EXPLORING HOW CONSTRUCTION WORKERS INTERPRET THE EFFICACY OF LEADERSHIP TRAITS

by

Hendrik van Brenk

A Dissertation Proposal Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Management

University of Phoenix

ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 - 1346

The Dissertation Committee for Hendrik van Brenk certifies approval of the following dissertation:

EXPLORING HOW CONSTRUCTION WORKERS INTERPRET THE EFFICACY OF LEADERSHIP TRAITS

Committee:

Katherine B. Downey, Ph.D., Chair

Linda Atkinson, Ed.D., Committee Member

Louiseann T. Richter Ed.D., Committee Member

Katherine B. Downey

Linda Atkinson

Louiseann T. Richter

Jeremy Moreland, PhD
Dean, School of Advanced Studies
University of Phoenix

Date Approved: October 7, 2014

Abstract

The study suggests that causation of workplace injury, specific to construction projects, include human factors that are not routinely discovered through empirical analysis. Although this is likely an intuitive conclusion it suggests that prevention must in part confront human factors and the role of leadership to respond. Construction continues to be one of the most dangerous industry segments in the United States injuring tens of thousands of construction workers annually. This qualitative phenomenological study investigated a directed sample of 15 construction workers working at 5 different projects for the participating organization. The five projects selected were determined by the leadership traits of operational leadership such that the worker sample population was exposed to the full spectrum of leadership behaviors. The objective of this qualitative phenomenological study was to gain a better understanding of the influence that specific leadership traits had in building a positive and proactive safety culture. The study used NVivo8 software to categorize the collected data. The results of the study identified the emergence of four main themes: (a) characteristics of the operational leader in the construction industry, (b) leadership approaches that influence safe behavior, (c) followers-leadership reflective behavior, and (d) process of followership. Through one-on-one interviews the participants revealed their interpretation of leadership behaviors and how that interpretation drives their behavior. The study reveals potential gaps between the intent of leadership action and the constructed meaning by the participant. The study offers practical considerations for both the leader and the organization that may make a positive contribution to the prevention of incident and injury at the construction workplace.

Dedication

This study and scholarly work is dedicated to two separate groups that inspired both my professional career and in particular this research. They are the construction worker who works on those projects that make our way of life possible through the building our infrastructure and dwellings. The other group is the safety professionals who work tirelessly to meet the demands of the business and coordinate systems, processes, and programs designed to reduce harm to the construction worker.

It is alarming to note that according to the occupational health and safety administration (OSHA) every day in the United States over 200 workers are injured at construction projects such that their injuries prevent them from returning to work the next day. This study is dedicated to the belief that every accident on a construction project is preventable. The data for this study was delivered from the unique perspective of the construction worker to which this study is dedicated.

The safety professional is often a thankless job, rarely receiving accolades, and is often at odds with management and seen as the enforcer. This study is also dedicated to this group that through constant development and devotion to the safety and wellbeing of the construction worker real improvement has been realized over the past decades. These men and women continue to work hand in hand with leaders and followers to teach the correct behavior and inspire that workplace conditions and behavior make it possible to eliminate injury

Table of Contents

List of Tables

Chapter 1: Introduction to the Study

Protecting construction workers from harm because of workplace injury has traditionally been the role of industry safety professionals and regulatory arms, such as the Occupational Safety and Health Administration (U.S. dol, 2014). The Occupational Safety and Health Act of 1970 resulted in the promulgation of regulations and the creation of an enforcement arm designed to eliminate jobsite hazards intended to reduce workplace injury (U.S. dol., 2014).

Despite decades of legislative development, increasing regulatory scrutiny and enforcement, the construction industry is one of the most hazardous sectors in the United States (Gillen, Kools, Sum, McCall, & Moulden, 2004). Safety work plans, formal safety management systems, mandated training regimen, and various other proactive steps taken by the industry do not necessarily correlate to a company's safety performance (Molenaar, Park, & Washington, 2009). Offering various rationales about this lack of correlation does not diminish the fact that the role of leadership is deserving of further research.

