.

Researchers have learned much about how transformational leadership has affected followers since Bass (1985) modified the work of Burns (1978) on transactional and transformational leadership. Bass proposed that transformational leadership augments the effects of transactional leadership on the efforts, satisfaction, and effectiveness of subordinates. Both researchers determined that various leaders may motivate followers to achieve a higher level of thinking by appealing to their followers' ideals and values through the four dimensions of transformational leadership: (a) charisma or idealized influence, (b) inspiration, (c) intellectual stimulation, and (d)

individualized consideration. A central tenet of the transformational leadership approach is that followers' reactions to a leader ultimately translate these results.

Transformational leaders can advance their followers' commitment to a clearly defined vision and inspire them to strive toward a higher level of creative and innovative problem solving. Schaubroeck et al. (2012) identified the positive association between transformational leadership and follower behaviors. Transformational leaders can have a profound effect on followers' perceptions of work characteristics because they provide personal attention to promoting development through individualized consideration. Leaders who draw on this style also enable new ways of working, encourage novel problem solving, provide coaching, and encourage specific behaviors in subordinates through intellectual stimulation (Maruping, Venkatesh, Thatcher, & Patel, 2012). These findings validated Bass's (1985) model, which indicated that transformational leadership is predictive of individual and group performance.

In a joint study, Matta, Scott, Koopman, and Conlon (2015) expanded upon Bass's and Burns's research and concluded that transformational leadership consists of four critical dimensions: (a) idealized influence, (b) inspirational motivation, (c) intellectual stimulation, and (d) individualized consideration. Behavior that promotes trust in others defines the idealized influence dimension. Communicating the importance of each follower's contribution to achieving the vision describes the inspirational motivation dimension. Providing a safe environment in which followers are free to think creatively and challenge the status quo characterizes intellectual stimulation dimension.

Recognizing the development needs of followers and providing support for their concerns demonstrate individualized consideration dimension.

Significant research has been done on the effects of transformational leadership on followers since Burns (1978) used his classification of legislative leaders to explain the difference between transactional and transformational leadership. Bass (1985) later proffered the notion that transformational leadership is not on the transactional leadership continuum; rather, it is an enhancement of the transactional leadership. For instance, Bacha and Walker (2013) identified enhancing the tenets of transformational leadership such as integrity and trustworthiness as essential components of effective transformational leaders. Based on Bass's notion, transformational leadership could provide frontline rail supervisors and managers a blueprint for improving safety management practices, especially for those challenged by high incidents of deadly railway tragedies.

Gruber, de Leon, George, and Thompson (2015) further noted that integrity presupposes open and honest communication when decisions are imminent. The tenets of transformational leadership could help frontline rail supervisors and managers improve safety management practices (Lievens & Vlerick, 2013). In this qualitative study, I (a) explored a possible relationship between the tenets of the transformational leadership approach and attitudes toward safety management practices, (b) examined the tenets of transformational leadership that frontline rail supervisors and managers can employ to help improve safety management practices, and (c) considered challenges and obstacles that rail supervisors and managers could encounter in enhancing safety management

practices. The overriding principle was the extent to which supervisors and managers can enhance safety management practices.

Bass's formative 1960 study noted that the definition of leadership could serve a variety of purposes and that the definition of leadership was dependent on the purpose of the leadership study. Other researchers have developed definitions that (a) identified an object to observe, (b) identified a form of practice, (c) satisfied a particular value orientation, (d) avoided a particular orientation or implication for a practice, and (e) provided a basis for the development of theory (Bass, 1985). Kareem (2016) further established that an objective of leadership research is to provide relevant information that researchers can use to compare the full range of definitions, leadership concepts, and consistency to classify these concepts. In 1990, Bass underscored his earlier focus on the definitions of leadership as being incumbent upon the group process and movement, followed by the art of inducing compliance. Bass later transitioned to a more contemporary definition that included leadership in the context of a) charisma, b) power differentials, c) persuasion, d) influence on goal achievement, e) role differentiation, f) reinforcement, g) initiation of structure, and h) perceived attributes of behavior. Ronald (2014) noted that any definition of leadership should maintain the capacity for its meaning to evolve, but the definition must avoid a narrow focus on the concept of leadership so that it does not simply identify leaders and the path through which they obtained their positions in an organization.

Conceptual Framework

Transformational leadership theory has evolved to describe four dimensions of leader behavior since Burns (1978) introduced it and Bass (1985) later augmented it. These dimensions are (a) idealized influence, (b) inspirational motivation, (c) intellectual stimulation, and (d) individualized consideration. These dimensions are noticeably absent from the transactional leadership style and, as delineated by Bass, highlight the primary distinction in leader-follower behavior.

Bass and Avolio (1995) used the foundation of transformational leadership established by Burns (1978) to create their own proposal for organizational leaders. Bass and Avolio extended Burns' model by explicitly distinguishing traits of transactional versus transformational leadership as complementary but not on the same scale. Bass conceptualized the transformational and transactional dimensions as separate, whereas Burns had defined them as two ends of a spectrum. For Bass, a leader could be both transformational and transactional. Moreover, Bass and Avolio viewed the styles as similar on a continuum. The possibility even existed that both styles could accurately depict one individual. Bass tried to illustrate manners applicable to such leaders.

Bass and Avolio (1995) focused their model on the likelihood that transformational leaders could inspire employees to achieve at levels exceeding the goals either employees or leaders anticipated. Such leadership intrinsically required that certain goals became more prominent, that employees clearly observed the means to reach those goals, and that leaders prompted employees to sacrifice innate self-regard for group-regard for the betterment of the organization. Transformational leaders displaying these

qualities would also provide benefits to employees. As leaders fulfill certain higher order needs, commonly found in Maslow's (1943) model of self-actualization, the resulting cycle would engender devotion, effort, and, eventually, superior accomplishment.

James Victor Downton (1973) originally coined the term transformational leadership to differentiate transactional from transformational leadership and to explain the variations between revolutionary, rebellious, reform, and ordinary leaders. Once Burns produced his most notable work on the topic of leadership in 1978, the term transformational leadership gained prominence. Bass (1985) delineated the definition of transactional leadership further and expanded the concept of transformational leadership by depicting the former as a component of the latter.

In 1978, Burns purported that transformational leaders required an acute mindfulness to direct the explicit focus of their followers on organizational goals and the pathways toward their achievement. Burns added that such leaders must engender their followers to supersede personal immediate interests in lieu of the organization's needs and provisions. Burns reasoned that generating an inspired confidence from followers would allow them to reach an enlightened potential that could broaden their needs beyond that of their own self-interest. Bass surmised in 1985 that this heightened potential embodied and characterized the four tenets of transformational leadership. Bass defined the dimensions as (a) idealized influence, (b) inspirational motivation, (c) intellectual stimulation, and (d) individualized consideration.

Idealized influence (aka charisma) is the highest level of transformational leadership. Followers who exude confidence in and demonstrate implicit trust in their

leader demonstrate idealized influence (Jacquart & Antonakis, 2015). The degree to which leaders behave in charismatic ways that cause their followers to identify with them and the vision they set forth characterize idealized influence (Grant, 2012).

Inspirational motivation is a dimension of transformational leadership symbolized by the degree to which leaders can articulate an appealing vision to their followers. Leaders who exhibit this dimension of transformational leadership motivate and inspire followers by building confidence, arousing enthusiasm, and invigorating esprit de corps (Jacquart & Antonakis, 2015;). Transformational leaders can motivate followers to become more committed to goals and a shared vision in the future growth of the organization. These leaders put forth symbols, metaphors, and simplified emotional appeals to raise awareness and understanding of desired outcomes (Grant, 2012).

Intellectual stimulation is the third dimension on which Bass (1985) and Burns (1978) differed. This dimension epitomizes the degree to which leaders may challenge assumptions, take risks, and solicit followers' ideas. A transformational leader encourages and stimulates followers to think differently about long-standing organizational challenges and persuades workers to apply extra effort in their job (Martin, Liao, & Campbell, 2013). Followers consequently begin to develop the capability of exploring, analyzing, and solving problems by thinking critically to manage the rapidly changing organizational demands.

The fourth dimension that distinguishes transformational leaders from transactional leaders is individualized consideration, which is the degree to which leaders attend to followers' needs, act as mentors or coaches, and take note of followers'

concerns. The leader must pay attention to personal growth, advancement, and achievement by individual followers in an organization. The two-way exchange process that develops between followers and leaders is one of mutual trust, sharing, and concern (Matta, Scott, Koopman, & Conlon, 2015).

Lorinkova, Pearsall, and Sims (2013) detailed a selection of findings on organizational commitment and transformational leadership in their empirical study on empowerment. They found precisely how leaders failed to motivate employees or use initiative to improve organizational practices and growth–notable failures to inspire investment in the goals or direction of the organization. Boekhorst (2015) articulated the idea that previous management practices reinforced the belief that organizational processes and procedures were constant and unchanging. Boekhorst also acknowledged that managers using previous management styles encouraged the maintenance of a hierarchical approach. Finally, Boekhorst found that followers had less reverence for managers who undertook unilateral relationships with followers. That is, these managers simply issued directives and expected followers to complete tasks with minimal intervention or support.

Mathew and Gupta (2015) characterized transformational leaders as being charismatic individuals who identify emotionally with their followers. In 2015, these researchers added to their depiction of transformational leaders, noting their ability to motivate followers' performance by encouraging them to work as team players. Zhang et al. (2012) recognized other traits held by transformational leaders: (a) enhancing job satisfaction by encouraging awareness of the value of a task outcome, (b) activating

employees' higher order needs, (c) inducing employees' transcendence of self-interests for the sake of the organization, and (d) leading in commitment to change.

Mathew and Gupta (2015) further advanced the notion that transformational leaders bring employees together to accomplish goals by creating and communicating a vision for the company while uncovering a unique vision, a mission, goals, and a mutually dependent leader-employee relationship. Such leaders can cause employees to use their job attitudes and beliefs as sources of intrinsic motivation in fulfilling the organizational mission. Through intellectual stimulation, transformational leaders can alert employees to the existence of a current problem and possibly facilitate discovery of a solution. Later Datta (2015) supported these traits of transformational leaders by examining the managerial aptitude for knowledge, skills, and experience. He measured these factors and found that the relationship between these variables provided a rationale for determining whether transformational leaders enhanced satisfaction by helping employees have a better understanding of situations requiring a response.

In 2013, Martin et al. noted that transformational leaders bring employees together to accomplish goals by creating and communicating a vision for their organization. Transformational leaders can cause employees to internalize their job attitudes and beliefs as sources of intrinsic motivation to fulfill the organizational mission. Through intellectually stimulating employees, transformational leaders enhance employees' awareness of the existence of a current problem and possibly facilitate finding solutions. Fast et al. (2014) provided a rationale for considering transformational leadership as enhancing satisfaction by helping employees develop a better understanding

of the risks that require a response. Fusco, O'Riordan, and Palmer (2015) supported the work of Martin et al. (2013) on the importance of authentic leadership. They examined managerial capabilities that included knowledge, skills, experience, and the relationship between these competencies.

Moreover, Ghasabeh, Soosay, and Reaiche (2015) affirmed that transformational leadership affects organizational outcomes by determining which leadership behaviors and functions leaders applies to help enhance organizational leadership effectiveness. Leadership behaviors and functions included a) charisma, b) vision, c) intellectual stimulus, d) individualized consideration, and e) inspirational motivation. Followers developed a feeling of being special because of their leader's recognition and appreciation, and they put forth extra effort in a heightened perception of their working environment (Zhang et al., 2012). The perception of their jobs as meaningful more than likely contributed to the positive correlation between transformational leadership and innovative task performance (Ghasabeh et al., 2015).

Transformational leaders help followers make decisions in a supportive environment through coaching and mentoring (Tuuk, 2012). This assistance promotes a clear framework or vision for followers as they experience high degrees of influence while they are encouraged to make decisions and solve problems (Barnes, Lucianetti, Bhave, & Christian, 2015). Matta et al. (2015) indicated the promotion of this clear vision allows followers to understand their function in the company's future, which prompts them to perceive their jobs as meaningful.

The transformational leadership style strengthens team autonomy through individual consideration (Tuuk, 2012). As mentioned, a transformational leader identifies the strengths and talents of each follower and motivates each follower to strive to reach his or her highest level of performance. Matta et al. (2015) recognized the importance of team autonomy in promoting work-team performance and highlighted the strong association between task uncertainty and team performance in situations with a high degree of team autonomy.

McClean et al. (2013) recognized that creativity is also a trait of transformational leadership. Katz and Miller (2014) noted that creativity is critical for organizations to survive and compete. They further concluded that creativity adds value to an organization if it affects employees' job performance. Fast et al. (2014) described creativity as increasingly important to the long-term profits of organizations through the development of new and interesting products and services, which enables them to thrive over the long term. Employee creativity flourishes when managers provide transformational leadership (Maruping et al., 2012).

Buble, Juras, and Matic (2014) noted identity comprehension is a critical element exhibited by successful leaders. The basis of this concept is that vital concerns to employees affect individual employee attitudes toward work and outcomes. Sanchez (2013) found that the extent to which supervisors were empathic and understanding of employees' feelings positively related to the output of research and developmental scientists.

Management scholars in the areas of career development, leadership, social networks, and positive organizational learning have provided valuable insights into the effect of relationships on one's development, performance, and well-being (Matta et al., 2015). Social interaction, as delineated by Matta et al. (2015), is a final factor that management should consider when assessing the quality of leaders. Barnes et al. (2015) noted that the focus of the interpersonal level of interaction is on one's role-related relationships, such as the supervisor-to-subordinate or coworker-to-coworker relationships.

Incumbent upon transformational leaders is the need to exhibit individualized consideration. A leader who is supportive and concerned about employees' personal feelings and needs serves the followers effectively (Iqbal et al., 2015). A transformational leader who supports followers' feelings of individuality, while also promoting team orientation, most closely replicates the ideal of identity comprehension (Lewis, Andriopoulos, & Smith, 2014).

Harrison and Rouse (2013) described an important link between leadership, goal importance, congruence, and outcomes. Colbert, Barrick, and Bradley (2013) found a strong association between individual and organizational outcomes when organizational goals aligned with individual goals and motivated and influenced specific personal goals. As documented by McClelland and Atkinson (1976), a strength exuded by transformational leaders is their ability to create a shared vision between an organization and its followers. Turaga (2013) and Gordal et al. (2015) supported this contention in their finding that transformational leaders communicated a consistent sense of their

organization's strategic goals through their words and actions. Bass (1985) and Gordal et al. (2015) also noted transformational leaders emphasized collective, rather than individual, interests which prompt followers to view their goals as aligned with the organizational objectives.

Bass released his findings in 1985 which were precursors to many organizations expanding internationally. Consequently, leaders needed to begin working with followers from different cultural backgrounds. Moreover, to remain competitive, organizational leaders required the capability to identify and cultivate effective leaders from among a culturally diverse labor pool (Matta et al., 2015). Gordal et al. (2015) affirmed the expectation that effective leaders should display an authentic understanding of individuals based on perception, reflection, and emotional intelligence. Goleman described emotional intelligence as the capacity to manage and understand one's own emotions as well as the emotions of others.

Toegel, Kilduff, and Anand (2013) noted that displaying high levels of emotional intelligence was a reliable indicator of leaders being adept in an organizational context. Certain aspects of emotional intelligence, such as interpersonal skills, have a positive correlation with nearly all the transformational leadership attributes (Doe, Ndinguri, & Phipps, 2015). According to Tuuk (2012), leaders exhibiting high levels of emotional intelligence and transformational leadership behaviors are (a) visionary, (b) expressive, (c) inspirational, (d) influential, and (e) motivational in improving organizational performance (Tuuk, 2012).

Jacquart and Antonakis (2015) found three alternate factors that correlated to better performance and were strong predictors of transformational leadership. Cultural empathy, open-mindedness, and social initiative correlated highly with multicultural personality and transformational leadership. These findings supported the use of transformational leadership in international cultures. This conclusion indicated that human resource managers should have a more important role in determining the relevance of these findings in selecting and developing transformational leaders as international managers.

Transformational leaders influence employees' perceptions of their jobs and influence followers to view their jobs as significant and meaningful, which, in turn, leads to an increase in their citizenship performance (Zhang et al., 2012). Jacquart and Antonakis (2015) also demonstrated that transformational leaders stimulated followers to engage in extra effort, increased worker enthusiasm toward their job, and performed beyond expectations. A positive correlation also existed between transformational leadership and task performance (McKnight, 2013) since transformational leaders used intellectual stimulation to promote rationality and problem-solving skills.

The move toward understanding the full range of leadership development coincided with dramatic changes occurring within the nature of work. The requirement of transformational leadership initiated numerous changes in many organizations (Siegel, 2015). For instance, employees who reported having a transformational leader as a manager rated their jobs as more challenging, meaningful, and significant. Furthermore, Barnes et al. (2015) determined that managers who score high on transformational

leadership appeared to be more successful at stimulating followers' enthusiasm about their jobs. Transformational leaders also fostered closer relationships with subordinates and the relationships were characterized by small power distance and individualized consideration of members' needs and capabilities (Toegel et al., 2013). This leadership style even promoted more frequent interaction with followers who experienced more satisfaction, identification, trust, and quality relationships since leaders provided support, confidence, encouragement, and consideration (Gordal et al., 2015).

Matta et al. (2015) found that increased coworker cohesion, interdependence, and support advanced through transformational leadership were a result of elevated interactions and communication among employees. The researchers also found that interpersonal relationships between leaders, subordinates, and coworkers constituted an interconnected social system within organizations. Employees formed relationships with coworkers and supervisors that represented social-exchange relationships that were especially significant with respect to task and organizational citizenship performance (Oreg & Berson, 2011).

Matta et al. (2015) noted that followers who perceive themselves to be similar form closer relationships with their leader because they perceive their transformational leader's behavior as positive. The researchers linked this concept to the balance theory developed by Heider (1958), which includes a triadic system of relationships between two persons and an object that ultimately move toward a balanced state. Pearce, Wassenaar, and Manz (2014) applied the balance theory to transformational leaders and

followers or follower-follower activities, and indicated that, when employees' attitudes toward a leader are similar, the scenario would likely lead to a balanced state.

The degree of competence that coworkers maintain to establish, high-quality relationships among themselves involves an exchange of resources and support that can benefit both the individual and the organization (Matta et al., 2015). McKnight (2013) categorized the importance of the relationship between transformational leaders and their followers as perceptual, motivational, attitudinal, and behavioral consequences in the workplace. Liden, Wayne, Liao, and Meuser (2014) asserted that supportive coworkers are more motivated to help their colleagues in personal affairs and to absorb the extra work. Tristan (2016) established that a positive, intensive reciprocity between coworkers will seed beneficial results for an entire organization, as coworkers are more likely to interact frequently with each other than with their leaders. The relationships that transformational leaders have with followers is consequently strongly associated with outcomes relevant to task performance, whereas relationships between coworkers are more directly associated with outcomes relevant to coworkers and the organization (Hogg et al., 2012).