While the importance of leadership may seem intuitive, the role of leadership with respect to safety remains unclear (Krause, 2005). Krause (2005) asserted that some safety practitioners have focused on employee-driven behavior-based safety to the exclusion of a meaningful role for leadership. One potential driver for this phenomenon is that the generic use of the term "leadership" demands that meaning must be construed individually, which render meaningfully responsive strategies difficult to develop. Understanding the efficacy of leadership traits and how they are interpreted would potentially be central to the development of significant roles of leadership in construction safety.

Background

Construction safety remains one of the Occupational Safety and Health Administration's (OSHA) top concerns, as construction is one of the most dangerous industries in the United States (Michaels, 2011). Michaels (2011) further asserted that it is known that OSHA enforcement and regulations save lives and reduce injuries. This expression of a cause-and-effect relationship between enforcement and injuries demonstrates the pervasiveness of the positivist paradigm in the thinking of OSHA. Within this dominant paradigm, the logical strategy to reduce accidents would be to continue the promulgation of rules, coupled with increased enforcement. This common sense approach is demonstrative of how prevalent this perspective is in the American management mainstream (Johnson & Duberly, 2000). This paradigm remains dominant in the construction sector, as transactional incentives designed to motivate workers to comply with rules demonstrate the principal method to inspire safe behavior.

The entrenchment of this thinking with regard to safety management is both pervasive and pertinent to this investigation. In the 1930s, Heinrich, through a series of empirical observations, developed the Heinrich ratio (Heinrich, 1931). This straightforward and simple assertion posited that less severe accidents have a constant ratio to severe and fatal accidents. This groundbreaking research resulted in a paradigm shift from ad hoc accident response to the classification of accidents and the development of prevention strategies. Nearly a century after the presentation of Heinrich's ratio, it serves as the foundation for the classification and categorization of accidents. The OSHA has developed clear quantitative definitions in line with those classes of accidents with the foundational premise that a high number of less severe accidents implies the probability of occurrence of a severe or fatal accident. The rationale

offered by Michaels (2011) that enforcement and regulations save lives demonstrates the premise posited by Heinrich, nearly a century before. The findings of Heinrich and the practices embraced by OHSA are best characterized as positivist because of the reliance upon empirical data and dependence upon scientific method of research.

To illustrate the pervasiveness of this empirical approach, a recent study on falls in the construction industry concluded that falls from height are the most frequent accidents on construction sites (Huang & Hinze, 2003). Consistent with the historic influence of Heinrich's (1931) research, the mode of frequency and severity imply this predictable rational relationship (Gallivan, Taxis, Dean Franklin, & Barber, 2008). Whereas the Gallivan, et al. (2008) study focus related to falls from height, the method demonstrated the incorporation of the current paradigm into the cognitive process of the safety professional. Although Heinrich's study served to establish the quantifiable relationships of accidents based upon severity, the inference is that the elimination of the less severe diminishes the likelihood of catastrophic accidents.

Heinrich's (1931) assertion was embraced not merely because of content, but the empirical dimension of the Heinrich ratio (Heinrich, 1931) is consistent with engraining of a positivist philosophical construct in Western culture (Johnson & Duberly, 2000). The classifications of an accident, originally conceptualized by Heinrich (Gallivan et al., 2008), serve as the standard quantitative metrics employed not only by the construction industry but also every industry segment in the United States. Although the investigations of accidents serve to determine cause, responsive decision-making ranges from structured to unstructured rendering the decision-making process fuzzy (Falconer, 2002). Although the design of initiatives to reduce incident and injury exist, the making of decisions based upon data is not straightforward as

Falconer (2002) suggested. The typical risk assessment and audit tools focus primarily on physical observable conditions and tend to dismiss subjective data (Falconer, 2002). Falconer stated that the dismissal of this subjective data occurs because it is difficult to measure and fit into the construct of scientific management. Safety professionals can easily articulate these standard quantitative accident rates both within the organization and externally. These quantitative metrics determine the success or failure of the safety professional as well as serve as the basis for industry awards, insurance premiums, and as qualification criterion by owners in the selection of contractors for future work. This relationship of reward with traditional metrics serves to perpetuate the use of and assumptions derived from this data.