Fehr, Yam, and Dang (2015) found that transformational leadership correlated with lower turnover rates, higher productivity, and higher employee satisfaction. Leaders inculcated feelings of confidence, admiration, and commitment in followers since they coached, advised, and provided some amount of authority. Conditional rewards reinforced performances consistent with the leader's wishes and instilled a commitment to action in followers. The leader became involved only when a problem developed

because followers became quasi-leaders and made pervasive management far less necessary. When necessary, transformational leaders will attempt to move parties in conflict from a competitive to a cooperative position through supportive, amiable, compromising, and integrative efforts (Fehr et al.).

Klaussner (2012) found that transformational leaders were critical to creating a climate that stimulated the disciplines of organizational learning and interaction. Transformational leadership, as described by Burns in 1978, was a contemporary approach used successfully by effective leaders in adapting to the significant evolution of employment. Burns defined leadership as the act of leaders inducing followers to reach for certain goals that represent the values, motivations, aspirations, and expectations of both leaders and followers. Leaders exhorted followers to support the leaders' vision by sharing ideas, imagination, talents, and labor to reach agreement and to attain virtuous goals that benefit followers, leaders, and organizations (Fehr et al., 2015).

Inherent in transformational leaders is the ability to coordinate employees and integrate all system components to move an organization toward its ideal perspectives (McKnight, 2013). Transformational leaders possess the capacity to influence followers toward this notion and to give them the perspective that the company's ideal model is synonymous with their own, thereby leading followers to increased levels of creativity, belief, and motivation (Liden et al., 2014). Leaders change and empower followers to develop and create new needs, tendencies, and values that ultimately lead to their growth, development, and evolution as potential leaders (Schaubroeck et al., 2012). Transformational leadership becomes a *timely kit* (Fast et al., 2014) necessary to cope

with the challenge of the growing pressures in the workplace. This timely kit coincides with increased sophistication of technology, growing client expectations, and customary competition among industry players, which ultimately confirms the authenticity of the transformational leadership style.

McLaren (2013) articulated the propensity of transformational leaders to motivate followers toward achieving the leader's, and eventually their own, designated outcomes and expectations. Bass (1985) fostered the belief that examining employees' perception of a leader's characteristics has the unique capacity to motivate employees and create a more collaborative working environment. Establishing a relationship between the leader's style and the employees' job satisfaction supports narrowing the focus of organizational learning to develop future leadership training. This guidance should equip and enhance leaders with characteristics that promote worker cooperation with management. Hamstra, Yperen, Wisse, and Sassenberg (2014) reiterated Burns' 1978 notion about the ability of transformational leaders to convert followers into highly motivated employees who display added effort and perform beyond their leaders' expectations.

These previously articulated theories added layers to Burns' 1978 contention associating transformational leadership with Maslow's hierarchy of needs. Maslow (1943) famously contended that followers, like any other human being, have needs that range from a lower level to a higher level. Burns noted that transformational leadership occurs when one or more persons engage with others in such a way that leaders and followers raise one another to higher levels of motivation and morality. This occurrence of transformational leadership included the ability to get followers to transcend their own

self-interest for the sake of the team, organization, and community by unconsciously expanding their personal needs and by raising their level of self-awareness. This inquiry built on transformational leadership's perceived strengths and malleable characteristics that are readily applicable in a host of managerial circumstances. The following literature review on transformational leadership includes a review of existing scholarly literature on transformational leadership and safety management practices.

Transformational Leadership

Burns (1978) characterized transformational leadership as a blend of behavioral theories with a thread of leadership trait theory that creates systematic transformation with a purposeful and organized search for changes, analysis, and capacity and that moves resources from areas of lesser to greater productivity. Transformational leadership is a style that best reflects the characteristics that followers find ideal. In effect, followers see this type of leader as a role model possessing attributes with which they can identify. The charisma and vision of transformational leaders inspire followers to support the organization's interest above their own.

Previous leadership theorists attempted to define leaders broadly and distinguish leadership narrowly. As noted earlier, Burns (1978) articulated the definition of leadership as leaders inducing followers to act upon certain goals that represent the values and the motivations—the wants and needs, the aspirations, and the expectations—of both leaders and followers. Burns remarked that, for leaders to have the greatest effect on the led, they must motivate followers to action by appealing to their shared values and by satisfying the higher order needs of followers, such as individual aspirations and

expectations. Leadership theories have continually evolved as organizational leaders have put into practice and undertaken the era's most current, prominent, and popular thinking. The strength and attributes of each individual leader ultimately determine the success of a group or organization. This review includes an outline of the works of discerning leaders' positions on transformational leadership including those of Burns (1978), Bass (1985), and Avolio (2014).

Bass (1985) thought early leadership theorists lacked pragmatic usefulness. For instance, Bennis (1959) noted that leadership is the process by which an agent induces a subordinate to behave in a desired manner. Collinson and Tourish (2015) provided definitions for a leader and leadership. They noted that a leader is somebody who has followers and that the foundation of effective leadership is thinking clearly and visibly through the organization's mission, defining it, and establishing it. Fehr et al. (2015) further described an effective leader as someone possessing the following traits: (a) character, (b) courage, (c) clear vision, (d) ability to inspire loyalty, (e) insight to focus on followers' strengths, (f) capability to instill trust through consistency, (g) no fear of strong subordinates, and (f) competence to develop future leaders.

Lievens and Vlerick (2013) conducted a correlational study to measure outcomes of nursing managers' leadership styles on nursing unit performance. The study used MLQ results to assess the proclivity of nursing managers' use of the tenets of transformational leadership. Three hundred fifteen nursing professionals participated in the study, including 37 nursing managers and 278 staff nurses. The correlational investigation involved appraising staff nurses' perceptions of their nursing managers'

behaviors that aligned with the tenets of transformational leadership, such as charisma, integrity, and the nature of their supportive style. The study revealed that autonomy, retention, and satisfaction all increased when nursing managers espoused and practiced the tenets of transformational leadership.

Ghasabeh et al. (2015) performed a study to ascertain the extent to which the perception of fairness, trust, and leadership correlated with employee commitment and turnover intentions based upon leadership styles. The results revealed a moderately positive correlation between an employee's aptitude in employing the tenets of transformational leadership and their influence on employee commitment and turnover intentions. Martin et al. (2013) applied a quantitative, correlational approach to explore the impact of empowerment within Veterans Administration and non-Veterans Administration hospitals. They found that transformational leadership tenets employed by frontline nursing managers positively correlated with the recruitment and retention of a dedicated, satisfied workforce.

Berkovich (2014) conducted a correlational study to determine the viability of educator retention and job satisfaction based on the principle of servant-centered leadership. This principle supported core characteristics such as empowerment, trust, vision, and humility that reflect the spirit of transformational leadership. The research results revealed that those who approach their role from a servant mentality demonstrate a greater level of respect for their educators by engendering genuine support, garnering encouragement, and prompting professional development.

The existing body of work on the study of leadership as presents a collection of thoughts, theories, and perspectives. Theorists F. W. Taylor (1911), Drucker (2009), and organizational psychologists Avolio and Yammarino (2013) have examined various assumptions in their efforts to define an ideal scope of leadership. This literature review includes the initial management and behavioral theories that shaped modern thinking and approaches of transformational leadership.

Safety Management Practices

Reason's human error model was the inspiration behind this study's research on safety management practices, especially practices at Level III, unsafe supervision, and Level IV, organization influences. In the model, Reason asserted that these two elements and the role of leadership are keys to examining safety management practices. Appropriately, Reason's model has become the common language for understanding complex accidents and a common ground for discussing system safety. In this review of safety management practices, I used unsafe supervision and organizational influences to examine leadership styles and attitudes toward safety management practices. For this study, Level III unsafe supervision and Level IV, organization influences, were the most relevant elements of Reason's human error model.

In examining safety management practices, I viewed organizational influences and unsafe supervision through the prism of Reason's human error model. I conjectured about Reason's (1990) seminal research on safety violations in which he separated human risk behavior into two categories: errors and violations. This examination focused on the violations category. Reason argued that organizational influences and unsafe supervision

impact safety violations. Reason et al. showed that driver errors and violations are two empirically distinct classes of behavior.

In characterizing Level III unsafe supervision, Reason placed this element of his human error model into one or more of four categories: (1) inadequate supervision, (2) planned inappropriate operations, (3) failure to correct a known problem, and (4) supervisory violations (Reason, 1990). In the model, inadequate supervision (Category 1) occurs when a supervisor fails to be a proper role model or fails to ensure proper guidance, training experiences, leadership, and motivation. Planned inappropriate operations (Category 2) are those in which supervisors purposely disobey rules and regulations and place individuals at risk. Failure to correct a known problem (Category 3) refers to deficiencies already identified by the supervisor that encompass individuals, equipment, training, or other related safety areas left vulnerable by the supervisor's indifference. Supervisory violations (Category 4) are those in which supervisors purposely disregard the existing rules and regulations (Reason, 1990).

Reason (1990) tracked contributory events up the chain of command to the supervisor, and Tristan (2016) interpreted Level III using four categories: (1) inadequate supervision, (2) planned inappropriate operations, (3) failure to correct a known problem, and (4) supervisory violations. Reason suggested that the opportunity to succeed is the responsibility of the supervisor; thus, supervisors must be role models who provide guidance, training opportunities, motivation, and leadership. Reason (2016) indicated that frontline errors occur more often when organizational leaders disregard employee working conditions that promote slips, lapses, and mistakes. These errors are due, in part,

to inadequate training, poor communication, bad procedures, and problems with equipment design.

In characterizing Level IV, organizational influences, Reason (1990) described this element of his human error model as unsound senior management policies that affect supervisory practices. These policies generally relate to resource management, organizational climate, and operational processes on the corporate level. Resource management policies typically address the distribution of organizational assets, particularly how the organization manages these assets, human resources, capital assets, facilities, and equipment in relation to the goals of safety and cost-effective operations. The organizational climate or working atmosphere encompasses an array of organizational variables that affect follower performance (Reason, 1990). Standardized policies, procedures, rules, and corporate decisions are the operational processes that regulate daily activities within an organization.

Reason's (1990) human error model presented errors in the context of personal cognitive processes. He viewed safety violations in terms of operating procedures, rules, and regulations governing worker behavior. Leaders can promote the reduction of safety violations by emphasizing the importance of safety goals over productivity goals in the allocation of resources. Safety goals are attainable by modeling adherence to safety protocols and by prioritizing safety objectives. Lawson (2015) described safety protocols and safety objectives as safety communication, safety training, and safety rules and procedures.

Reason's model maintains that violations can exist only in the context of regulated practices and procedures. In other words, individuals commit violations against organizational norms and regulations. On the other hand, errors are the product of individual cognitive processes (Reason, 1990).

Human Error Theory

In this study, I examined safety management practices through the prism of *safety violations*, and I reviewed Level I, unsafe acts, and Level II, preconditions for unsafe acts, of Reason's (1990) human error model. In the review of *safety management practices*, I focused on Level III, unsafe supervision, and Level IV, organization influences, of Reason's human error model. In his model, Reason (1990) introduced the human failure term *violation* into Norman's standard taxonomy of slip and mistake, which ultimately defines the concept of safety violations in the workplace. Reason described four levels of human failure: (1) unsafe acts of operators (acts which led to the accident), (2) preconditions for unsafe acts (conditions such as mental fatigue, poor communication, and coordination practices), (3) unsafe supervision (inadequate supervision, inappropriately planned operations, failure to correct known problems, and supervisory violations), and (4) organizational influences (resource management, organizational climate, and organizational process). Reason's model of human error, referred to by Shappell and Wiegmann (2000) as Swiss cheese, departed from the more traditional approaches to explain violations by including both supervisory and organizational accountability.

A recent upsurge of interest has occurred in the contribution of leadership to organizational safety. The rise in interest was encouraged primarily by findings in two tragic 2012 and 2014 rail incidents. Because of the continual rise of recent rail accidents, I selected to undertake this study of the role of leadership and its influence on safety management practices.

Researchers have typically focused on high-hazard industries such as the underground mining, nuclear power, aviation, offshore oil and gas drilling, and rail (Turner, Hershcovis, Chmiel, & Walls, 2010). In 2016, Tristan found evidence implicating the leadership process as critical in the formation and maintenance of safety climates and accident reductions. Tristan's 2016 research suggested the need for other scholars to examine the possible relationship between management styles and safety management practices.

The general attitudes toward safety management practices in the workplace comprise safety climate and safety culture. The nature of safety climate is dynamic and changes daily; but the beliefs, values, and behavioral norms of safety culture remain largely unchanged. Before the introduction of the term safety climate, researchers focused on management's commitment to safety (Saujani, 2016).

Zohar (1980) conducted a seminal study on safety climate. In the study, he identified two dimensions as the most influential determinants of safety climate levels: relevance of safety to job behavior and workforce perceptions of management attitudes. Reason (1990) defined the term *violation* and expounded upon the work of Zohar by explaining the contribution of human beings to accident phenomena.

Zohar (1980) presumed that safety culture and organizational culture are similar which is a relatively stable construct that is resistance to change in the face of immediate and transient issues. Gordal et al. (2015) defined organizational climate as employees' perceptions of the social and organizational circumstances in which they work. In a study on the effects of leadership in the social climate within groups of boys, Lewin, Lippitt, and White (1939) made the clearest, early references to climate in an organizational setting. Tristan (2016) recognized the effect of managers on climate in his findings, noting that the daily role modeling behaviors of supervisors did affect a company's climate.

He further recommended thinking of climate as a phenomenon influenced by circumstances that can change daily to determine the work done and by whom. Schneider (1975) purported that workers have different tasks, supervisors, peers, and positions in the organizational hierarchy; therefore, each individual's perception of climate may differ. Cooper (2015) noted the perception of safety climate should be as a subset of organizational climate. Both Cooper (2015) and Tristan (2016) contended that safety climate represents safety ethics and contributes to the organizational culture.

Keenan and Kerr (1951) first applied the concept of climate to the safety field in a study that correlated psychological climate and physical environment with injury rates in 44 shop departments. Keenan et al. suggested that organizational factors, independent of the level of risk from the physical environment, related to injury rates. Zohar (1980) proposed the notion of safety climate as a type of organizational climate and initially defined climate as a summary of the perceptions employees share about their work

environments. Zohar distinguished between safety climate and safety culture: Culture refers to beliefs about the way things are done; climate reflects the perception of what gets done in an organization. Reason (1990) also reflected this opinion within the human error model, whereby individuals intentionally and unintentionally act in a manner aligned with the organizations' expectations.

In a multi-sample analysis of workforce perceptions within a multinational manufacturing company, Cekada (2012) found that the individual responsibility of workers significantly affected the success rate of safety management activities. The prevailing aspects included personal involvement, communication, and risk. In a subsequent investigation of the role of workers' personal responsibility, Cekada (2012) determined that personal responsibility for safety is complementary to, but does not replace, good safety training.

Lawson (2015) discerned that low-accident companies had senior management personally involved in safety activities quite regularly, whereas the management in high-accident companies was conspicuously absent. Lawson (2015) expressed management's commitment to safety through the level of influence endowed upon its safety officers, whereas companies with better safety records had safety officers with higher status (Lawson, 2015). Leaders of low-accident companies also placed a premium on safety training (Cooper, 2015) and open communication, including frequent contacts between workers. Characteristics of low-accident companies were (a) orderly plant operations, (b) controlled environmental conditions, (c) frequent use of safety devices, (d) a stable workforce with low turnover, and (e) higher average age of workers (McGonagle,

Childress, Walsh, & Bauerle, 2015). Leaders of successful companies employed distinctive ways of promoting safety such as guidance or counseling rather than enforcement and admonition, whereas companies that had a premium on safety had a coherent organizational pattern that included most of these characteristics (Zohar, 1980).

Post-accident analysis has repeatedly confirmed the significance of violations in accident causation. The ensuing investigation typically revealed one of three root causes (Reason, 1990). They were (a) the work environment becomes more susceptible to errors as violations force employees outside the boundaries of safe working practice, (b) workers who are not cognizant of the rules will be involved with more violations or errors than workers who are cognizant of the rules, and (c) workers may also experience new or unanticipated situations due to violations, which create a greater likelihood of errors.

As referenced earlier, distinctions exist in the definitions of safety culture versus safety climate, with safety culture describing safety attitudes, values, and practices that exist at a deeper level than safety climate (Tristan, 2016). More precisely, safety culture refers to individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, style of, and proficiency in an organization's health and safety management (Appelbaum, Karasek, Lapointe, & Quelch, 2015). Safety climate is the manifestation of safety culture in the behavior and expressed attitude of employees (Saujani, 2016). Safety climate refers to workers' perceptions of managing safety in the workplace and the likelihood those perceptions will contribute to

a workplace accident (Saujani, 2016). Reason (2016) held this view and noted a close association between an informed culture and a safe culture.

Two components of transformational leadership, open communication and development orientation, offer a rationale for nonroutine violations. Open, qualitative leader–member exchanges and professional development can help transformation leaders better address safety concerns (Zohar, 2016). Zohar also linked the positive effects of leadership dimensions which had a greater concern for group members' well-being. Further benefits emerge from open communication and development orientation, which include: promoting closer, individualized relationships; encouraging supervisory safety practices; creating higher safety climates; and perpetuating safer work-related conduct. Kahn, Barton, and Fellows (2013) determined that transformational leadership was the best predictor of subunit injuries.

In 2016, Zohar broadened his definition of the concept of organizational climate. Zohar found that factories in which top management showed a commitment to safety had successful safety programs. The leaders of companies who promoted the importance of safety training relied on a culture of open and frequent communication between workers, and managers recognized safety officers with high status, and consistently demonstrated success with their safety programs (Zohar, 2016). Zohar integrated these findings into the 1980 safety climate questionnaire.

The original version of the safety climate questionnaire, developed using the available industrial safety literature, included 49 items with seven organizational dimensions denoted by seven short positive statements (Zohar, 1980). The questionnaire

included a 5-point Likert-type scale to measure levels of agreement, with 5 denoting high agreement and 1 denoting disagreement with a statement. Three interviewers piloted the instrument by reading each item aloud, documenting each participant's level of agreement, and using a sample of 120 production workers throughout four factories. The findings showed that a safety climate existed in the companies as defined by the agreed-upon perception of the value of safety by employees (Zohar, 2016). Zohar (2016) factor analyzed the data using a principal component factor analysis with varimax rotation, which resulted in eight factors that generally overlapped, thereby confirming the validity of the conceptual significance for designing the initial items.

Lawson (2015) included further evidence that safety climates distinguished organizations with differing levels of safety. Cooper (2015) found that workforce perceptions of an organization's safety policy, including management commitment, were the most critical factor when weighing the priority of productivity versus safety. Tristan (2016) established that the most important determinant of workforce satisfaction with safety and safety-related backup measures was management's commitment to safety. Management's support for safety influenced supervisors' support for safety in a model suggested by Tristan (2016) that integrated the safety influences of managers and supervisors. Zohar, Huang, Lee, and Robertson (2014) concluded that workforce compliance with safety rules and regulations could be the result of the perceived fairness of supervisors and management support.

Research on safety management practices is a relatively new concept of social and work climate (Lawson, 2015). Zohar's (1980) study of the manufacturing sector in Israel

introduced the assessment of attitudes of employees in relation to safety management within an organizational culture. Several studies and research teams have attempted to develop a reliable instrument for measuring safety climate, although a growing number of safety climate measures tended to focus on refining questions to improve face validity (Lawson, 2015). In early seminal research, Zohar (1980) conducted studies of safety climate. Researchers have since adopted diverse methods in developing a quantitative measure of safety climate by using qualitative methods such as focus groups or interviews with management and employees to obtain data that identify safety areas requiring more attention (Lawson, 2015).

Common aspects of safety in the workplace are more challenging to study or quantify than financial matters, and leaders appear to conceptualize them in different ways. For instance, Saujani (2016) studied managerial support for safety, whereas Fast et al. (2014) looked at the perceived safety climate. Turner et al. (2010) noted the difficulty in making direct comparisons of perception support for safety studies. Other researchers examined sources of support, such as support provided by supervisors (Tristan, 2016) or by coworkers (Lawson, 2015).

The findings have consistently indicated lower levels of workplace injuries (i.e., negative safety outcomes) are associated with greater levels of interpersonal support for safety (Saujani, 2016). Tristan (2016) confirmed this finding, modeling job resources as perceived support for safety from coworkers, supervisors, and senior managers. Tristan advanced the relative influence that these job resources can have on the relationship between job demands and hazardous work events.

Summary and Conclusion

Findings from the literature review shaped the argument for both the general and the four key sub research questions that align with the problem statement in this qualitative study. A notable number of empirical research studies supported the idea that leadership style was a critical determinant in managing successful organizational change. This section included a review of existing scholarly literature on leadership styles and safety management practices.

Researchers have conducted numerous studies on leadership styles, yet few have explored these disciplines relative to improving safety management practices. The result is a dearth of research exploring leadership styles and safety management practices. This gap in contemporary scholarly literature and the lack of inquiry provided the impetus for this research.

Research for this study included journals from various online databases. The journals included the *Journal of Management*, *Academy of Management Review, Academy of Management Journal*, and *Journal of Organizational Behaviors*. Scholars and experts in the fields of safety management practices and leadership theory authored the books and journal articles reviewed. Contemporary researchers are beginning to question the legitimacy of the effectiveness of traditionally accepted leadership approaches. However, both current and past researchers disagree on the value of leadership and its effects on employees' perceptions of their managers. A prospective link between leadership styles and safety management practices remain a viable topic for further study.

The paucity of available literature on leadership styles and safety management practices prompted this examination. For this study, I convened individual, one-hour sessions, administered the self-rating MLQ to assess leaderships styles, and conducted structured interviews to understand attitudes toward safety management practices. Although studies on leadership styles and system safety will be ongoing because of evolving workplace complexities, the efficacy and applicability of exploring leadership styles and safety management practices may need further examination.

In this qualitative study, I used data analysis methods to assess the impact of leadership styles and safety management practices. These data characteristics were especially applicable in determining how leadership styles might help improve safety management practices. The data examined the transformational leadership approach which is a widely accepted conceptual basis for the study of leadership development. The relevant periodicals published since the mid-1990s supported this assertion. I also narrowed the search of materials related to transformational leadership style and safety management practices. In this study, I reviewed extensively articles published after 2013.

This chapter included an extensive discussion of Bass's tenets of transformational leadership. Chapter 3 will include further research on the objectives of this inquiry. In Chapter 3, I will consider the applicability of the qualitative study methodology and clarify the research population, sampling methods, and participant selection criteria. Moreover, I will outline data confidentiality protections and protocols for participating frontline supervisors and managers, ethical standards, and data collection and analysis methods. Finally, I will review the self-rating MLQ results to assess leadership styles and

structured interview results to understand supervisors and managers attitudes toward safety management practices. Both processes strengthened the validity and reliability of this study.

Chapter 3: Research Methodology

Introduction

The purpose of this study was to explore the potential influence of perceived leadership styles of 16 frontline rail supervisors and 4 managers on safety management practices within a metro rail system. The GRQ addressed in this study was: How can leadership style help improve safety management practices? The four key subresearch questions were:

RQ1: What influence can leadership style have on workers' attitudes toward safety?

RQ2: What challenges and obstacles might frontline rail supervisors and managers encounter in improving rail safety?

RQ3: What leadership actions might frontline rail supervisors and managers take to overcome the challenges and obstacles that could improve rail safety operations?

RQ4: What suggestions might frontline rail supervisors and managers have to improve rail safety operations that could help reduce safety violations?

In this study, I convened 20 one-hour individual sessions with 16 frontline supervisors and 4 managers during which I administered the MLQ to assess their perceived leadership styles and conducted structured interviews to understand their attitudes toward safety management practices. In short, in this research I applied the tenets of transformational leadership style to attitudes toward safety management practices. Contemporary research into safety management practices has indicated that

leadership styles could engender positive organizational change in rail safety management (Zohar, 2016). Given that, I provided a context for enhancing leadership development training by considering significant societal and cultural changes that organizational leaders currently face. I used this inquiry to advance the body of knowledge that could bring about social change in system safety in the transit rail industry.

In this chapter, I describe the research methodology through an examination of leadership styles and attitudes toward safety management practices. The description includes an explanation of the rationale for employing a qualitative study to explore the five research questions. Moreover, I describe the criteria for participant selection, data collection instruments, research procedures, data analysis, data reporting, confidentiality, and ethics.

Setting

The setting for the MLQ and structured interview data collection processes was at a transit rail training facility. The facility was ideal for conducting this research for several reasons: (a) senior rail supervisors' and managers' strong support of the study, (b) availability of administrative staff support, (c) access to office space, (d) existing information technology infrastructure, and (e) immediate access to the 16 frontline rail supervisors and 4 managers. In the individual MLQ-structured interview sessions, I reviewed the invitation letter and again explained the overall study; provided instructions for completing the MLQ assessment; administered and collected the MLQ assessment; explained the 10 structured interview questions; conducted and recorded the structured

interviews; and collected the voluntary participation consent letters. The main attribute of the training facility was supervisors' and managers' routine visits to the facility to complete training requirements such as annual safety certification training and requirements for the rail system's zero-tolerance policy for infractions. Rail system employees were often exposed to safety hazards, and the research participants were responsible for protecting railway workers' functions, providing a safe work zone, and minimizing dangers and hazards of railway work.

Data collection involved administering the MLQ assessment and conducting individual structured interviews. The sample size of 20 included 16 frontline rail supervisors and 4 managers from five rail divisions: (a) track walkers, (b) track systems, (c) structural maintenance, (d) transit information systems, and (e) structural maintenance safety. Supervisors and managers work constantly to improve track safety and protect rail workers. Each completed mandatory, quarterly safety training.

Overall, the data collection process involved the following five steps with timelines. Table 2 illustrates steps, processes, and timelines.

Table 2

Data Collection Process

Step	Process	Timeline
1	Preparation: • Senior manager will forward email to supervisors and managers seeking volunteers for the study • Researcher will: o receive emails from supervisors and managers who volunteered for the study o select the first 20 supervisory and managerial volunteers o forward invitation letters via email to supervisors and managers who volunteered for the study o Schedule individual, one-hour sessions	D1
2	Administer MLQ: • Researcher will: o explained MLQ assessment o administer and share MLQ assessment	D10
3	Conduct structured interviews: • Researcher will: o review and explain the 10 structured interview questions o Conduct individual interviews o Forward completed interview transcript to supervisors and managers for member check	D15
4	Data analysis: • Researcher will: o transcribe recorded interviews o identify themes o code themes o code data for descriptions and themes	D40
5	Summarize findings: • Researcher will: o Write narrative discussion	D45

The objectives of the data collection process were to assess how frontline rail supervisors' and managers' perceived leadership styles could impact safety management practices. The assumption was that supervisors' and managers' increased awareness of their leadership style would improve safety management practices. The second objective

was to recommend areas for follow-on study of the possible impact of leadership styles on safety management practices

Research Design and Rationale

Research Questions

From the literature review, I developed the following GRQ for this qualitative study: How can leadership style help improve safety management practices? Consistent with Leedy and Ormrod (2015), I compared contradictions in existing literature on leadership styles. This comparison supported the GRQ. Several researchers have investigated the effects of the transformational leadership style on followers since Burns (1978) first used classification of legislative leaders to differentiate between transactional and transformational leaders.

In this study, I examined the GRQ and the following four key subresearch questions:

RQ1: What impact can leaders have on workers' attitudes toward safety?

RQ2: What challenges and obstacles might frontline rail supervisors and managers encounter in improving rail safety?

RQ3: What leadership actions might frontline rail supervisors and managers take to overcome the challenges and obstacles that could improve rail safety operations?

RQ4: What suggestions might frontline rail supervisors and managers have to improve rail safety operations that could help reduce safety violations?

Researchers have studied leadership at length and have defined and understood the phenomenon in varied ways. Some scholars have attempted to define leadership from the standpoint of traits, roles, behaviors, influences, processes, interactions, patterns, and job descriptions. However, the results have varied**,** and authors have rarely reached consistent conclusions. Bass (1985) noted that the transactional-transformational debate views leadership as either a contingent reinforcement of followers by a transactional leader or an unrestrained encouragement of followers beyond their self-interest for the good of the group, organization, or society by a transformational leader. Bass concluded that the leadership debate will continue into the next few decades, despite his convictions about the transformational style.

Some scholars question whether leadership studies have been useful in establishing a scientific understanding of the many dynamics of leadership. However, most behavioral scientists and practitioners agree that leadership plays an important role in organizational effectiveness (Avolio, 2014). Gardner (1990) noted that leadership is the process of persuasion or example by which an individual (or leadership team) induces a group to pursue objectives held by the leader or shared by the leader and his or her followers. Gardner's definition is one of many that incorporate various facets of the concept of leadership. Leadership theorist Avolio (2014) has a much broader view on the definition of leadership.

Research Design

To study and research leadership, scholars differ over the advantages and disadvantages of qualitative and quantitative research designs. Some scholars who prefer

qualitative measures have contended that researchers cannot use quantitative surveys to identify the underlying aspects and relevant dimensions of a phenomenon, and the surveys were therefore inadequate to examine the participants' views (Creswell, 2013). Other scholars have defended quantitative measures and maintained that the survey method provides accessibility to larger numbers of participants and usually focuses on some relatively prominent components in area of interest. Dixon et al (2016) noted that qualitative and quantitative methods complemented each other in some capacities yet differed in significant ways.

The qualitative, cross-sectional research method was appropriate for this inquiry to address the research questions posed. Creswell (2013) more precisely stressed the meaningful integration of assessing both quantitative and qualitative data. The amalgamation of both types of data bolstered the research conclusions in a more persuasive manner than each would have done so separately. Creswell indicated that reliable research combines deductive and inductive reasoning. The idea of capturing the leadership dimensions through the MLQ, juxtaposed with the findings of the attitudes toward safety management practices, required a qualitative framework.

Qualitative research is appropriate for exploring problem sets and research matters (Creswell, 2013). Creswell also indicated that quantitative research is appropriate for exploring specific, measurable, and observable data. As such, this qualitative study used the MLQ to assess perceptions of leadership styles and structured interviews to understand attitudes toward safety management practices. To that end, I amended Creswell's criteria for qualitative research and analyzed, at one point in time, the results

of the MLQ to assess frontline supervisors' and managers' perceived leadership styles and the structured interview data to understand their attitudes toward safety management practices.

In this study, I did not attempt to establish a cause-and-effect relationship between leadership styles and safety management practices. Rather, I administered the self-rating MLQ to assess supervisors' and managers' perceptions of their leadership styles and conducted structured interviews to understand their attitudes toward safety management practices.

The correlational approach was an effective means of collecting data and applying an explanatory approach in comparing two or more variables and appraising their rate of covariation (Babbie, 2016). It was suitable to examine the five research questions of the study to explore the possible nexus between perceptions of leadership styles and attitudes toward safety management practices. By exploring these two variables, a researcher might show a relationship between the variables but cannot conclude that one variable is the impetus for the other (Babbie, 2016). However, the research questions were suitable for exploring the efficacy of perceptions of leadership styles.

I analyzed, integrated, and interpreted the qualitative data. I chose this methodology to introduce and analyze various perceptions of leadership styles of 16 frontline rail supervisors and 4 managers. Data integration involved correlating raw MLQ queries and structured interview responses.

Researcher's Role

Researchers have a responsibility to identify biases that may influence the study results (Creswell, 2013). Consistent with Creswell's (2013) admonition, researchers should systematically minimize biases in their research. Various elements of qualitative research are interpretive and susceptible to researcher bias (Babbie, 2016). Researchers can manage this susceptibility with two characteristics inherent in the quantitative design component of the mixed- method approach: the researcher can formulate the data numerically, and the design may entail a deductive approach. The researcher must maintain a role reminiscent of a socially responsible scientist, so the researcher must choose a methodology that embodies the ethical principles of the scientific community (Babbie, 2016).

I selected the sample frame in this study based upon its position in the organization, requisite availability, and willingness to participate in the study. A senior rail supervisor provided the names of 20 frontline rail supervisors and managers, all of whom have completed mandatory safety certification training. Prior to the individual one-hour sessions, no personal, professional, or supervisory relationship existed between the 20 frontline rail supervisors and managers and the researcher. As the researcher, I convened individual, one-hour sessions, administered the MLQ, and conducted structured interviews. I selected the previously mentioned sample frame to ensure the frame meets the criteria of demonstrated managerial competence and meets frontline rail supervisor and manager certification requirements.

In the research, I remained cognizant of what Babbie (2016) described as inherent biases that could possibly influence the study. I took measures to mitigate these potential biases through rigorous data collection, data analysis, quality control, and data reporting to help improve the accuracy, credibility, validity, and transferability. To further mitigate biases, I scrutinized the structured interviews with frontline rail supervisors' and managers' and their attitudes toward safety management practices.

In an applied research study, a participant expects the study to contribute to social change in his or her area of interest. Following Institutional Review Board (IRB) guidelines, I designed a study that does not harm participants, that respected their privacy, that ensured confidentiality, and that maintained the integrity of the scientific process (Babbie, 2016). Dixon et al. (2016) reasoned that scientists should strive to help the public in developing informed judgments and choices concerning human behavior. Therefore, I initiated and maintained the integrity of this study pursuant to the above perspective and framework.

Participant Selection Logic

Leedy and Ormrod (2015) explained that the type of research undertaken largely dictates the ideal number of participants in the study. Babbie (2016) outlined fundamental principles that govern the selection of participants in a correlational design. Babbie also explained that an appropriately-sized correlational study must include a sample frame applicable for the parameters of the study. The 16 frontline rail supervisors and 4 managers in this study represented five percent of the total rail supervisor-manager

population. As such, the sample frame was large enough to achieve a reasonable correlation of the target population.

Babbie (2016) noted that the preference in qualitative research is to select participants suited for the parameters that focus on the nature of the problem and research questions. I used convenience sampling to select frontline rail supervisors and managers to participate in the study. All study participants met their unit's competency requirements for becoming a frontline rail supervisor or manager.

Dixon et al. (2016) contended that the quantity and truthfulness of information that each participant can report about his or her groups and settings limits convenience surveys. Correlational studies are a useful way to obtain data on important aspects of people's knowledge, attitudes, and practices (Dixon et al, 2016). They also describe convenience selection as a form of sampling. For example, the researcher simply selects a requisite number from cases that are conveniently available for the study. The sample frame was an appropriate group, and the group met managerial training requirements that demonstrated its commitment to embrace the organization's leadership development initiative.

Instrumentation

Qualitative-Interview Protocol

I conducted 10-question, structured interviews with each of the rail supervisors and managers to understand better their attitudes toward safety management practices. Interviews question were open-ended and predetermined. Questions had a limited set of response categories trained on frontline rail supervisors' and managers' attitudes toward

safety management practices. The 10 questions were consistent in all interviews which allowed rail supervisors and managers to discuss their perceptions, experiences, and viewpoints with the researcher (see Appendix A for interview questions). The objective was to understand better their attitudes toward safety management practices (See Appendix B for alignment of interview questions to the study research questions.

I physically and electronically captured interview language, data, meanings, and descriptions of attitudes toward safety management practices including thoughts and principal managerial practices. After I transcribed the data, I used open coding to summarize the information and build a Microsoft Excel database to array rail supervisors' and managers' responses, identified related themes, categorized themes, totaled themes, calculated themes' frequency of occurrences, and prioritized themes common across all 10 questions.

For this research, the examinations of safety management practices were conjectured in Level III, unsafe supervision, and Level IV, organizational influences, of Reason's (1990) human error model on safety violations. In his model, Reason separated human risk behavior into two categories: errors and violations. Reason indicated that unsafe supervision and organizational influences impact safety violations.

Reason (1990) drew upon Zohar's (1980) work on safety climate to develop a categorization of the four levels of human factors attributed to accident causation. In many ways, Reason's human error model transformed the perceptions of accident origination. Zohar reduced the items in the revised safety climate questionnaire to 40 items after eliminating nine items because they had no relation to any factor. Zohar

administered the questionnaire throughout 20 factories chosen in a quasi-random manner. Five factories from four production categories were selected from a national listing of industrial organizations with 500 to 1,000 workers. Each factory presented a wide scope of technologies and received a variety of safety records.

Several decades earlier, Zohar (1980) developed a 40-item survey for measuring organizational safety climate, validated in findings from a stratified sample of 20 industrial organizations throughout Israel. Through this measure, Zohar determined that organizations reflected management's stance on safety when employees' perceptions of safety climate were largely positive. Findings indicated that companies displaying a strong commitment to safety routinely featured top management personally involved in frequent safety activities. The same companies presented safety matters as a high priority in meetings and production scheduling and elevated safety officers to a higher position in the company. Moreover, safety training emerged as an integral part of new-hire training, as well as of retraining workers and supervisors, with communication links that remained open and frequent among workers and management.