Johnson and Duberly (2000) indicated that, although positivism has achieved some dominance, it is important to acknowledge that management is not a unified field. In changing the perspective from the positivist-driven cause-and-effect relationship between lack of enforcement and accidents, to the constructivist/interpretive paradigm, opportunity for new knowledge emerges. This departure from traditional positivist assumptions provides the opportunity to explore other factors that may influence safety performance, such as leadership, culture, shared beliefs, and other epistemic foundations brought to a construction site by human beings. The context of this research was one such departure; seeking to understand how and which leadership traits can influence safety performance in the construction industry.

This research offered the potential to redirect resources from traditional means of accident prevention as espoused by Michaels (2011), and offered a potential to eliminate injury from the construction job site. In addition to the possible reduction of human pain and suffering because of accidents, a compelling business case exists. The estimated costs of occupational

injuries in construction in the United States exceeded $11 billion (Waehrer, Dong, Miller, Haile, & Men, 2007).

Problem Statement

The construction industry is classified as one of the most hazardous industries in the United States (Gillen et al., 2004). Studies conducted by Zou (2011) and Eckenfelder (2000) provided insight into the role of safety culture, and how culture affects safety performance. Zou stated that while safety culture has increased in popularity, its poor implementation has been highlighted as a contributor of cause of major accidents. Ultimately the successful reduction and elimination of workplace injury is equally dependent upon beliefs and attitudes and safety systems and design (Zou, 2011). The general problem is that the lack of understanding about how leadership traits affect safety demonstrated a reliance on rules and enforcement, this resulting in the failure to eliminate injury on construction sites. OSHA's reliance upon enforcement of conditions demonstrated this reliance upon rules and enforcement (Michaels, 2011). Understanding the leadership traits that are most likely to be interpreted as motivational by the construction worker provided an opportunity to address human factors and decision-making that resulted in the prevention of workplace injury.

This qualitative study employed interviews of construction workers to elicit from their lived experience the effects of various leadership styles among construction managers on construction safety. To ensure that the construction worker sample population includes those with experience of the spectrum of leadership types the leadership traits of leaders in the participating organization were inventoried through the Multifactor Leadership Questionnaire (Bass & Avolio, 1990). Leaders representing the spectrum of five of the six traits identified by

Bass and Avolio (1990) determined the workers selected for interview such that each style was well represented in that pool. This determination was made first by the identification and selection of five leaders that in aggregate display the spectrum of leadership traits. Secondly, three workers for each of the five leaders were selected for in-depth interviews. The study then assessed worker perception of safety at those projects these leaders influenced through a semi-structured interview instrument.

Traditionally, construction safety has emphasized both organizational and individual factors as influencing safety performance, although the common response to severe and catastrophic accidents has been a demonstrative focus on individual factors such as employee misconduct (Mitropoulos & Cupido, 2009). This observation stated by Mitropoulos and Cupido (2009) identified decision-making by the construction worker as a core cause of workplace accidents brings to light the importance of effective leadership in the development of accident prevention strategies. The development of leadership skills would be greatly enhanced with a better understanding of how leadership actions are interpreted and responded to by the construction worker.

Understanding and interpreting observed leadership traits is both important and difficult, as traits may not be independent of environmental factors (Derue, Nahrgang, Wellman, & Humphrey, 2011). Task competence is illustrative of one demographic factor that influences leadership traits and the followers' perceptions of that leader (Derue et al., 2011). The construction sector provided a case in point, as most managers achieved a leadership position through the demonstration of sound engineering and construction skills. Derue et al. (2011) asserted that leadership traits are therefore relative and influenced by demographic and external

factors. The influence of external factors creates a case in which the determination of a leader's inclination toward transformational approaches may be better determined through observation, as opposed to a clinical evaluation of traits and preferred actions independent of the working environment insofar environmental factors are considered.

Transactional incentives to promote safe behavior have been and continue to be the accepted means to inspire safe practices. The study aimed to better understand how the construction worker interpreted and constructed meaning from leadership attributes demonstrated through their lived experiences. Leaders in the construction industry could benefit from conclusions and observations drawn from this research through an increased understanding of leadership's role in developing a strong safety culture and the reduction of job site injuries.

Purpose of the Study

The objective of this qualitative phenomenological study was to gain a better understanding of the influence that specific leadership traits had in building a positive and proactive safety culture. Specifically the understanding of how leadership traits were interpreted provided insight with regard to how the construction worker was motivated to the point where behavior would be influenced. The leadership skills and exhibited traits of 17 operational leaders of a large global construction company were identified and inventoried through the Multifactor Leadership Questionnaire (Bass & Avolio, 1990). The purpose of the administration of the Multifactor Leadership Questionnaire (Bass & Avolio, 1990) was to identify five leaders that exhibited a tendency toward specific and different leadership traits thus ensuring that that aggregate of the worker participant pool had experience with a spectrum of leadership factors.

The full-range model of leadership includes a) laissez-faire, b) idealized influence, c) inspirational motivation, d) intellectual stimulation, e) individualized consideration, f) contingent reward, and g) management by exception (Bass & Avolio, 1994). Each component of the full range model represents various theoretical approaches, but conceptualization of these styles requires the association of specific behaviors (van Eeden, Cilliers, & van Deventer, 2008). Because this research focused on the interpretation various leadership behaviors the spectrum of traits was narrowed to include: (a) idealized influence, (b) inspirational motivation, (c) intellectual stimulation, (d) individualized consideration, and (e) transactional leadership. The rationale for this decision was that laissez-faire leadership while a valid theoretical construct did not have associated behaviors. The elements of transactional leadership with clear theoretical constructs would better serve the intent of this research as a collective set of leadership behaviors.

Worker perception of safety was evaluated through one-to-one interviews, which were administered at each project where the selected operational leaders had influence. Aggregating worker statements regarding the efficacy of the leadership experienced provided opportunity to discern those leadership traits that were the most successful within the contextual setting of construction. Attention to subtle nuances such as linguistic and social variations is a hallmark of qualitative research (Fisher & Stenner, 2011). Fisher and Stenner (2011) stated that such nuances are routinely not captured in mixed-methods research. However, even within qualitative research, the rigor of empirical methodology has value. Application of the Multifactor Leadership Questionnaire (MLQ) provided a framework that established leadership factors as the independent variable, and the perceived influence on the construction worker as the dependent

variable. While the determination of variables are not a characteristic found in qualitative research they do provide a framework for future research that might determine if a relationship does exist. Qualitative analysis explains social phenomena through analytical catagories obtained gradually from the data and may be derived inductively (Pope, Ziebland, & Mays, 2000).

Worker population at a given project ranges from 15 to 20 various craft workers per leader, depending upon the stage of construction in progress at the time the questionnaire is administered. This worker population provided opportunity to select a diverse sample population. Data gathering occurred at 5 construction sites, and the intent of the study was communicated to every participant. Construction projects are extremely dynamic, as various contractors begin and complete work segments, thus creating a condition in which it is common for a project to experience a 20% to 30% monthly attrition rate. This dynamic condition is exacerbated by the physical working conditions are subject to dramatic environmental change brought on by the construction process. Although these conditions may have influenced participation levels, they represented real-world conditions in which worker perception of safety culture can be assessed and observed.

The leader-follower relation is defined by the interaction of people with different power levels and incentives (Burns, 1978). Burns (1978) stated that when the leader-follower relationship is transformational, motivation rises to a higher level. The purpose of the qualitative phenomenological study was to understand the influence of leadership traits associated with transformational leadership on construction safety behavior and performance as interpreted by the construction worker. The selection of a phenomenological design was appropriate in order to

capture and include to nuances of linguistic and social variations inherent in the construction worker population. There is often little thought given when data are homogenized of those subtle differences necessitated in mixed methods and quantitative research (Fisher & Stenner, 2011).

Significance of the Study

Although the management of safety in the construction industry continues to be driven by a traditional positivist paradigm, this qualitative phenomenological research demonstrated a departure from traditional thinking. In 2002, the total cost for fatal and non-fatal construction accidents were estimated to exceed $11 billion (Waehrer et al., 2007). The significance of this study was that through a non-traditional perspective, founded on epistemologies divergent from the norm, the potential of new insight to help construction organizations and government entities develop means and methods to reduce human pain and suffering as well as reduce this significant financial burden was offered.