In the same study by Zohar (1980), employees' perception of the importance of safety practices in their occupational behavior emerged as an integral component of safety climate. The difference in levels of safety climate within an organization ranged from highly positive to neutral, with the two aspects of highest importance being perceptions of leader attitudes about safety and significance of safety in routine production processes. The dimensions included on the safety climate questionnaire derived from a literature review. The perceived factors included a) management attitudes

toward safety, b) effects of safe conduct on social status, c) organizational status of safety officers, d) importance and effectiveness of safety training, e) level of risk in the workplace, and f) effectiveness of enforcement compared with guidance in promoting safety. Included in these dimensions were organizational characteristics that essentially determine the accident rates that companies experience. The scoring for these dimensions took place on a 5-point Likert-type scale, with short statements employed to measure seven safety climate factors.

In the 20 factories referenced in Zohar's study (1980), each had 20 production workers chosen from a stratified random sample. The measures had individual scores for each worker, and Zohar totaled the scores from the values of items on the questionnaire. Each factory's average score on safety climate was calculated using the scores of 20 factory participants. Conceptual considerations supported the process of representing the safety climate of each factory with a single score. Given that the scores were additive, a high safety climate score indicated more positive conditions and processes.

In selecting the tool for assessing the level of safety management practices, researchers should consider the measurement method, level of analysis, and implementation constraints. Zohar (2016) suggested analyzing climate perceptions on the organizational level through managerial policies and on the operational level through supervisory practices. Zohar further noted that findings demonstrate the stronger link between climate perceptions and supervisory safety practices than between climate perceptions and managerial policies and procedures. The distinction between perceptions

of climate related to competing goals and perceptions of leadership related to behavioral attributes remains invariant across goals or task features.

Multifactor Leadership Questionnaire

In this qualitative study, I used the 45-question, self-rating MLQ to assess rail supervisors' and managers' perceptions of leadership styles. The MLQ, the most widely used survey assessment since the late 1980s, uses Likert-type scale measures to describe the full range of leadership development. Researchers may elect to use the MLQ to assess perceptions of leadership styles of respondents.

Consistent with the application of Avolio (2014), I used the MLQ to examine transformational, transactional, and laissez-faire leadership styles. The MLQ contains the following five tenets of transformational leadership: (a) idealized influence (attributed), (b) idealized influence (behavior), (c) intellectual stimulation, (d) individual consideration, and (e) inspirational motivation. The tenets of transactional leadership involve management-by-exception (active versus passive) and contingent reward. The laissez-faire leadership elements are not involvement in important issues and decision making.

Eberly, Johnson, Hernandez, and Avolio (2013) and Allen, Grigsby, and Peters (2015) described the concept of leadership as consisting of three dominating categories: vision, inspiration, and trust. Conger and Kanungo (1998) defined transformational leadership as a leader's ability to present a vision that does not align with things as usual. Vogelgesang, Leroy, and Avolio (2013) described the transformational leader as one who raises his or her followers' level of awareness toward the importance of achieving valued

outcomes and provides strategies for reaching them. The transformational leader also assists followers in pursuing organizational interests above their own, and develops followers' capacity for higher levels of achievement, autonomy, and affiliation (Vogelgesang et al., 2013).

The MLQ has a leader form and a rater form. This study used both forms (Bass & Avolio, 2004). Researchers use the responses to the leader form to describe individuals' leadership styles with respect to peers, clients, direct reports, supervisors, or a combination of these. The information gathered with the rater form is suitable for gauging the perspective of subordinates and enabling them to evaluate the leadership style of a specified person in their chain of command. The MLQ typically consists of 45 questions that identify and measure key leadership styles. The MLQ includes a 5-point Likert-type scale, with responses ranging from 0 to 4, with 0 = *not at all,* 1 = *once in a while,* 2 = *sometimes,* 3 = *fairly often,* and 4 = *frequently if not always*. A modified version with only 20 questions should take respondents eight minutes to complete. Researchers have used the MLQ in more than 30 countries in business, industrial firms, hospitals, religious institutions, military organizations, government agencies, colleges, primary schools, and secondary schools. Known for its ability to rate leaders (Bass & Avolio, 2004), the MLQ is considered a valid, reliable, and effective questionnaire to assess leadership styles of supervisors, colleagues, peers, and direct reports.

Bass and Avolio initially developed the MLQ in 1985; however, a more recent revision has followed (Bass & Avolio, 2004). This study included the 5X, which is a modified version that measures the transformational, transactional, and laissez-faire

leadership styles essential to Bass's research. The MLQ (Bass & Avolio, 2004) also measures employees' perceptions of leadership style**,** such as how managers influence, value, develop, inspire, motivate, and intellectually stimulate their people. The MLQ provided credibility to the findings of this study.

Few instruments can assess all aspects and attributes of leadership styles (Bass, 1985). However, the MLQ has been used widely as a leadership assessment tool since its introduction by Avolio and Bass in 1985. The MLQ was appropriate for this study as it examined perceptions of various leadership styles. Data from frontline rail supervisors and managers reflected their perceptions of leadership styles. Anyone in the organization, work group, or on the team can take the MLQ (Bass & Avolio, 2004).

The MLQ was the basis for the Transformational Organizational Leadership Assessment developed by Bass (1985). The initial focus was to clarify the characteristics of leadership and to provide managers with a tool to assess the perceived presence of leadership characteristics within the group (Bass, 1985). The original seven leadership factors within the MLQ were charisma, inspirational, intellectual stimulation, individualization consideration, contingent reward, management-by-exception, and laissez-faire. The earliest version of the MLQ measured only five leadership factors. Its structure, presented by Yukl, Mahsud, Hassan, and Prussia (2013), supported the existence of five leadership components, as measurements led to confirmed analysis.

The MLQ continued to evolve, with subsequent research identifying additional factors. The current version, the 5X Short (Bass & Avolio, 2004), includes a significant change in the instrument because of the addition of items measuring the style attributes of

leadership styles. The 5X distinguishes between idealized charismatic behaviors and attributes. Another change occurred in the management-by-exception construct, which now includes both active and passive constructs. Bass and Avolio (1995) acquired nine factor scores for MLQ Form 5X, which included six from the previous MLQ Form 5R and three from new additions, to create a 36-item survey.

The definitions of the constructs are more accurate in the Form 5X Short; however, the theoretical relevance of the previous form 5R is not contradicted (Bass & Avolio, 2004, p. 45). The nine factors of the MLQ capture the full range of leadership more precisely (Bass & Avolio, 2004). This more precise version of the form derived from a continuum ranging from highly transformational to highly avoidant.

The MLQ 5X Short consists of 45 items that identify and assess key leadership styles and behavior effectiveness for traits determined to have strong links with both individual and organizational success (Bass & Avolio, 2004). There are nine leadership elements along a full continuum of leadership styles. Assessing the MLQ's nine ratings of individual respondents involves four highly intercorrelated items that have as low a correlation as possible with components of the remaining eight elements.

Researchers use the MLQ 5X extensively to assess self-perceptions of leadership styles. Bass and Avolio (1995) confirmed the convergent and discriminant validity of the MLQ 5X through several methods. Bass (1985) chose a list of acknowledged experts in thought leadership, identified 40 characteristics of transformational leaders, used the consensus-building Delphi technique to identify and define the characteristics of transformational leaders (Bass & Avolio, 2004).

Using the experts' answers, Bass established definitional constructs and seven characteristics (Bass & Avolio, 2004) to improve the validity of MLQ. Bass established that the Delphi process, in conjunction with expert advice from the panel participants, provided strong validity for their revised MLQ. The construct validity confirms that if the items on the questionnaires accurately depict the hypothetical constructs, validity was established (Creswell, 2013). This MLQ is appropriate for assessing leadership styles: (a) it is an often-used questionnaire (Bass & Avolio, 2004), and (b) researchers have overtime strengthen its validity (Babbie, 2016). The MLQ 5X Short summarizes scores derived from the MLQ leader form and assess respondents' varied perceptions of leadership styles (Bass & Avolio, 2004).

Data Collection

I administered the self-rating, MLQ 5X Short form to the rail supervisors and managers and then conducted structured interviews with each of them. In MLQ data collection, I asked participants to answer the same 45 questions, which ultimately yielded 900 responses. In the structured interview data collection, I asked participants to answer the same 10 questions, which yielded 540 responses. The MLQ assessed participants' perceived leadership style. Structured interviews helped to understand participants' attitudes toward safety management practices. For each of the 20 interviews, I physically and electronically captured participants' responses to ensure data credibility.

I analyzed the results of the MLQ and the responses during the structured interviews to determine the strength and direction of a relationship between leadership styles and attitudes toward safety management practices but not to necessarily establish

causation (Creswell, 2013). Creswell (2013) also stated that the objective of correlational research is to describe the degree of association between two or more variables. This research highlighted four of the nine MLQ leadership dimensions (Bass & Avolio, 2004) and captured frontline rail supervisors' and managers' perceptions of their leadership styles at a point in time. Data collected using the MLQ (Bass & Avolio, 2004) and the structured interviews were analyzed via the open coding process.

Reliability analysis provided an estimate of how well various leadership styles reflect true (nonrandom) differences (Dixon et al., 2016). I applied multiple methods, clarifying uncommon terms, language, and concepts. I ensured that respondents understood survey questions and the goal of the research to ensure they respond with consistent and credible input. Finally, I clarified negative information or biases. After data collection, I filtered and culled relevant data.

I administered the MLQ to assess frontline rail supervisors' and managers' perceptions of their leadership styles. Data analysis involved collecting and scoring the MLQ, arraying structured interview responses into a Microsoft Excel database, organizing responses, identifying themes, and normalizing theme's frequency of occurrence. I used data collection processes to assess perceived MLQ leadership styles and structured interviews to understand safety attitudes toward management practices.

The advantages of delivering the MLQ face-to-face are high return rates, immediate response time, ability to field participant questions, and immediate clarification of instructions for completion (Leedy & Ormrod, 2015). Frontline rail supervisors and managers affirmed their consent to complete the MLQ by signing a form

letter. I administered the self-rating MLQ using a hard-copy format and made appropriate materials available to each frontline rail supervisor and manager.

To conduct this research and collect necessary data, I obtained permission from the rail division's senior leadership. Additionally, I met with the rail organization's chief safety officer and the system safety and environmental manager. Both senior leadership managers officially approved my request to conduct the research with 16 supervisors and 4 managers at their facility. Furthermore, the organization's chief human resources officer and the training director officially supported this research. I presented the Walden University IRB letter of cooperation and confidentiality agreements to the organization's appropriate senior leadership. After the research concludes, I will send the entire senior leadership team notes of thanks and provide them the research findings.

Data Analysis

For the MLQ responses, I scored the 20 questionnaires totaling 900 responses, averaged the participant scores for the five research questions, averaged group scores for each question, and averaged group scores for each leadership scale. For the structured interviews, I collected 540 raw responses; arrayed them per question and responses; identified 180 unique themes; calculated frequency of occurrence; and calculated percentage of total frequency. I normalized the 180 unique themes into six categories: (a) communication and information sharing, (b) leadership, (c) management, (d) safety management practices, (e) training and education, and (f) work life balance. I then identified unique themes common across all 10 questions and indexed categories to unique themes.

In this qualitative study, I analyzed MLQ data and structured interview responses. I used the MLQ to assess frontline rail supervisors' and managers' perceptions of their leadership styles and the structured interviews to understand their attitudes toward safety management practices. I conducted structured interviews and used open coding techniques to capture data points: themes, categories, concepts, emergent descriptions, and phrases.

In the analysis, I culled the data several times to identify commonalities, a technique that Creswell (2013) described as inductively gleaning data from the text data in the research. Open coding helped identify logical connections between the data points. Finally, I used memoranda to annotate frontline rail supervisors' and managers' attitudes toward safety management practices. Both the MLQ and structured interviews aimed to heighten frontline rail supervisors' and managers' awareness of their perceived leadership styles and their attitudes toward safety management practices.

When relating findings in correlational research, Leedy and Ormrod (2015) specified the importance of the strength of relationship between multiple variables with the correlation coefficient. The correlation coefficient, which ranges between -1 and +1, shows two indications of the relationship between the independent and the dependent variable: direction and strength. The correlation analysis helped determine the direction and strength of the association between the two variables of leadership styles and safety management practices. That said, I looked to establish a cause-and-effect relationship between the two variables.

To encourage integrity, participation, and honest responses in the data collection process, I enforced anonymity and confidentiality. Before completing the MLQ, frontline rail supervisors and managers received a written confidentiality agreement, had an opportunity to ask questions, and reviewed and signed the consent agreement. MLQ and structured interview data collection began in one-hour sessions. Hard copies of the consent forms were stored for one year. After one year, I will destroy hardcopy data. After five years, I will destroy softcopy information. Foremost, I will protect the confidentiality, integrity, privacy, and accessibility of frontline rail supervisors' and managers' information and privacy.

Issues of Trustworthiness

Validity and reliability are key elements in qualitative research methods that describe the issues involved in evaluating the quality and legitimacy of operational definitions (Dixon et al., 2016). Normally, validity and reliability are associated with quantitative research methods whereas confirmability and dependability are associated with qualitative research approaches. The research questions were designed to eliminate bias, misconceptions, mistranslations, and confusion (Dixon et al., 2016). Validity refers to the effectiveness and soundness of research and the interpretation of results and the ability to assess content within the goals and purpose of the research thorough questions posed (Dixon et al., 2016). Reliability refers to whether research instrument yields consistent and credible responses (Dixon et al., 2016). Dixon et al. also noted that construct, internal, and external validity are integral to the research process and its findings.

Construct validity occurs in the data collection process through relevant definitions, measures, and variables. Internal validity is evidence in data analysis (e.g., inconsistent instrument, changing participant responses) and affects the accurate representation of data. External validity occurs in the research design and enables the accurate generalization of research results and inferences.

Simon (2013) described the rigors of qualitative research as requiring narrowness, conciseness, and objectivity and leading to stringent compliance within research designs and accurate analysis. Following a process that remains systematic is a defining principle of qualitative research (Simon, 2013). Another indication of the rigors of qualitative research is the researcher's ability to remain objective while gaining, analyzing, and interpreting qualitative data (Simon, 2013).

The tactical and orderly design of the researcher's questions to reduce bias, ambiguity, or confusion supports the significance of validity and reliability in qualitative research. Researchers must devise the research questions strategically and systematically to eliminate any misperceptions, mistranslations, and confusion and to promote reliability and validity. Simon (2013) defined reliability as providing estimations of how well measurements reflect true (non-random) variations. Leedy and Ormrod (2015) further explained that the reliability of measurement instruments is the level at which the instrument produces consistency when the variables measured are the same. Leedy and Ormrod repeatedly stressed that researchers must carefully select their instruments of reliability to derive the most precise analysis.

By comparison, validity examines the ability to measure substance effectively within the objectives and principles of the research questions (Leedy & Ormrod, 2015). The validity of a measurement instrument is the level at which it measures what was expected. Babbie (2016) noted that construct, internal, and external validity is integral to the research process and its findings. Construct validity occurs in the data collection process and through using appropriate definitions, measures, and variables (Leedy & Ormrod, 2015). Internal validity occurs in data analysis (e.g., inconsistent instrument, changing participant responses) and affects the accurate representation of data. External validity involves the extent to which results can be extrapolated to another context. In this study, external validity is the basis for findings that are applicable to other organizational settings.

This study included an impartial process to preserve the reliability and validity of the research findings. Applying the following strategies to dismiss other explanations for the research results ensured the validity and reliability of this study. Creswell (2013) recommended that improving validity and reliability requires the following strategies:

1. *Use member checking* to determine the accuracy of the qualitative findings by taking the final report or specific descriptions or themes back to participants and determining whether the participants feel the findings are accurate.
2. *Ensure clarity of instructions* to the respondents, including regulating the conditions under which the researcher administers the instrument, leaving no room for misinterpretation. The researcher should also clarify the bias brought

to the study. This self-reflection creates an open and honest narrative that resonates well with readers.

3. *Triangulate* different data sources by examining evidence from the sources and using it to build a coherent justification for themes.
4. *Use rich, thick description* to express the findings, which may transport readers to the setting and give the discussion an element of shared experiences.
5. *Present negative or discrepant information* that runs counter to themes. As real life consists of different perspectives that do not always amalgamate, discussing contrary information adds to the credibility of an account for a reader.
6. *Use peer debriefing* to enhance the accuracy of the account. This process identifies a person (a peer debriefer) who reviews and asks questions about the qualitative study as a strategy to help mitigate researcher bias.

Simon (2013) identified some potential issues of reliability and validity in qualitative research, such as an unreliable measure, a low response rate, inadequately representing the entire sample, failing to provide adequate instruction for the instrument, or an inconsistent explanation of the instrument. Ensuring best practices, methods, and use of a representative sample mitigate the possible risks in providing valid and reliable findings. The researcher is responsible for selecting the appropriate measuring methods to ensure consistency, repeatability, stability, and reliability in an instrument that reduces the researcher's influence and bias in the study (Simon, 2013).

Ethical Procedures

Research should always proceed in the most ethical manner possible (Babbie, 2016). Throughout the course of data collection and analysis, each researcher should maintain the most stringent level of honorable decision making, despite the near certainty of philosophical conflicts. A qualitative study reveals intuitive findings that participants may find contrary to their belief and value systems. However, procedural transparency should cloak their responses in the study conclusions.

Leedy and Ormrod (2015) admonished that researchers should avoid unnecessarily exposing participants to physical or psychological harm. Participants should not be subject to any risk of physical harm, intolerable levels of stress, embarrassment, or loss of self-worth. Simply put, the risk to participants should not be any greater than what they would ordinarily encounter. Disclosure of any psychological discomfort that may be inherent in the study and a complete debriefing following participation are critical to maintain an ethical approach to research.

Prior to conducting the structured interviews, I explained the nature, length, and use of the study. Frontline rail supervisors' and managers' questions were answered satisfactorily. I assured the supervisors and managers that their identities and responses would remain confidential through the coding method for an objective analysis. I advised each supervisor and manager that the basis of this research was his or her voluntary involvement and that he or she could withdraw from the study at any time. Each supervisor and manager will receive a $10 gift certificate for participation in the study.

I also instituted procedures before, during, and after the one-hour sessions to ensure the ethical protection of participants. I demonstrated a professional demeanor and placed attendees in good stead to engage them in a comfortable environment to engender candid responses and honest dialogue. The MLQ and structured interviews served as critical elements in qualitative design, especially in a cross-sectional inquiry. In addition, I used an audio recording device, when appropriate, to understand and recall responses adequately and adhered to research procedures. I used guidelines for developing a questionnaire that supported the highest level of cooperation and useful responses for interpretation.

I checked the 10 interview questions for needless assumptions in the research questions and was brief with clear instructions. I also reviewed the questions for any suggestive language, slants, or inconsistencies. Lastly, I communicated guidelines detailing how the participants were to complete the MLQ assessment and answer structured interview questions.

Informed Consent

I used convenience sampling to select candidates for the study, as sampling is the most opportune scenario to assemble a requisite number of study participants randomly. Each frontline rail supervisor and manager received a written agreement explaining the purpose and procedures of the research, to include the expected input from them and the duration of their involvement. A senior division rail manager provided 20 frontline rail supervisors and managers. I piqued the senior division rail manager's interest when I

indicated that this study might lead to improved safety measures juxtaposed with various leadership management styles.

I informed each participant of his or her right to obtain the results of the study (Babbie, 2016) and his or her right to review the agreement, ask questions, and sign the consent form before he or she decided to take part in the study. Prior to receiving the questionnaires, participants received a letter of consent, which included the intent of the study, confidentiality protocols, the methodological procedure, and clear instructions that the participants may discontinue their participation in the study at any time without further obligation or consequence (Babbie, 2016). One safeguard to ensure ethical practices in the research process was to inform the participants that their involvement in the study was strictly voluntary. Leedy and Ormrod (2015) provide the following guidelines for participant selection:

1. a brief description of the nature of the study,
2. a description of what participation will involve in terms of activities and duration,
3. a statement indicating that participation is voluntary and can be terminated at any time without penalty,
4. a list of any potential risk or discomfort that participants may encounter,
5. the guarantee that all responses will remain confidential and anonymous,
6. the researcher's name and contact information,
7. an individual or office that participants can contact should they have questions or concerns about the study,

8. an offer to provide detailed information about the study upon its completion, and
9. a place for participants to sign and date the letter indicating agreement to participate (pp. 282-289).

All researchers should adhere to these guidelines before administering questionnaires and conducting interviews.

Confidentiality

I maintained complete confidentiality of frontline rail supervisors' and managers' identities. To do so, I identified the participants only by a subject code, a number, and a sequentially numbered questionnaire. I did not disclose participants' names, and I maintained possession of study data. Destruction of all data and documents will occur three years from September 2, 2017, by shredding hard copy documents and purging electronic files.

Summary

Chapter 3 described the research design and methodological procedures for this study. This chapter also outlined the rationale for the applicability and use of a qualitative design. In the chapter, I also discussed individual perceptions of leadership styles and safety management practices. In addition, I described the MLQ research instrument and the structured interview approach to provide context for and clarification of the study's focus.

Chapter 3 also included an outline of the roles and procedures that guided the research's strict adherence to standards of confidentiality, ethics, and scholarship. To that

end, I obtained IRB approval prior to administering the MLQ and conducting structured interviews. IRB approval is 07-31-17-0037092. I obtained signed consent forms from frontline rail supervisors and managers. I informed them of overall research processes, ensured anonymity, and protected privacy as detailed in the confidentiality agreement. I acknowledged the possibility of research bias and employed bracketing techniques to suspend judgment.

I designed this study methodology to assess the perceived leadership styles of 16 frontline rail supervisors and 4 managers and to capture their attitudes toward safety management practices. I used this methodology to consider sampling feasibility, data collection procedures, validity of the instruments, and data analysis. The data collection and analysis emphasized qualitative study methods.

In Chapter 4, I convened one-hour sessions to administer the 45-query MLQ to assess supervisors' and managers' perceived leadership styles and to conduct 10-question, structured interviews to understand their attitudes toward safety management practices. I recommended a follow-on study based upon the assumption that perceived leadership styles could influence safety management practices. Finally, I evaluated data reliability and collection methodology and reviewed results of five research questions of this study. In Chapter 5, I will include my interpretation of the findings, implications for practice, recommendations, and a path forward for future research in system safety and leadership.

Chapter 4: Findings

Introduction

The purpose of this study was to explore the potential influence of perceived leadership styles of 16 frontline rail supervisors and 4 managers on safety management practices within a metro rail system. An assumption was that leadership styles could have an impact on safety management practices that could lead to reductions in safety violations and in rail accidents. In this study of a transit rail system that involved 16 frontline rail supervisors and 4 managers, I first administered the MLQ to supervisors and managers to assess their perceived leadership styles. Second, I conducted individual structured interviews to understand supervisors' and managers' attitudes toward safety management practices. In Chapter 2, I indicated that contemporary safety management research shows that leadership styles can engender positive organizational change in rail safety management. Given the critical safety challenges that frontline rail supervisors and managers routinely encounter, this study provides a context for enhancing leadership development training in system safety.

The GRQ was: How can leadership style help improve safety management practices? I also reviewed the following four key subresearch questions:

RQ1: What influence can leadership style have on workers' attitudes toward safety?

RQ2: What challenges and obstacles might frontline rail supervisors and managers encounter in improving rail safety?

RQ3: What leadership actions might frontline rail supervisors and managers take to overcome the challenges and obstacles that could improve rail safety operations?

RQ4: What suggestions might frontline rail supervisors and managers have to improve rail safety operations that could help reduce safety violations?

In this chapter, I describe the organizational setting that may have influenced the interpretation of the study results, outline the rail system's organizational environment, and characterize participant demographics relevant to the study. In the Data Collection section, I state the number of participants from whom I collected data, describe the location, frequency, and duration of data collected for each instrument, and describe how I recorded the data. In the data analysis process, I describe the process for moving inductively from raw responses to coded themes to major and minor themes. In the Evidence of Trustworthiness section, I describe implementation of and adjustments to credibility, transferability, dependability, and confirmability strategies. Study results include discussions regarding each research question, data-supported findings, and tables and figures to illustrate my results. Finally, I summarized answer to the GRQ and RQs and use the study results to describe my recommendations and implications for practice in Chapter 5.

Setting

A fatal 2016 rail accident continues to weigh heavily on employees in the organization and may yet influence their experiences. Seven relevant conditions were present in the organization: (1) a leadership change initiative, (2) an organizational shift

from emphasis on operations to safety, (3) the implementation of safe operations initiative, (4) a reduction in workforce, (5) local and federal government support, (6) exploration of alternative mass transportation options, and (7) budget cuts.

First, previous leadership had been challenged to balance the demands and prioritization of operations and safety. Second, current leadership has had some success rebalancing operations and safety, primarily by focusing more on safety than on operations. A recent rail accident resulted in the loss of life, and this accident led leadership to accelerate the prioritization of safety in the organization. Third, the accident also helped usher in an unprecedented safe operations initiative that significantly reduced operations to refocus on safety. Fourth, the organization reduced its budget, which resulted in an employee reduction. The goal of the reduction was to match employee skill sets with operational requirements. Fifth, after the 2016 rail accident, the Federal Transit Administration adopted a supportive safety management role. Sixth, local and federal governments began to explore mass transportation options for employees during the safe operations initiative, which led to significant reductions in ridership and revenue. Seventh, the organization experienced budget cuts. Any of these seven conditions could have affected workforce morale or the organizational culture. Thus, while conducting the study, I remained cognizant of each of these organizational conditions.

Demographics

In this study, in 1-hour, individual sessions, I administered the MLQ and conducted structured interviews with 16 frontline rail supervisors and 4 managers. The 16 frontline supervisors comprised 11 males and five females. Male frontline supervisors

averaged 19 years of safety and operations experience. Female supervisors averaged 14 years of experience. The four male managers averaged 26 years of safety and operations experience. Participants' receptivity to the study was notably positive, anticipatory, forthcoming, open, and transparent. Participants' demographics and characteristics relevant to the study appear in Table 3.

Table 3

Study Demographics

Interview date	Title	Gender	Years of experience
September 6	Manager	Male	26
September 8	Supervisor	Female	14
	Supervisor	Female	14
	Supervisor	Male	19
	Supervisor	Male	19
September 11	Supervisor	Male	19
	Manager	Male	26
September 12	Manager	Male	26
	Manager	Male	25
September 29	Supervisor	Female	14
October 2	Supervisor	Female	14
October 10	Supervisor	Female	14
	Supervisor	Male	19

Data Collection

Over a 34-day period, I interviewed 16 frontline rail supervisors and 4 managers in individually scheduled, 1-hour sessions. I conducted each session at the organization's corporate training center between 9 a.m. and 6 p.m. The average time to complete the MLQ Leader Form was 20 minutes, leaving approximately 40 minutes for each structured interview.

I administered the MLQ instrument to assess supervisors' and managers' perceived leadership styles and conducted structured interviews to understand their attitudes toward safety management practices. For the MLQ, 20 participants offered 900 responses to the 45-question MLQ Leader Form (5X Short). Participants generally viewed the study as a potentially valuable information resource for helping to illuminate the organization's safety and operational challenges and obstacles and curb safety violations. I did not observe any variations in data collection from the plan in Chapter 3 nor unusual circumstances in data collection. The MLQ data collection summary of characteristics and descriptions appears in Table 4.

Table 4

MLQ Data Collection Summary

MLQ data collection characteristic	Description
Duration of data collection:	34 days (September 6 to October 2, 2017)
Number of participants:	16 frontline supervisors and 4 managers
Averaged time to complete Leader Form	20 minutes
Frequency of data collection:	Four weekly over 5 weeks
Type of data collected:	Perceived leadership styles
Descriptive statement (questions):	45
Recording method:	Manual, using Leader Form (5X Short)
Location of data collection:	Corporate training center
Responses:	900
Variations in collection from Chapter 3:	None
Unusual circumstances in data collection:	None

Over a 34-day period, I conducted 20 interviews with 16 frontline rail supervisors and 4 managers in individually scheduled, 1-hour sessions. I conducted structured interviews to understand supervisors' and managers' attitudes toward safety management

practices. I averaged four interviews weekly. Scheduling challenges dictated that I conduct eight of the 20 interviews between the hours of 9 a.m. and 12 p.m. The average time to complete the structured interviews was 40 minutes. In interviews, I manually and electronically recorded supervisors' and managers' 540 responses to 10 questions from the structured interview questionnaire. The structured interview data collection characteristics and descriptions summary appears in Table 5.

Table 5

Structured Interview (SI) Data Collection Summary

SI data collection characteristic	Description
Duration of data collection:	34 days (September 6 to October 2, 2017)
Number of participants:	16 frontline supervisors and 4 managers
Averaged time to complete interview	40 minutes
Frequency of data collection:	Four weekly over 5 weeks
Type of data collected:	Attitudes toward safety management practices
Structured interview questions:	10
Recording method:	Manual (notes) and electronic (tape)
Location of data collection:	Corporate training center
Responses:	540
Variations in collection from Chapter 3:	None
Unusual circumstances in data collection:	None

Participants generally viewed the study as a potential source of valuable information. Participants saw the study's potential to help illuminate the organization's safety and operations challenges and obstacles and to help reduce safety violations.

Data Analysis

MLQ analysis involved comparing results to normative population data. The data analysis involved eight steps. In Step 1, I scored the 20 supervisor and manager MLQ

assessments that comprised 45 self-rating questions. In Step 2, I arrayed 900 raw scores in a Microsoft Excel database organized by participant number (*y* axis) and by MLQ leadership characteristic, scale name, and scale item (*x* axis). In Step 3, I arrayed participants (*y* axis) by the MLQ outcome of leadership behavior characteristic, scale name, and item (*x* axis).

In Step 4, I calculated participants' average MLQ scores for each leadership item. Similarly, in Step 5, I calculated the average MLQ scores for each outcomes of leadership item. In Step 6, I calculated the average score for each of the nine leadership scale names. The Laissez-Faire (LF) is the one scale name where supervisors and managers scored less than 1. The 0.51 Laissez-Faire score indicated that supervisors and managers were passive avoidant in their leadership approach. Figure 6 illustrates supervisors' and managers' average scores for each of the nine MLQ leadership scales and the overall average leadership score.

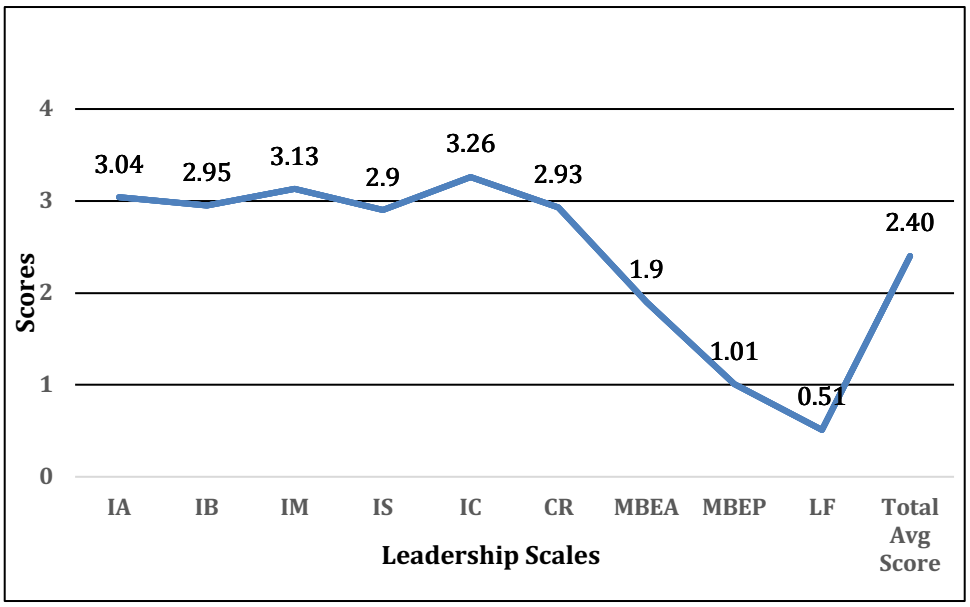

Figure 6. Average MLQ scores.

In Step 7, I calculated the average score for each outcome of leadership behavior scale name. Figure 7 illustrates supervisors' and managers' average scores for each of the three outcomes of leadership. These scores are aggregated against the national norm.

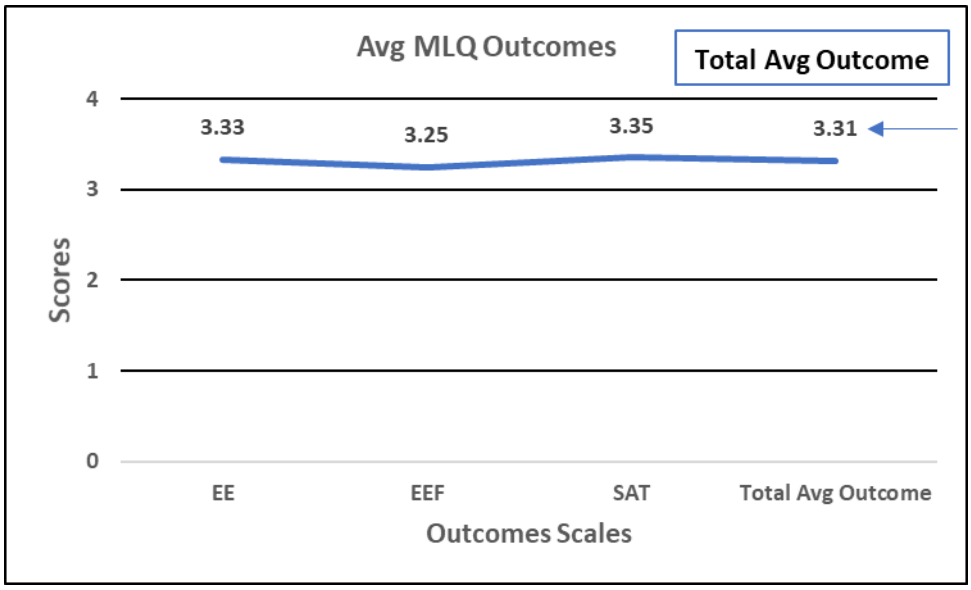

Figure 7. Average MLQ outcomes.

In Step 8, I generated a scatter plot depicting each supervisor's and manager's raw scores for each of the nine MLQ leadership scales. Figure 8 shows supervisors' and managers' raw scores for each of the nine leadership scales.

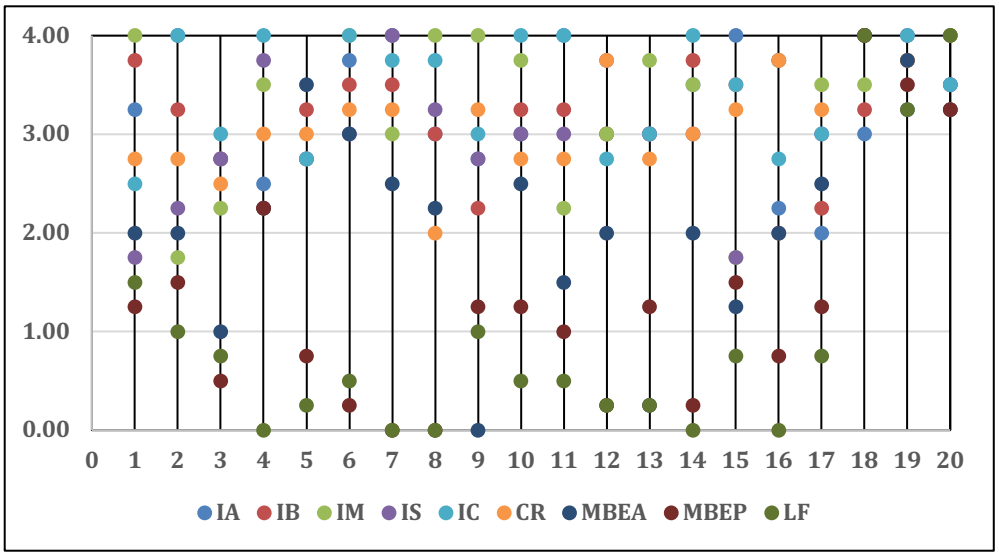

Figure 8. Supervisors' and managers' scores for the leadership scales.

Structured interview data analysis involved nine steps. In Step 1, I created a 20-person *(x axis)* Microsoft Excel database that comprised 540 responses to 10 questions *(y axis)*. In Step 2, I normalized the 540 responses into 180 unique themes. In Step 3, I arrayed and coded unique themes by the 10 structured interview questions, frequency of occurrence, and percentage of total frequency of occurrence. In Step 4, I identified 180 major and minor themes by interview questions.

In step 5, I calculated the frequency of each theme's occurrence and the percentage of its total frequency of occurrence. In Step 6, I normalized the 180 major and minor themes into six major themes: (a) communication and information sharing, (b) leadership, (c) management, (d) safety management practices, (e) training and education, and (f) work–life balance. In Step 7, I indexed the 180 themes to one of six major themes.

In Step 8, I identified three themes that were consistent across all 10 structured interview questions: (a) communication and information sharing, (b) safety management

practices, and (c) training and education. In Step 9, from the 180 major and minor themes, I selected themes with a frequency of occurrence ranging from 7% to 71%. In step 10, I selected these qualifying themes to address each of the five research questions, present data to support findings, and summarize answers to each question. Table 6 includes a summary of both the MLQ and the structured interview data analysis.