Because of the lack of prior qualitative research, the construction worker lived experience served as a perception tool, and that the investigation was emerging and iterative, a phenomenological qualitative design research method was selected. Creswell (2009) stated that when a phenomenon needs to be understood because of limited prior research, it merits a qualitative approach. Although significant qualitative and quantitative research has been conducted in the areas of construction safety and leadership, the influence of particular leadership traits on safety culture and safety performance has not been adequately researched. The lived experiences of the construction worker with regard to safety culture and behavior

served as the foundation for data gathering. The specific focus of this study explored how leadership traits may influence safety culture.

Significance of study to leadership. The significance to this study was the importance effort devoted to the reduction and elimination of workplace injury to the construction worker. Michaels (2011) stated that OSHA enforcement and punitive measures have the ultimate objective as deterrence. With more specificity Michaels (2011) stated that OSHA seeks to use penalties to change the behavior of employers. The role of leadership with regard to safety is changing (Krause, 2005). Krause (2005) stated that while the role of leadership with regard to accident prevention may seem intuitive, the development of meaning and responsive strategies remains unclear.

Behavior that reflects the ethical position of a leader that exhibits idealized behavior provides followers with values that they are then able to personalize (van Eeden, Cilliers, & van Deventer, 2008). It is logical therefore to infer that value based leadership traits have both the objective and potential to change behavior of followers. Michaels (2011) assertion that enforcement and penalties serve to motivate and change organizational behavior may have been influenced by leaders ill prepared to effectively inspire change of behavior of the construction worker. Krause (2005) asserted that the next level of safety improvement requires defining a new approach to leadership that identifies the leader's role in injury prevention.

An improved understanding of construction worker interpretation of leadership efficacy could provide organizations with more meaningful and targeted leadership development. Consistent with both Michaels (2011) and Krause (2005) a change of behavior at both

organizational and individual levels was needed to reduce and eventually eliminate the thousands of workplace injury in the construction sector.

Nature of the Study

This qualitative phenomenological study sought to understand decisions made regarding safe behavior through the conscious experience of the construction worker. Qualitative research designs include; phenomenology, ethnography, case study, and grounded theory (Christensen, Johnson, & Turner, 2010). Christensen et al. (2010) provided the following conditions where each design is best suited. Ethnographic design is appropriate when investigating the culture of a group of people or a cultural event. A case study is suited when detailed analysis of one or more cases is required. Grounded theory is an approach to qualitative research for generating a theory or explanation from empirical data. Phenomenology is the best fit when the description of a conscious experience of an individual or a group of individuals is researched.

Phenomenology thematizes the phenomenon of cognitive experiences of the lived experience of a person (Giorgi, 2006). Idealized influence implies the presence of follower interpretation of behavior that results in respect, admiration, and trust (van Eeden et al., 2008). Inspirational motivation is determined by stimulation of the feelings of followers; intellectual stimulation is characterized by the ability of a leader to encourage innovation and creativity (van Eeden et al., 2008). These examples illustrated the importance of follower interpretation of leadership behavior, creating a condition where follower interpretation of leadership actions serves as a determinant of leadership attributes and success. This study aspired to better understand worker perception of leadership behavior within the specific context of construction

safety. It was reasonable to assert that such increased understanding could enhance and further the study of leadership.

Textual data is routinely analyzied inductively generating catagories and themes (Pope, et al., 2000). This study interviewed construction workers to generate transcripts for inductive analysis and to generate themes and sub themes. Pope et al. (2000) stated that qualitative data does aim to quantify data, but rather are preserved in a textual form to develop analytical catagories and theoriical explanations. This study is consistent with the constructs of qualitative research as stated by Pope et al., and the resultant analysis is fully explained in chapter 4 of this dissertation.

Research Questions

Research questions in a qualitative inquiry reflect emergent concepts as the study progresses, and as such should be conceptual and broad (Creswell, 2009). There was one research question and three sub-questions to guide this study.