Table 6

MLQ and Structured Interview Data Analysis

Item	MLQ	Structured interviews
No. of supervisors and managers	20	20
Interview time (minutes)	20	40
Instrument questions	45	10
Raw responses	900	540
Unique coded themes	0	180
Leadership scales	9	0
Major scales	3	0
Categories	0	6
Minor categories	0	3

From the six structured interviews, three major themes were common across all 10 questions: communication and information sharing, safety management practices, and training and education. The remaining three, which were leadership, management, and work–life balance, were also prominent in the data. Table 6 above captured the metrics of the MLQ and structured interview data analysis.

Evidence of Trustworthiness

Credibility

I used three methods to ensure the credibility of the study data: member checks, manual and electronic tape recording, and a rich analysis. I used the self-rating MLQ to

assess supervisors' and managers' perceived leadership styles. Each participant completed the 45-question MLQ Leader Form, which yielded 900 responses. MLQ analysis involved averaging participant scores for each question and averaging participants' scores for each leadership scale. The MLQ assessment analysis produced average scores for each of nine MLQ leadership tenets and the overall average score.

To understand supervisors' and managers' attitudes toward safety management practices, I used a 10-question, structured interview questionnaire that yielded 540 raw responses that enhanced the richness of data analysis. I also mapped participant responses to five of the six major themes. Table 7 displays the structured interview analysis methodology. See Appendix C for a summary of structured interview data.

Table 7

Structured Interview Data Analysis Example

No.	Question	Theme	Frequency	% frequency
1	Equip maintenance	M	1	2
2	Lead by example	L	6	12
3	Promote safety	M	2	4
4	Provide education/training	TE	1	2
5	Provide coaching, mentoring	L	6	12
6	Communicate, share info	CI	2	4
7	Safety documentation	SMP	11	22
8	Use experience in leadership	L	12	24
9	Use competencies	L	8	16
	Total		49	100

Transferability

The sample size of 20 rail supervisors and managers and the data collection and analysis processes indicated that the research methodology and approach may be useful

for conducting research on other rail systems. The perceived leadership styles of MLQ data collection processes could also be applicable in other research. The MLQ data collection processed involved 12 steps to help ensure transferability. A summary of the 12-step MLQ data collection process appears in Table 8.

Table 8

MLQ Data Collection Process

Step	Action
1	Scheduled 1-hour sessions for 16 frontline supervisors and 4 managers
2	Administered MLQ to 20 participants
3	Scored MLQ assessments of nine leadership scales and three outcomes
4	Entered 900 MLQ scores into Microsoft Excel database
5	Identified major leadership scales
6	Averaged MLQ scores for each leadership scale and scale-specific questions
7	Averaged outcomes score for each leadership scale and scale-specific questions
8	Averaged scores for each MLQ leadership scale
9	Averaged scores for each MLQ outcome
10	Generated line graph of average scores for each MLQ leadership scale
11	Generated line graph of average score for each MLQ outcomes
12	Generated scatter plot of MLQ scores for each leadership scale.

The structured interview data collection process could also be applicable in other research. The process involved individual, 1-hour interview sessions and 10 structured questions that I asked each supervisor and manager. A summary of the structured interview data collection process appears in Table 5.

This study's data collection and analysis design may facilitate other researchers' duplication of this process and arrival at the same results. In the MLQ data collection process, I administered the same MLQ assessment to 16 frontline rail supervisors and 4 managers and scored the 20 MLQ instruments that yielded 900 responses to assess participants' perceived leadership styles. In the structured interview data collection

process, I asked the same 10 structured interview questions in each one-hour session and manually and electronically recorded each of the participants' 540 responses.

Overall, the structured interview data collection process involved 10 steps, provided data transparency, and ensured dependability. The steps were: 1) created a participant database arrayed by questions and responses, 2) identified 180 unique themes for the 10 interview questions, 3) determined the number of unique themes for each of 10 questions, 4) coded and alphabetized the unique themes for each question, 5) calculated the frequency of unique themes for each question, 6) calculated the frequency percentages of each unique theme for each question, verified that the frequency percentage of each unique theme equaled 100% for each question, and identified the most frequently occurring themes, 7) highlighted unique themes with a frequency of 7% or above, 8) normalized the 180 unique themes into six categories: (a) communication and information sharing, (b) leadership, (c) management, (d) safety, (e) training and education, and (f) work–life balance, 9) identified themes that were common across all 10 questions, and 10) used themes with frequencies ranging from 7% to 71% to draft study findings, results, and recommendations.

Confirmability

I used the member-check methodology to support the data collected. I ensured that the MLQ and structured interview data accurately reflected participants' responses. The self-rating MLQ assessment is a 45-question structured interview questionnaire used to measure participants' perceived leadership styles. I did not introduce biased data into the 540 responses. However, structured interviews have less protection against the

introduction of bias. As a precaution against bias creep, I both manually and electronically recorded interview sessions. If ambiguity in responses arose, I e-mailed each participant and discussed and resolved the ambiguity.

Results

Multifactor Leadership Questionnaire

The purpose of this study was to explore the potential influence of perceived leadership styles of 16 frontline rail supervisors and 4 managers on safety management practices within a metro rail system. In individual, 1-hour sessions, 16 frontline supervisors and 4 managers completed the 45-question MLQ and answered 10 structured interview questions. I administered the MLQ to assess supervisors' and managers' self-perceived leadership styles. I conducted structured interviews to develop a better understanding of supervisors' and managers' attitudes toward safety management practices.

The 16 frontline supervisors comprised 11 males and five females. Male supervisors averaged 19 years of safety and operations experience. Female supervisors averaged 14 years of experience. The four male managers averaged 26 years of safety and operations experience, which was 10 years more than all frontline supervisors. The male and female supervisors and managers worked in the rail division at the time of the study and were responsible for all facets of rail system safety and operations. From rail supervisors' and managers' MLQ responses to the GRQ, four MLQ leadership characteristics: transformational, transactional, passive avoidant, and outcomes of

leadership. The national percentiles for individual scores based on self-ratings appear in Table 9.

Table 9

Percentiles for Individual Scores Based on Self-Ratings

	MLQ scores						Outcomes					
%T	II(A)	II(B)	IM	IS	IC	CR	MBEA	MBEP	LF	EE	EEF	SAT
5	2.00	2.00	2.00	2.00	2.25	2.00	.25	.25	.00	1.92	2.25	2.00
10	2.25	2.25	2.25	2.25	2.50	2.25	.50	.25	.00	2.00	2.50	2.50
20	2.50	2.50	2.50	2.50	2.75	2.50	1.00	.50	.25	2.33	2.75	2.50
30	2.75	2.75	2.75	2.75	3.00	2.75	1.00	.75	.25	2.45	3.00	3.00
40	2.75	3.00	3.00	2.75	3.00	3.00	1.25	.85	.50	2.67	3.00	3.00
50	3.00	3.00	3.00	3.00	3.25	3.00	1.50	1.00	.50	2.74	3.25	3.00
60	3.00	3.25	3.25	3.00	3.25	3.25	1.75	1.25	.75	3.00	3.25	3.00
70	3.25	3.25	3.50	3.25	3.50	3.25	2.00	1.25	.75	3.00	3.50	3.50
80	3.50	3.50	3.50	3.50	3.50	3.50	2.25	1.50	1.00	3.33	3.50	3.50
90	3.50	3.75	3.75	3.75	3.75	3.75	2.75	2.00	1.25	3.67	3.75	4.00
95	3.75	4.00	4.00	3.75	4.00	3.75	3.75	2.25	1.50	4.00	4.00	4.00

Note. $N = 3755$.

I aggregated and compared individual averaged scores to percentiles for individual MLQ scores based upon self-ratings of national norms. The 16 rail supervisors and 4 managers scored the following on transformational characteristics: 2.68 or less at the 25th percentile on idealized attributes (IA), 2.58 or less in the 28th percentile on idealized behaviors (IB), 2.73 or less at the 29th percentile on inspirational motivation (IM), 2.53 or less at the 26th percentile on intellectual stimulation (IS), and 2.89 or less at the 26th percentile on individual consideration (IC). A comparison of the aggregated

MLQ scores indicated that the 16 frontline rail supervisors' and 4 managers' perceptions of their leadership styles were less transformational than the national norm for MLQ transformational leadership characteristics.

I aggregated and compared individual averaged scores to percentiles for MLQ scores based upon self-ratings of national norms, and the rail supervisors and managers scored the following on transactional characteristics: 2.55 or less at the 27th percentile on contingent reward (CR) and 1.63 or less at the 58th percentile on management by exception active (MBEA). The aggregated data indicated that the 16 frontline rail supervisors and 4 managers scored at the national norm on transactional leadership characteristics.

I aggregated and compared individual averaged scores to percentiles for MLQ scores based upon self-ratings of national norms. Rail supervisors and managers scored the following on passive avoidant characteristics: 0.76 or less at the 33rd percentile on management by exception passive (MBEP) and 0.40 or less at the 38th percentile on laissez faire (LF). The aggregated data indicated that the 16 frontline rail supervisors and 4 managers scored at the national norm on passive avoidant characteristics.

I aggregated and compared individual average scores to percentiles for individual outcomes based on self-ratings of national norms, and rail supervisors and managers scored the following on outcomes of leadership characteristics: 2.93 or less at the 58th percentile on extra effort (EE), 2.85 or less at the 28th percentile on effectiveness (EFF), and 2.98 or less at the 59th percentile on satisfaction (SAT). The aggregated and compared MLQ outcomes data indicated the 16 frontline rail supervisors and 4 managers

scored less on outcomes of leadership characteristics. Key MLQ results indicated that particpants were inside the ideal frequency ranges for the five transformational scales and outside for the two transactional scales. A summary of MLQ scales, acronyms, and structured interview responses appears in Table 10.

Table 10

MLQ Scales and Structured Interview Responses

	MLQ scales	Acronym	Structured interview responses
1	Idealized attributes	IA	Take pride in wearing the uniform
2	Idealized behaviors	IB	It more than about you
3	Inspirational motivations	IM	No 'I' in team
4	Intellectual stimulation	IS	Try new things – open to change
5	Individual consideration	IC	Open to ideas from them employees
6	Contingent reward	CR	Awards and recognition program
7	Management (active)	MBEA	Too many short cuts
8	Management (passive)	MBEP	Lead from the back
9	Laissez-faire	LF	My job is not to dictate
10	Extra effort	EE	We must sell safety
11	Effectiveness	EFF	Focus on the why
12	Satisfaction	SAT	Walk the talk

Structured Interviews

Coding and thematic analysis was used to identify emergent themes in the experiential data. The analysis indicated that safety management and leadership were primary concerns of participants. From rail supervisors' and managers' structured interview responses to the GRQ, six major themes emerged: communication and

information sharing, leadership, management, safety management practices, training and education, and work–life balance. Communication and information sharing, safety awareness, and training and education were common themes across both the GRQ and the research sub questions.

General Research Question Major Themes

The GRQ was: How can leadership style help improve safety management practices? Three major themes emerged in response to the GRQ regarding leadership approaches that might help improve safety management practices: safety management practices, leadership, and management. Two minor themes emerged: communication and information sharing and training and education. Supervisors and managers provided 108 leadership-focused responses related to the GRQ.

Safety management practices. Forty-four percent of participating supervisors' and managers' responses to the GRQ safety management practices theme highlighted the effect of leadership style on helping improve safety management practices, which involved safety documentation, safety complacency, emergency management, safety violations management, and quality assurance. Participants' responses advocated for a comprehensive alignment of safety and operations training and education, safety documentation, and job position descriptions. Their responses also indicated that the rail workforce buys into safety and encourage others to do the same to negate complacent safety attitudes. Their responses further indicated that end-to-end communication and information-sharing strategies continuously apprise employees of safety issues, violations, and resolutions. Participants recommended institutionalizing emergency and

safety violations and quality assurance programs, including checklists, controls, testing, and simulation, for example, tabletop exercises.

Leadership. Thirty-two percent of the participants' responses to the GRQ leadership theme highlighted leadership by example; leadership competencies and experience; coaching, mentoring, objective feedback, and developing future leaders; and employee-considered decision making. Participants' responses indicated that rail supervisors and managers lead by example and walk the talk. Both involved leaders' doing what they ask employees to do. Participants' responses also indicated leadership's expanded use of competencies such as interpersonal skills and conflict resolution; coaching and mentoring, objective feedback, developing future rail leaders, and increased employee levels of participation in rail safety and operations decision making.

Management. Twelve percent of the supervisors' and managers' responses to the GRQ management theme highlighted the following: rail equipment operations and maintenance plans; "old-line thinking" and methods; the safety–operations balance; and change, innovation, and technology. Participants' responses suggested development of clear equipment operation guidelines and strict adherence to associated equipment maintenance plans. These guidelines and plans relate to both the safety management practices and the management themes. Participant's responses also indicated that the presence of "old-line thinking" might influence the slower embrace of change, innovation, and technology as well as to behavior attributed to reactive versus proactive responses to safety challenges. Additionally, participants' responses underscored the perils of "old-line thinking" amid the challenge of sustaining a high operational tempo

while maintaining appropriate levels of safety. Nevertheless, some employees were open to "new ideas and change," such as using "big data" to analyze rail safety and operations and trends.

General Research Question Minor Themes

Communication and information sharing. Nine percent of supervisors' and managers' responses to the GRQ communication and information sharing theme highlighted the value of expanded, bidirectional communication channels, safety practices, and safety meetings. Participants' responses to this GRQ theme highlighted horizontal and vertical communication and information sharing among upper management, frontline supervisors, and employees. Examples included convening more safety meetings, maintaining an open-door policy, and providing employees objective feedback on job performance. Many responses indicated that some supervisors and managers saw themselves as "conduits between employees and upper management."

***Training and education*.** Three percent of supervisors' and managers' responses highlighted the need for additional training and education in safety and operation. Providing supportive training and education, as well as a supportive coaching, mentoring, and feedback approach (instead of using an "iron fisted, punitive-driven" management approach) topped the responses to this theme. To accomplish the latter, responses indicated a comprehensive alignment of training and education, safety documentation, and job descriptions.

Research Question 1: Major Themes

Research Question 1 was: What impact can leaders have on workers' attitudes toward safety management practices? Structured interview of supervisors' and managers' responses to this question highlighted three major themes (safety management practices, training and education, and management) and two minor themes (communication and information sharing and leadership). Supervisors and managers provided 99 responses related to this question.

Safety management practices. Forty-nine percent of supervisors' and managers' responses to RQ1 highlighted four subthemes: safety practices; safety accountability, analysis, and culture; quality assurance; and safety–security delineation. To impact employees' attitudes positively toward rail safety management practices, supervisors' and managers' responses to RQ1 revealed the correlation among the following: a disregard for safety rules, regulations, procedures, and policy; a weak safety culture; and resulting safety violations.

RQ1 responses indicated that expanded safety "accountability, all-in campaigns, and promotion" might help leaders impact employees' attitudes toward safety management practices. Other responses included the implementation of a quality assurance program and a safety violation management system, which included recordkeeping, root causes, and resolution. Participants recommended a more aggressive use of big data to enhance rail safety analysis trends.

Training and education. Thirty percent of the supervisors' and managers' responses cited training and education as a method to positively impact employees'

attitudes toward safety management practices. Participants again highlighted a request for the synchronization of training and education and certification, safety documentation, and job descriptions.

Management. Thirteen percent of the participants' responses highlighted management strategies to help influence employees' attitudes toward safety management practices. These responses primarily addressed rail safety changes over the preceding 12 months. Supervisors and managers welcomed Federal Transit Administration support, modern rail equipment, and new executive and safety officers. Participants' responses also highlighted requests for more flexibility in duty scheduling and more emphasis on hiring competent staff.

Research Question 1: Minor Themes

Communication and information sharing. Six percent of supervisors' and managers' responses to RQ1 highlighted the following: leadership in communication and information sharing from industry benchmarking, best practices, and lessons learned; safety briefings; teamwork; and horizontal and vertical communication among upper management, managers, supervisors, and employees. Participants' responses notably highlighted an awareness of a nexus between big-data analysis and information sharing of industry best practices and lessons learned. Participants' responses also highlighted the communicative value of building strong teams, convening frequent safety briefings, and maintaining open channels of communications throughout the rail organization.

Leadership. Two percent of supervisors' and managers' responses to RQ1 highlighted leadership approaches that involved strategic thought. Strategic thought

requires that upper management, managers, supervisors, and employees know the big picture to help synchronize rail safety and operations. Synchronization would help harmonize training, education, and certification; safety documentation; and job performance and duties.

Work–life balance. Supervisors' and managers' responses also highlighted the desire for a comprehensive ergonometric program. The program involved providing individuals with an activity-friendly environment and work areas with desks and furniture that facilitate job performance activities.

Research Question 2: Major Themes

Research Question 2 was: What challenges and obstacles might frontline rail managers encounter in improving rail safety? Supervisors and managers provided 51 responses to RQ2 related to identifying challenges and obstacles that frontline rail supervisors and managers might encounter in improving rail safety. Three major themes emerged: safety management practices, communication and information sharing, and management. The two minor themes were leadership and training and education.

Safety management practices. Forty-eight percent of the supervisors' and managers' responses highlighted safety management practices that involved safety documentation: rules, regulations, procedures, and policies; high-operational-tempo environment in a highly politicized environment; safety complacency; safety–operations balance; and safety meetings. Participants' responses highlighted employees' infrequent disregard for safety practices owing to a high operational tempo in a highly politicized work environment. Participants' responses also highlighted challenges and obstacles

related to safety-complacent attitudes that "more frequent safety meetings" might help remedy.

Communication and information sharing. Twenty-eight percent of supervisors' and managers' responses to RQ2 identified communication and information-sharing challenges and obstacles. Participants' responses highlighted rail supervisors' and managers' call for expanded vertical and horizontal communication and information sharing among upper management, managers, supervisors, and employees. The perceived lack of information flow has resulted in the dissemination of errant safety and operations information. Additionally, this safety challenge could contribute to "distrust" between the employees and internal departments. The supervisors' and managers' responses also highlighted the desire for previously mentioned industry benchmarking, dissemination of best practices and lessons learned, and a clarifying distinction between the organization's definition of "safety and security."

Management. Twenty percent of supervisors' and managers' responses highlighted challenges and obstacles in organizational management. Most of the participants' management-related responses highlighted a perceived lagging embrace of leading-edge, industry safety changes, innovations, and technology, including benchmarking, codification of best practices and lessons learned, and use of big-data analysis and trending techniques. Participants' responses to RQ2 also highlighted challenges and obstacles associated with organizational bureaucracy and politics, specifically how the leadership manages or mismanages each. The paucity of safety

resources to accomplish tasks and the reactive versus proactive responses to safety challenges and obstacles were two other challenges and obstacles.