RQ1: How does the construction worker interpret the spectrum of leadership behaviors, with regard to decision-making involving safe performance?

Sub-question 1: What are the leadership styles of the operational leaders most commonly observed by the construction worker?

Sub-question 2: What are the workers' experiences regarding leadership approaches to influence safe behavior that are most likely to inspire them to change behavior?

Sub-question 3: What role do the workers' experiences play with regard to how leadership behaviors are interpreted?

The method of inquiry for this phenomenological qualitative research was both iterative and emergent. This approach to research created a condition where it is highly likely that interim observations and discoveries would guide the interpretation of findings and reveal questions that might inspire additional research.

Conceptual Framework

The integration of how leadership traits are interpreted and are then transformed into a modified behavior within the context of safety in construction formed the framework for this qualitative, phenomenological investigation. The conceptualizations of leadership traits associated with transactional and transformational leadership were best articulated in terms of leadership styles and behaviors (van Eeden et al., 2008). This phenomenological study embraced the framework of the full range model of leadership (Bass &Avolio, 1994), however sought to understand how the construction worker interpreted efficacy of those traits. The MLQ results of the 70-100 leaders provided the means by which the spectrum of leadership traits was identified among the total leadership sample population. The spectrum of leadership traits was a subset of the full-range model of leadership to include; a) idealized influence, b) inspirational motivation, c) intellectual stimulation, d) individualized consideration, and e) transactional leadership. Five leaders were selected that in aggregate demonstrated the spectrum of leadership traits. For each leader, three workers were interviewed to assess the leadership effectiveness through their lived experience. The multi-factor leadership questionnaire (Bass & Avolio, 1990) served only to provide a framework from which to select workers in such a way that spectrum of leadership traits was represented through worker lived experiences.

Positivism. In the context of safety management is the influence of positivist philosophy in expressing the knowledge of method of accident prevention. Heinrich (1931), through a series of empirical observations, developed the Heinrich ratio. This simple assertion posits that less severe accidents have a constant ratio to severe and fatal accidents. This groundbreaking research resulted in a paradigm shift regarding the measurement and classification of accidents as well as the development of prevention strategies. An unprecedented paradigm attracts a sustainable group of followers, and provides for the redefinition of a variety of problems (Kuhn, 1996). Nearly a century after the presentation of Heinrich's ratio, it serves as the foundation for the classification and categorization of accidents. Consistent with Kuhn's (1996) criteria for a paradigm shift, Heinrich's research remains unprecedented and sustainable in the sense that it remains the active paradigm. The OSHA has developed clear quantitative definitions, consistent with those classes of accidents, with the foundational premise that a high number of less severe accidents would result in a severe or fatal accident (OSHA, 2006). The rationale offered by Michaels (2011), which postulated that enforcement and regulations save lives, demonstrated the premise posited by Heinrich nearly a century before.

To illustrate the pervasiveness of this empirical approach, a recent study on falls in the construction industry concluded that falls from height are the most frequent accidents on construction sites (Huang & Hinze, 2003). Consistent with the historic influence of Heinrich's research, the mode of frequency and severity implied this predictable rational relationship (Gallivan et al., 2008). Whereas this study's aim was to focus on falls, the method demonstrated the incorporation of the current paradigm into the cognitive processes of the safety professional. Although Heinrich's study served to establish the quantifiable relationships of accidents based

upon severity, the natural inference is that the elimination of the less severe diminishes the likelihood of catastrophic accidents (Gallivan et al., 2008).