Research Question 2: Minor Themes

Leadership. Two percent of supervisors' and managers' responses to RQ2 highlighted leadership challenges and obstacles to improved rail safety. Conspicuous among the responses was the fear of retaliation after employees report a safety violation. All responses indicated that there should be "no hiding of safety issues."

Training and education. Another 2% of supervisors' and managers' responses to RQ2 highlighted challenges and obstacles in training and education. Foremost in these responses were acknowledgment that training, education, and certification could be "revamped and refreshed" to emphasize "safety first" and "operations second," which would trigger the need to align training, education, and certification; safety documentation: rules, regulations, procedures, and policy; and job descriptions. Supervisors and managers acknowledged the nexus between rail training, education, and certification; job performance; and safety violations.

Work–life balance. Supervisors' and managers' responses prominently called for implementation of a comprehensive "ergonometric program." This involved outfitting individuals and offices with furniture and equipment that facilitate job performance.

Research Question 3: Major Themes

Research Question 3 was: What leadership actions might frontline rail managers take to overcome the challenges and obstacles that could help improve rail safety operations? In RQ3 responses, four major themes emerged: safety management practices,

communication and information sharing, leadership, and management; the minor theme that emerged was training and education. Rail supervisors and managers provided 117 responses for RQ3.

Safety management practices. Thirty-three percent of supervisors' and managers' responses to RQ3 underscored leadership actions related to safety management practices. These actions included identifying the root cause of safety violations, implementing a no-excuse safety policy, and leveraging safety and operations experience. Safety actions highlighted strict enforcement of safety rules, regulations, procedures, and policy. One manager described an organization's potential devolvement into safety laxity as "practical drift," that is, drifting into services operations that countervail established safety management practices. Study participants' related responses highlighted end-to-end safety violations management, that is identifying root causes of safety violations, assigning action officer, monitoring progress, resolving violations, and sharing findings across rail divisions. Participants' responses also highlighted the desire for the organization to implement a no-excuse safety policy and for supervisors and managers to apply their safety and operations experience to help promote safety operations.

Communication and information sharing. Thirty percent of supervisors' and managers' responses to RQ3 called for communication and information-sharing actions to help improve rail safety operations. Foremost in the responses were calls for horizontal and vertical communication and information-sharing channels among upper management, managers, supervisors, and employees. Other communication and information-sharing

actions included building work teams to build "trust" between and maintaining an open-door policy to hear supervisors' and employees' ideas and viewpoints.

Leadership. Twenty percent supervisors' and managers' responses to RQ3 identified leadership actions, such as coaching, mentoring, feedback, and developing future leaders; leading by example; leading by walking around; team building; and integrity- and sincerity-based leadership. The coaching, mentoring, feedback, and leadership development theme was prominent in the responses. Leading by example involved leaders doing what they expect employees to do. Management by walking around suggested leaders leave their offices occasionally to experience what "station managers" and the typical "commuter" experience routinely. One emphatic response to RQ3 described leadership as maintaining a positive workplace attitude and wearing the metro uniform with a sense of purpose and pride.

Management. Fifteen percent of supervisors' and managers' responses to highlighted management actions, including proactive responses to safety challenges and obstacles; workplace politics and bureaucracy; training and education environment; staffing; and big-data analysis. Participants' responses also highlighted challenges to improving rail safety operations posed by the presence of politics and bureaucracy in the workplace. Participants' responses also indicated that supervisors and managers support a supportive training and education environment over a punitive-based management environment. For example, help employees correct safety and operations infractions instead of punishing them. Staffing involved judiciously hiring the right individuals for

the job. Lastly, responses supported the use of big data to analyze operations and identify safety trends.

Research Question 3: Minor Theme

Training and education. Two percent of supervisors' and managers' responses to RQ3 suggested training and education actions to overcome challenges and obstacles and to help improve rail safety operations. Actions included offering additional leadership training to existing and emerging leaders. Responses also indicated that training and education actions warrant the alignment of three elements: training and education; safety documentation: safety rules, regulations, procedures, and policy; and job descriptions. In some cases, these elements might dovetail with employees' individual development plans.

Research Question 4: Major Themes

Research Question 4 was: What suggestions might frontline rail managers have to improve rail safety operations that could help reduce safety violations? Supervisors and managers provided 166 responses to RQ4 regarding suggestions for improving rail safety operations and reducing safety violations. From the responses, five major themes emerged: safety management practices, communication and information sharing, leadership, management, and training and education.

Safety management practices. Thirty-four percent of supervisors' and managers' responses to RQ4 suggested safety documentation, safety management system, quality assurance, and emergency management. Throughout the responses, participants repeatedly called for the organization to improve safety management

practices by realigning: training and education; safety documentation; rules, regulations, procedures, and policy; and job descriptions. Participants' responses also highlighted a safety management system that comprised four pillars: (a) policy that creates buy-in, (b) risk management that emphasizes training, (c) quality assurance with a focus on compliance checks, and (d) promotion that emphasizes rules and violations. Quality assurance involved establishing safety procedures with checklist and controls to ensure compliance. Emergency management involved preparing for and periodically practicing emergency evacuation drills.

Communication and information sharing. Twenty-one percent of supervisors' and managers' responses to RQ4 highlighted communications and information sharing suggestions that involved bidirectional communication channels; brainstorming; knowing the why in safety practices; whistleblower programs; industry benchmarking, best practices, and lessons learned; team building; and an open-door policy. Participants' RQ4 responses highlighted requests primarily for bidirectional communication channels among upper management, frontline supervisors, and employees. The latter could facilitate brainstorming sessions to explain the why of safety management practices, build successful teams, and encourage open-door policies. A "whistleblower program" could encourage safety violation reporting as well as remove fears of retaliation when employees report safety violations. Supervisors and managers mentioned industry benchmarking, best practices, and lessons learned in RQ1, RQ2, and RQ4. The elements were important aspects of the communication and information-sharing theme.

Leadership. Twenty-one percent of supervisors' and managers' responses to RQ4 highlighted coaching, mentoring, objective feedback, and developing future leaders; bottom-up management; leadership by example; management by walking around; "servant leadership;" and leadership competencies such as interpersonal skills and conflict resolution. The preponderance of responses indicated coaching, mentoring, objective feedback, and developing future leaders as ways to improve rail safety operations and to help reduce safety violations. Participants' responses strongly suggested bottom-up leadership, which supports a better way by challenging others to think differently. As mentioned previously, participants' responses also encouraged leading by example or "leaders doing what is expected of employees." One minor response was "servant leadership," which indicated that it would help employees enrich their lives, build a better organization, and create a more just and caring workplace. Participants' responses also suggested that leaders use leadership competencies such as interpersonal skills (e.g., team building, negotiation, conflict management, and coaching) to help improve rail safety operations and reduce safety violations.

Training and education. Fourteen percent of supervisors' and managers' responses to RQ4 suggested the training and education theme to improve rail safety operations and help reduce safety violations. Participants' responses also suggested training and education in the form of simulations and certifications; organizational alignment of training and education with job descriptions and safety documentation (such as rules, regulations, procedures, and policy); heavy-handed and punitive measures in contrast to supportive coaching, mentoring, objective feedback, shadowing, and training.

Management. Twelve percent of supervisors' and managers' responses suggested an awards and recognition program, safety innovations and technology, quality assurance procedures, communication equipment and resources, and real-world field orientations. Participants' responses suggested an awards and recognition program to encourage the workforce to submit and benefit from safety ideas and innovations. Participants' responses also suggested a quality assurance program that would provide safety and operations checklists and controls to ensure safety compliance. Participants' responses also suggested supplying employees the equipment and resources to complete assigned tasks. Lastly, participants' responses suggested that supervisors and managers participate in rail field orientations to capture the zeitgeist of rail commuters' typical commuting experience.

Work–life balance. Supervisors and managers submitted limited but compelling responses to the work–life balance theme. Participants' responses stressed implementation of a comprehensive "ergonometric" program that would outfit individuals and offices with furniture and equipment that facilitate job efficiency and performance. In general, supervisors and managers welcomed the current, more relaxed working environment ushered in by recent leadership changes. Participants' responses also indicated that the changes have encouraged employees to reduce stress and create more comfortable workspaces. The organization's safety-operations balance initiative supports work life balance efforts.

Summary of Research Questions

General research question. In responses to the GRQ, supervisors and managers highlighted elements of both management and leadership themes to help improve safety management practices. Management elements included (a) bottom-up management, (b) management by walking around, (c) big-data analysis, and (d) an awards recognition program. Leadership elements included career development, leadership competencies, and interactive leadership engagement.

Supervisors and managers viewed bottom-up management as tapping into the collective expertise and creativity of rail employees, encouraging them to submit ideas and plans to upper management, including employees and supervisors in identifying potential problems, developing plans, making decisions, and implementing preventive and corrective initiatives. Akin to bottom-up management was the implementation of an awards and recognition program to incentivize and acknowledge employees for stellar job performance. Management by walking around involved leaders getting out of the office and experiencing firsthand what "employees and commuters" experience daily. Big data referred to appropriate national and international rail data to analyze safety and operations and project trends. A related element of big data was rail industry benchmarking of workable industry safety standards, best practices, and lessons learned and then folding the results into an effective organizational communication and information sharing strategy that informs all rail divisions.

Supervisors and managers also recommended elements of the leadership theme that included career development, interactive leadership, and leadership competencies.

Career development involved coaching, mentoring, objective feedback on job performance, and development of future rail leaders. Participants viewed coaching as instructing employees on thinking strategically and mentoring as influencing employees' work life, confidence, and perceptions. Participants viewed both as essential for developing future rail leaders. Interactive leadership involved approaches such as leadership by example, which refers to "leaders doing what they expect of employees." Lastly, participants recommended more leadership that involved competencies such as interpersonal skills, conflict management, and conflict resolution. A summary of the GRQ themes, elements, and answers appears in Table 11.

Table 11

Summary of GRQ Themes, Elements, and Answers

Theme	Description	Example
Management	Bottom-up management	Employee participation in decision making
	Interactive management	Management by walking around
	Big data analysis and forecasting	Data analysis, including benchmarking, best practices, and lessons learned
	Employee incentives	Awards recognition program
Leadership	Career development	Coaching, mentoring, feedback, and shadowing, as well as training and education: certification and simulations
	Interactive leadership	Lead by example
	Leadership competencies	Interpersonal skills: collaboration, conflict management, conflict resolution, and team building

Research question 1. In responses to RQ1, supervisors and managers highlighted elements of safety management practices to address the impact that leaders can have on

employees' attitudes toward safety. Safety management elements included a key initiative and four safety management programs. The key initiative was aligning training and education to include simulation training and safety certification, safety documentation, and job descriptions; it surfaced as the keystone for enhancing all other suggested and recommended rails actions. The four safety management programs were emergency management, quality assurance, safety violations management, and whistleblower.

Supervisors and managers interpreted the emergency management initiative as routine and institutionalized preparation for the safe evacuation of commuters in rail emergencies. Some viewed emergency management as an underdeveloped safety element. The quality assurance initiative involved establishing guidelines with safety checklists and controls to ensure rail safety compliance. Safety violations management involved a formal end-to-end management of safety violations. For example, end-to-end safety violations management would involve logging violations, assigning action officers, formulating resolution strategy, resolving violations, tracking actions, documenting actions, and disseminating resolutions across rail divisions. Lastly, participants suggested a whistleblower program to help leaders to encourage safety violations reporting and possibly to help eliminate some apparent fears of retaliation and stigmas associated with reporting safety violations. A summary of RQ1 themes, elements, and answers appears in Table 12.

Table 12

Summary of RQ1 Themes, Elements, and Answers

Theme	Description	Example
Safety management practices	Safety practices	Safety training and education, safety documentation, and job descriptions
	Safety emergency management program	Emergency evacuation of commuters in emergencies
	Safety quality assurance program	Procedures with checklists and controls to ensure compliance
	Safety violations management program	Logs, action officers, actions, resolutions, tracking, documentation, and information sharing
	Safety whistleblower program	Encourages reports and helps eliminate fears of retaliation associated with reporting safety violations

Research question 2. In responses to RQ2, supervisors and managers highlighted elements of communications and information sharing. To address challenges and obstacles that frontline rail supervisors and managers might encounter in improving rail safety, participants highlighted four elements of communication and information sharing: bidirectional communication, benchmarking, brainstorming tools, and safety assemblies. Bidirectional communication was the most prominently addressed element and involved establishing and using horizontal and vertical channels of communication among upper management, managers, supervisors, and employees. Participants viewed the open communication channels as an opportunity to foster transparency and reduce challenges and obstacles related to operating a rail system at "a high operational tempo in a highly politicized environment." The element participants responded to second most frequently was periodical benchmarking of rail industry safety practices, identifying best practices

and lessons learned, and sharing results across rail divisions. Participants viewed the benefits of the trio as building strong teams, workplace trust, relationships, and esprit de corps. Participants recommended brainstorming to generate multiple safety and operations ideas, exchange information, evaluate options, and share decisions. Participants recommended the use of more safety assemblies such as focus groups, committees, and meetings to communicate the safety message via an all-in safety campaign. A summary of RQ2 themes, elements, and answers appears in Table 13.

Table 13

Summary of RQ2 Themes, Elements, and Answers

Theme	Description	Example
Communication and information sharing	Bidirectional communication	Open channels among upper management, supervisors, and employees
	Benchmarking	Best rail industry safety practices
	Best practices and lessons learned	Information sharing with rail divisions
	Brainstorming	Generate multiple ideas, exchange information, evaluate options, and share decisions
	Safety assemblies	Safety focus groups, committees, and meetings to promote all-in safety campaign

Research question 3. In responses to RQ3, supervisors and managers highlighted elements of the management, leadership, and training and education themes to address actions that might help them overcome safety challenges and obstacles that could help improve rail safety. Management elements included employee autonomy, adequate resources, and safety complacency. Autonomy involved employees having more authority to perform safety and operations tasks more effectively and to participate more

in rail and operations decision making. Adequate resources involved employees having adequate equipment, specifically radios and other communication equipment, to accomplish job tasks. Safety complacency involved reorienting employees to replace old-line, reactive thinking and behavior with proactive and strategic thinking and behavior that embrace safety changes, innovations, and technology. Again, participants recommended aligning safety management training and education, safety documentation, and job descriptions first.

Leadership elements included leadership by example and leadership competencies. Leadership by example involved leaders doing what they ask of employees. Leadership competencies involved leaders exhibiting interpersonal skills such as collaboration, conflict management, conflict resolution, and team building.

The training and education element theme included the element of a "supportive versus punitive" training environment. For example, they recommended organizational leaders opt out of the perceived "iron fisted, punitive" environment and embrace a more instructive, supportive training and education environment that "trains, corrects, and incentivizes rather than one that punishes, blames, and demoralizes" employees. A summary of RQ3 themes, elements, and answers appears in Table 14.

Table 14

Summary of RQ3 Themes, Elements, and Answers

Theme	Description	Example
Management	Employee autonomy Adequate resources Safety complacency	More authority to accomplish job tasks Radios and other communication equipment Retrain workforce to think strategically and embrace change, innovation, and technology
Leadership	Lead by example Leadership competencies	"Leaders do what is asked of employees" More interpersonal skills: collaboration, conflict management, conflict resolution, and team building
Training and education	Punitive training and work environment	Instructive, supportive training and work environment

Research question 4. In responses to RQ4, supervisors and managers highlighted elements of the safety management practices, training and education, and work–life balance themes in their suggestions to reduce safety violations. Element of safety management practices included a safety management system, a safety suggestion box, and safety assemblies. The comprehensive safety management system involved policy that creates buy-in; risk management that emphasizes training and education; quality assurance that focuses on checks and controls to ensure compliance; and promotion that emphasizes safety rules, regulations, procedures, policy, and resolution of violations.

Supervisors and managers viewed the safety suggestion box, also related to the communication and information-sharing theme, as a mechanism to help the organization obtain additional safety-oriented comments, questions, ideas, and requests. Responses indicated a suggestion box might complement a whistleblower program. Safety

supervisors' and managers' time commitments prevented them from attending safety groups, committees, and meetings. Participants highlighted the value of these assemblies for exchanging information, such as rail industry benchmarks, best practices, lessons, leading-edge innovations, technology, internal safety documentation changes, and updates.

Training and education elements included training for supervisors; a safety-first, operations-second orientation; and a supportive versus punitive working environment. Supervisors unanimously agreed on training for frontline supervisors from the perspective of "train-the-trainer." They viewed their quality training as a precursor for their training of future rail leaders. They also supported the related training and education on and continued emphasis of the safety-first, operations-second- initiative that dovetails with their suggestion to align training and education, safety documentation, and job descriptions to help improve safety operations and violations-reduction initiatives. Finally, they highlighted the value of a supportive training and education environment over that of an "iron-fisted" and "punitive" environment.

Finally, supervisors and managers suggested the ergonometric element of the work–life balance theme to help supervisors and managers improve rail safety operations and help reduce safety violations. Supervisors and managers stated that a comprehensive ergonometric program involved outfitting individuals with activity-friendly equipment and offices with desks and furniture that facilitate job performance activities. They indicated that a comfortable work environment would improve their work performance,

thus helping to improve rail safety operations and help reduce safety violations. A summary of RQ4 themes, elements, and answers and results appears in Table 15.

Table 15

Summary of RQ4 Themes, Elements, and Answers

Theme	Description	Example
Safety management practices	Safety management system	Safety policy, risk, quality assurance, and promotion
	Suggestion box	Safety comments, questions, ideas, & requests
	Safety assemblies	Safety focus groups, committees, and meetings
Training and education	Supervisor training	Train-the-trainer enabler
	Safety first, operations second mantra	All-in safety promotion
Work–life balance	Ergonometric program	Properly equipped individuals/offices

Chapter 5 will include an interpretation of the findings, limitations of the study, recommendations, implications for practice, and the conclusion. Additionally, it will reiterate the purpose and nature of the study; Chapter 5 captures the essence of the study.

Chapter 5: Summary, Conclusions, and Implications

Introduction

The purpose of this study was to explore the potential influence of perceived leadership styles of 16 frontline rail supervisors and 4 managers on safety management practices within a metro rail system. In this qualitative, cross-sectional study, I administered the self-rating, 45-question MLQ (5X Short) to assess supervisors' and managers' perceptions of their leadership styles, and I conducted structured interviews to develop a better understanding of participants' attitudes toward safety management practices. The sample size included 16 frontline rail supervisors and 4 managers at the operational level. The study was designed based on the assumption that leadership styles could have an impact on safety management practices that could lead to reductions in safety violations and rail accidents.

Key findings in the data show that safety practices, communication and information sharing, management, leadership, and training and education were themes that traversed the GRQ and four research subquestions. These represented five of the six major themes that emerged in the data; work–life balance was the sixth theme. Prominent in the data was the importance of safety management practices in efforts to reduce safety violations and accidents.