It was reasonable to postulate that Heinrich's assertion was adopted not merely for content, but that the engraining of a positivist philosophical construct in Western culture permeates virtually every aspect of what is often referred to as common sense (Gallivan et al., 2008); Johnson & Duberly, 2000). Part of the skill sets required of a safety professional was the ability to manage large amounts of statistical data and convert them into concise information that allows leadership to evaluate the organization's safety performance. The classifications of an accident, originally conceptualized by Heinrich (Gallivan et al. 2008), remain the quantitative metrics employed not only by the construction industry but also every industry segment in the United States. Although the investigations of accidents serve to determine cause, qualitative narrative evaluations are either routinely dismissed or not included in summary evaluative reporting. Although the design of initiatives to reduce incident and injury exist, their measure of success is wholly dependent on the performance and derived from the quantitative analysis. Safety professionals can easily articulate these accident rates, both within the organization and externally. These quantitative metrics determine the success or failure of the safety professional, as well as serve as the basis for industry awards, insurance premiums, and as qualification criterion by owners in the selection of contractors for future work.

Critical hermeneutics. Although the positivist perspective suggests that adherence to strict techniques would result in the objective truth, the relativist perspective suggests that stringent adherence to prescriptive approaches may hinder the attainment of scientific knowledge (Åge, 2011). Key to critical hermeneutics is the clarification that dualism of meaning and action

is not to disparate from self-interpretation. It is within critical hermeneutics that the potential to expand meaning from positivist and empirical perspectives is realized. "A first relevant point is that all comprehension of tradition introduces a critical distance at the same moment that all critique is made about and is supported by a reinterpretation of cultural history" (Åge, 2011, p. 7).

Because discussions regarding safety performance in general and construction safety performance specifically are generally rationalized by empiricism, subjective evaluations must acknowledge and recognize this proclivity. In the context of construction safety, the pragmatism of qualitative studies is determined by their potential to influence empirical data such as accident rates. Åge (2011) stated that the study of ideology without the potential of seeing its meaning carried out concretely would be of little value or interest. There is perhaps no question of greater importance and complexity as that of understanding experience (Åge, 2011).

Definition of Terms

A discussion of terms and philosophies of the study within the context of construction safety served to assist in the understanding of the area of study.

Accident rates and traditional empirical metrics. Classifications of accidents are made as recordable, days away restricted duty, and lost days away from work (OSHA, 2013). These statistics are routinely reported as the number times the total working hours in the work force, divided by 200,000 hours (OSHA, 2013). This calculation reports the approximate number of accidents per 100 employees per year.

Contingent reward. Involves a transactional exchange between the leader and follower whereas the reward of lack of punishment is contingent upon the follower satisfying the leader's needs (van Eeden et al., 2008).

Idealized influence. Implies followers desire to emulate the behavior demonstrated by the leader because of the followers respect and admiration for the leader (van Eeden et al., 2008).

Individualized consideration. Implies the leader considers the level of maturity of followers and is devoted to identify needs and development opportunities of the follower (van Eeden et al., 2008).

Inspirational motivation. Implies a leader that creates enthusiasm and optimism through the creation of a vision therefore inspiring workers (van Eeden et al., 2008)

Intellectual stimulation. Implies a leader that values intellectual ability of the follower and encourages innovation and creativity (van Eeden et al., 2008).

Spectrum of leadership traits. The spectrum of leadership traits is a subset of the full range model of leadership. The full range model includes the elements of transformational, transactional, and *laissez-faire* behavior (van Eeden et al., 2008). Leadership factors included in the full spectrum are (a) idealized influence, (b) inspirational motivation (c) intellectual stimulation, (d) individualized consideration, and (e) transactional leadership.

Assumptions

The underlying assumption for this study was that worker interpretation of the efficacy of leadership represented a different or expanded list of traits that those perceived by the leader. The improved understanding of the efficacy of leadership traits as interpreted by the construction worker may have resulted in improved safe behavior and resulted in the reduction of workplace

injury. To achieve the next level of safety performance demands, a new approach of leadership was necessary that accounted for the leader's role to inspire and motivate workers (Krause, 2005).

A second assumption pertained to the notion that construction workers would be willing and open to share their experience through the interview process. While improvement of working conditions and safety may have served to benefit the construction worker, it was likely that the construction worker would not make that connection. The assumption was that the workers experience with regard to leadership efficacy was variable and subject to their interpretation and construction of meaning through their lived experience.

A third assumption was that the intended message of leadership and the perception of that message by followers were divergent and variable. Cognitive processes including verbal and written messages often demonstrate the limit leadership intent. However, the perception of the leaders message includes behavior, which might often be in conflict with the verbal or written message. It is therefore reasonable to assert that a better understanding of follower interpretation of the voice of leadership would allow for improved understanding.