Interpretation of the Findings

The review of peer-reviewed literature on transformational leadership models and the tenets of transformational leadership in Chapter 2 confirmed a few assumptions, disconfirmed another, and extended knowledge in the leadership and management

disciplines. Notable in the literature review was the finding that transformational leaders are charismatic individuals who identify emotionally with their followers and demonstrate the ability to motivate followers' performance by encouraging them to work as team players. This finding confirmed the assumption that supervisors and managers would highlight the need for more collaboration and team building, as shown in Table 16. A second confirming example was the extent to which perceptions of fairness, trust, and leadership correlated with employee commitment based upon leadership styles.

Also, in Table 16, supervisors and managers described bottom-up management as beneficial employee participation in decision making. Similarly, in Table 13, they described bidirectional communication as open communication channels among upper management, supervisors, and employees, and they described brainstorming as a tool to generate multiple ideas, exchange information, share decisions, and build trust.

An important disconfirming assumption was that frontline supervisors would exhibit more transactional leadership characteristics than individuals who scored in the national norm. For example, in Table 16, participants expressed the importance of leadership competencies. Using this information, I extended the knowledge of the leadership and management disciplines. I extended the transformational leadership model and transformational leadership tenets in an environment where safety and high operational tempo must balance. For example, as shown in Table 16, supervisors and managers advocated for a more instructive, supportive training and education environment rather than an iron-fisted and punitive leadership and management approach. Conventional thinking indicated that transformational leadership models and

transformational approaches would not yield the desired result in high-operational-tempo environments.

Transformational leadership models have been the subject of extensive research. However, the conceptual framework for this research was transformational leadership theory that served as the foundation for the multifactor leadership framework. For this inquiry, I applied the framework and MLQ at the operational level in a rail system. The findings indicated that the 16 frontline rail supervisors and 4 managers scored less than the national norm on the five key transformational scales. On the two transactional scales, they scored at the national norm. On the two passive avoidant scales, they scored at the national norm. On the three outcomes of leadership characteristics, they scored at the national norm. Data synthesized from the six major themes indicated that the frontline rail supervisors and managers supported a more transformational leadership environment but realized that the organization is undergoing significant change initiatives, most notably the safety-operation balance and right-size staffing. A summary of the assumptions, confirmations, disconfirmation, knowledge expansion, and examples of the findings appears in Table 16.

Table 16

Assumptions, Confirmations, Disconfirmations, Expansion, and Examples

	Assumption	Confirm	Disconfirm	Expansion	Example
1	Respondents would highlight need for more transformational characteristics in workplace	X			Bottom-up management
2	Leadership correlated with employee commitment per leadership styles	X			Bidirectional communication
3	Supervisors who exhibited transactional leadership characteristics would exceed national norm		X		Leadership competencies
4	Extended transformation leadership models and transformational leadership tenets amid safety–high-operational-tempo balance	X		X	Request for a supportive training environment versus punitive actions

Limitations of the Study

I selected the cross-sectional survey design to describe a potential relationship between frontline rail supervisors' and managers' perceived leadership styles and their attitudes toward safety management practices. Survey designs have inherent challenges. As such, I encountered at least four limitations in this study: (a) supervisors and managers self-reported MLQ and structured interview responses, (b) the cross-sectional design method allowed examination of the data at a point in time only, (c) I made no attempt to establish causation between leadership styles and safety management practices, and (d) structured interview questions did not permit supervisors and managers much flexibility in their responses.

Recommendations

The general problem that was that the number of commuter rail accidents had steadily increased in the past decade. The impact of these rail accidents was tragic in terms of lost lives and lost revenue. A December 2017 Amtrak rail crash near Tacoma, Washington, resulted in three passenger deaths and approximately 100 injuries. This accident mirrored a 2015 Philadelphia crash that resulted in eight deaths when an Amtrak train failed to negotiate a turn and derailed. The NTSB reported that distractions and the lack of situational awareness contributed to the latter accident. NTSB analysts are reporting that distractions such as texting, cell phone usage while driving, and interactive on-the-job training are more often the root causes of accidents. These distractions are growing problems for rail safety supervisors and managers.

Furthermore, these accident rates are likely to continue. The impact of these accidents is likely to become even more horrific because of increased rail speeds and ever-growing ridership. The specific problem was that current leadership practices have not achieved success in reducing safety violations and rail accidents.

The assumption was that leadership styles could have an impact on attitudes toward safety management practices. Another assumption was that these practices could lead to significant reductions in safety violations, which ultimately could lead to reductions in rail accidents. These assumptions underscore the impact that leadership and managerial support could have on the rail supervisors' and managers' primary concerns.

A strength of this study was its moment-in-time assessment of perceived leadership styles and responses from structured interviews of 16 frontline rail supervisors

and 4 managers. I administered the MLQ to assess their perceived leadership styles and conducted structured interviews to develop a better understanding of their attitudes toward safety management practices. From the MLQ assessment and the structured interviews, I was able to understand the possible impact of different leadership styles on the phenomenon of safety management practices. For example, they highlighted the value of the transformational approach of a supportive training and education environment over that of a transactional authoritative and punitive approach.

Four noteworthy limitations of this study emerged. First, I did not look to establish a causal relationship between leadership styles and attitudes toward safety management practices. Second, I examined the sample size in one moment in time. Third, I did not conduct a trend analysis or examine changes in the sample over time. Fourth, I used the MLQ Leader Form only to provide the perceived leadership styles of the sample.

A 360 component would have captured direct reports' and employees' ratings of the 16 frontline rail supervisors and 4 managers. A 360 component also could have provided a comprehensive leadership assessment of supervisor–manager–employee perspectives and strengthened the assumption that leadership style could, in fact, have an impact on safety management practices. The assessment of transformational, transactional, and passive-avoidant leadership styles presents the full range of leadership development models from the Chapter 2 literature review. I recommend continued correlational research to examine a stronger nexus between leadership style, attitudes toward safety management practices, and a reduction in safety violations. I further recommend researchers examine the above possible nexus from the perspective of six

major themes that were common across the five research questions of this study: safety management practices, communication and information sharing, management, leadership, training and education, and work–life balance. I describe more recommendations in the next section.

Implications for Practice

In this study, I provided research that could help policymakers, scholars, and mass transit rail authorities better understand the impact of leadership style on safety management practices. I highlighted the critical role of leadership in engaging the workforce through improved and increased attention to rail system safety. Findings in this study could be a valuable contribution to the body of knowledge on how well organizational leaders implement planned or continual change and transformational leadership approaches.

Other potential social changes involve examining closely the transformational leadership approach that models best practices in safety leadership. These findings were consistent with the research literature review that showed transformational leadership has an affirmative effect on employees' performance. The results of this study supported and extended leadership research literature that could affect transformational leadership models. Moreover, the result of this study could also influence leadership training and education, coaching and mentorship programs, and managerial practices that might influence organizational culture.

Furthermore, this research provides additional data that could advance leaders' interpersonal relationships with followers and promote the significance of various

leadership approaches and safety management initiatives. The likely contribution of this investigation could enhance training methods on system safety. Advancements in training policies could help managers deepen their commitment to rail safety. Such a commitment could reorient the accountability of the workforce to an engaged, safety-first mind-set. The findings of this examination could serve as a baseline to stimulate future research on transformational leadership models and safety management practices and could foster positive social change by improving system safety in the transit rail industry.

The purpose of this study was to explore the potential influence of perceived leadership styles of 16 frontline rail supervisors and 4 managers on safety management practices within a metro rail system. The findings indicated that supervisors' and managers' perceived transformational leaderhip approaches did influence their attitudes toward safety management practices. They identified six themes where the tenets of transformational leadership influenced safety management practices: 1) bottom-up management to increase employee collaboration in the safety decision-making process, 2) coaching, mentoring, and objective feedback to create a supportive, non-punitive working environment, 3) safety training and education that aligns with safety documentation and job descriptions, 4) bi-directional communication and information sharing to improve supervisor-manager-employee communication, 5) employee recognition efforts that acknowledge employee performance, and 6) work life balance initiatives to improve the quality of life in the workplace.

They viewed these transformational leadership approaches as influencers for improving employee engagement and buy-in, building trust, improving the quality of

information flow, establishing accountability and task ownership, and solidifying employees' willingness to report and correct potential and existing rail safety hazards and issues. To arrive at the above finding, I investigated the downstream effects of perceived leadership styles on safe-role behaviors among frontline rail supervisors and managers in a public transit rail system. Further, I normalized 900 MLQ scores, 540 structured interview responses, 200 minor themes, and six major themes from supervisors' and managers' scores and responses.

The normalization process involved highlighting five suggested applications that captured the key essence of the study. The following applications could help improve enterprise rail safety operations: (a) strategic initiatives, (b) programs, (c) procedures and processes, (d) leadership models, and (e) tools and techniques. Appendix D includes a summary of the suggested applications, data collection process, and major and minor themes from this study.

Strategic Initiatives

Strategic initiatives comprised two actions: (1) alignment among training and education, safety documentation, and job description and (2) benchmarking. The alignment of training and education, safety documentation, and job descriptions was an overarching element that emerged from supervisors' and managers' MLQ scores and structured interview responses. The safety triad would undergird all other suggested applications. Organizational leaders would complete this action before addressing other suggested applications. For example, employees would essentially train and educate themselves in the work they do, job descriptions would reflect this work, and safety

documentation would reflect the outcomes expected from training and education and job performance. The synchronization could also enhance organizational communication and information sharing. Benchmarking was the second strategic initiative action that emerged from the data. Benchmarking would involve organizational leaders comparing the industry rail safety and operations, incorporating the best practices and lessons learned into internal safety management practices, and sharing the best practices and lessons learned across the rail safety and operations enterprise.

Safety Programs

Safety programs comprised six actions: (1) safety violations management, (2) awards and recognition, (3) whistleblower, (4) suggestion box, (5) quality assurance, and (6) ergonometric. First, safety violations management would involve an end-to-end system in which to log safety violations, assign action officers, plan courses of action, monitor actions, identify root cause, document processes, resolve violations, and share findings. Second, supervisors and managers must recognize that an awards and recognition program could improve esprit de corps, employee trust, team building, and communication and information sharing. Third, a whistleblower program would facilitate safety violations reporting, provide anonymity for those who report safety violations, and protect them against retaliation for reporting safety violations. Fourth, a suggestion-box program would complement the whistleblower program as a precursor or interim option for protecting individuals' anonymity when reporting safety violations. It could also generate useful safety ideas and suggestions. Fifth, a quality assurance program would ensure compliance to safety management practices by providing checklists and controls.

For example, it would ensure measurable levels of safety, quality, reliability, and consistency in rail safety and operations. Finally, an ergonometric program would equip rail employees with innovations and technology that facilitate a safe and comfortable work environment, to include ergonometric chairs and stand-up desks, for example.

Safety Processes

Supervisors and managers recommended an emergency management process. It would provide formal guidelines and procedures for rehearsing and safely evacuating commuters from rail systems during emergency incidents. Such a process would provide evacuation guidelines, procedures, and processes for above-ground or below-ground rail evacuation emergencies.

Safety Leadership Models

Safety leadership models comprised six actions: (a) bottom-up management; (b) coaching, mentoring, feedback, and employee development; (c) interactive leadership; (d) leadership competencies, (e) bidirectional communication and information sharing, and (f) supportive and instructional training and education versus authoritative and punitive leadership. First, bottom-up management would involve challenging employees to think strategically and see the big picture and may help them embrace rail safety changes, innovation, and technology. Second, coaching, mentoring, and feedback would include employee career-development paths for both existing and future rail leaders. It would involve leaders helping employees create individual development plans that aligned with training and education and with job descriptions. Additionally, it would involve leaders coaching and mentoring employees throughout the processes. Third, interactive

leadership would involve more leadership by example or leaders doing what they ask of employees. It would also involve management by walking around, which involves leaders getting out of the office and experiencing what employees and commuters experience daily. Fourth, leaders' demonstration of leadership competencies would involve more use of interpersonal, conflict management, and conflict resolution skills, including listening, team building, trust building, and motivations. Fifth, bidirectional communication and information sharing would involve horizontal and vertical communication and sharing channels among upper management, supervisors, and employees. Supervisors and managers stressed that better open-communication channels could help the organization build strong teams and trust and strengthen inter- and intra-organizational communication and information sharing of safety rules, regulations, procedures, and policy. Sixth, supervisors and managers also stressed the implementation of a supportive, instructional training and education environment wherein leaders would coach, mentor, and provide feedback to employees and develop existing and future leaders. Such an environment would train, instruct, and incentivize employees rather than punish, blame, and disempower them.

Safety Tools and Techniques

Safety tools and techniques comprised three actions: (a) big data, (b) brainstorming, and (c) assemblies. Supervisors and managers recommended using big data to analyze safety and operations and to project rail safety trends. Big data would also involve benchmarking rail industry safety standards, best practices, and lessons learned and folding appropriate findings into an effective communication and information-

sharing strategy that informed all rail divisions. Brainstorming, along with the suggestion-box program, would generate multiple safety ideas and, hopefully, solutions and provide a means for mining the creativity of a limited number of employees for many ideas. Finally, safety assemblies, such as focus groups, committees, and meetings, would continuously communicate the organization's safety message via an all-in safety campaign. Meetings used for information exchanges, option evaluations, and decision making would facilitate discussions and decisions on pertinent safety challenges and obstacles. Supervisors and managers indicated that they would be willing to participate in these safety assemblies.

Finally, supervisors and managers indicated that they embraced transformational leadership in the above applications. However, they realized that the organization is in a significant organizational safety and operations transition. Further, they embraced safety changes, innovation, and technology, despite ongoing transitional challenges in safety and operations. They also welcomed the current leadership's changes, specifically the renewed emphasis on safety and the balance between safety and operations, and they saw themselves as rail professionals committed to the rail organization and supported employees taking pride in wearing the rail system's uniform.

Conclusion

The purpose of this study was to explore the potential influence of perceived leadership styles of 16 frontline rail supervisors and 4 managers on safety management practices within a metro rail system. The motivation for the inquiry was to examine the role of a transformational leadership model in a rail safety environment. Transactional,

authoritative leadership models have typically prevailed in the rail system environment. An initial assumption was that supervisors and managers would be more safety conscious in an environment where they practice the tenets of transformational leadership. Additional assumptions were that leadership correlated with employees' commitment pursuant to leadership styles and that supervisors and managers would exhibit transactional leadership characteristics. Given that supervisors and managers would exhibit transactional leadership characteristics, I concluded that transformational leadership models, typically not embraced in high-operational-tempo environments, are in fact effective in a rail system safety environment.

Transformational and transactional leadership styles are not either-or options. Rather, they function on a continuum depending on the circumstances and situations. When organizational operations are going well, transformational leadership is effective in executing change initiatives. Each leadership style is effective depending on the circumstances, subordinates' levels of maturity, and the leader's levels of experience. As such, I concluded that transformational leadership models did have an impact on supervisors' and managers' attitudes toward safety management practices. The application of transformational leadership models continues to expand. The findings in this inquiry add to the body of knowledge specifically on the use of transformational leadership models in a high-operational-tempo system safety environment.

Finally, the recent rail accidents in Washington State and Pennsylvania underscored the urgency for supervisors and managers to address unsafe safety management practices, which include the evolving distracted-rail driving behavior.

Authoritative, punitive leadership approaches have failed to correct ineffective and unsafe rail practices. As such, transformational leadership models that raise the level of rail safety management practices, including employee accountability, engagement, and trustworthiness, could be one of many effective change agents.

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Appendix A: Structured Interview Questions

1. How can your leadership help improve rail safety operations?
2. What are some examples of poor rail safety operations?
3. How would you describe a possible association between rail safety operations and safety violations?
4. How do you think safety operations have changed over the past year?
5. What challenges and obstacles do you encounter in your efforts to improve rail safety?
6. How does your leadership help the organization overcome rail safety challenges and obstacles?
7. How could leadership help improve the organization's rail safety operations?
8. What ideas or suggestions do you recommend to help the organization improve safety operations?
9. What leadership approach might you employ to overcome challenges and obstacles and improve rail safety operations?
10. What suggestions might you recommend to help improve rail safety that might reduce ssafety violations?

Appendix B: Research Questions Aligned to Structured Interview Questions

Research Question	Structured Interview Question
General: How can leadership style help improve safety management practices?	How can your leadership help improve rail safety operations?
	What are some examples of poor rail safety operations?
RQ1: What impact can leaders have on workers' attitudes toward safety?	How would you describe a possible association between rail safety operations and safety violations?
	How do you think safety operations have changed over the past year?
RQ2: What challenges and obstacles might frontline rail supervisors and managers encounter in improving rail safety?	What challenges and obstacles do you encounter in your efforts to improve rail safety?
RQ3: What leadership actions might frontline rail supervisors and managers take to overcome the challenges and obstacles that could help improve rail safety operations?	How does your leadership help the organization overcome rail safety challenges and obstacles?
	How could leadership help improve the organization's rail safety operations?
RQ4: What suggestions might frontline rail supervisors and managers have to improve rail safety operations that could help reduce safety violations?	What ideas or suggestions do you recommend to help the organization improve safety operations?
	What leadership approach might you employ to overcome challenges and obstacles and improve rail safety operations?
	What suggestions might you recommend to help improve rail safety that might reduce safety violations?

Appendix C: Summary of Structured Interviews

Question/ Theme	Communication & Info/Sharing	Leadership	Management	Safety	Training/ Education	Work Balance	Total
1	2	4	2	1	1	0	10
2	2	1	8	5	1	0	17
3	2	0	1	6	1	0	10
4	4	1	7	7	4	1	24
5	2	1	5	7	1	0	16
6	2	4	2	4	1	0	13
7	5	3	6	4	1	0	19
8	6	2	7	5	2	0	22
9	7	5	5	2	1	1	21
10	4	4	6	11	1	2	28
Total	35	25	49	52	14	4	180

Appendix D: Data Collection, Themes, Applications, and Actions

Data Collection	No.	Descriptions	Actions
MLQ	900	Scores	
Structured Interview	540	Responses	
Themes	200	Minor	
Major themes	6	Safety management practices	
		Communication & information sharing	
		Leadership	
		Management	
		Training and education	
		Work life balance	
Suggested Applications	4	Strategic initiatives	Align training, safety documentation, and job descriptions
			Benchmarking
			Best practices
			Lessons learned
	6	Programs	Safety violations management
			Awards and recognition
			Whistleblower
			Suggestion box
			Quality assurance control
			Ergonometric
	1	Procedures and processes	Emergency management system
	5	Leadership models	Bottom-up
			Coaching, mentoring, feedback
			Interactive leadership
			Leadership competencies
			Bi-directional communication
	3	Tools and techniques	Big data
			Brainstorming
			Assemblies

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