A fourth assumption was, that the variability of the intent of leadership and the perception of the construction worker is a major contributory cause of accidents on construction projects. The implication is that improved efficiency of leadership's message and the construction worker's constructed meaning of that message would result in the reduction of workplace injuries.

Scope of Study

This study explored the construction worker's perception of leadership actions and how meaning was constructed providing better understanding of the rationale for the safe or unsafe behavior observed at the workplace. This study was conducted at active construction worksites managed by the participant organization in the continental United States. The 15 construction workers that took part in the interview were selected in a fashion that the sample included workers that had, in aggregate, experienced the full spectrum of leadership traits. To ensure that the spectrum of leadership traits was experienced by the interview participants the leaders of the participating organization voluntarily took the multi-factor leadership questionnaire (Bass & Avolio, 1990). The results of the MLQ served to ensure the participant selection represented workers such that each had experienced some of the leadership traits. The participant pool in aggregate, included workers who had experienced the full spectrum of leadership traits.

Limitations

The study limitations pertained to nature of qualitative analysis. As such analysis was subject to potential bias of the interpreter. The interviews occurred on active construction sites where environmental conditions such as noise, work schedule, pressures to work, and peer pressure may have limited the study.

The study was limited to one participating organization, and while this organization is one of the largest construction companies in the United States it still represented approximately 1% of the total construction worker population in the United States. The sample selection method was purposeful and not random, potentially rendering the data not generalizable to other construction organizations.

Delimitations

Delimitations in the study organization and in the participant population included only those workers actively engaged on a project managed by the participating organization. Due to time constraints the 15 participant interviews demonstrated a single point in time instead of alternative methods such as longitudinal collection of attitudes and beliefs. The sample may have reflected the experience of the larger population of workers in the participating organization and the construction worker population in the United States; however that might be determined by subsequent studies.

Summary

The construction industry sector remains as one of the most dangerous in the United States and continues to be an area of emphasis for OSHA (Michaels, 2011). Despite the emphasis on regulatory enforcement imposed by OSHA, leadership must develop to improve the ability to motivate and inspire safe behavior (Krause, 2005). The general reliance on rules and enforcement do not necessarily correlate with improved safety performance (Molenaar et al., 2009). However, the reliance on empirical practices coupled with a lack of understanding of the efficacy of leadership traits as interpreted by the construction worker, created opportunity for exploration.

Through increasing the understanding of the efficacy leadership traits through the lived experience of the construction worker the possibility of innovate ideas with respect to leadership development emerged. This study presented a targeted qualitative approach that sought to better understand the influence that specific leadership traits had in building a positive and proactive

safety culture. Chapter 2 includes a discussion of the literature relevant to past studies germane to the study topic.

Chapter 2: Literature Review

The purpose of the qualitative phenomenological study was to understand the influence of leadership traits associated with transformational leadership on construction safety behavior and performance. Both safety and leadership are well-researched topics; however, the extent to which transformational leadership influence these traits remains poorly understood. The scope of the literature review required a comprehensive analysis of research on leadership traits, emotional intelligence, systems safety, and safety in the construction setting.

Phenomenological philosophy implies the existence of presupposition of scientific theory (Giorgi, 2006). This observation by Giorgi (2006) is noteworthy, insofar that this research presupposed that a relationship between leadership behavior and construction safety likely existed. However, the specific observable leadership traits and the influence on human behavior remained obscure. Key to this discussion was that transformational leadership as an academic definition, such as provided by Burns (1978), is only relevant when those leadership traits are evidenced by human behavior. An element of literature review regarding leadership therefore needed to provide both theory and an observable context of leadership behavior.

Traditional systematic literature review strategies include narrative reviews, empirical reviews, and meta-analysis (Rumrill, Fitzgerald, & Merchant, 2010). Rumrill et al. (2010) presented an alternative strategy, which he called scoping reviews. Characterized as a non-systematic review strategy, scoping reviews tend to focus on the breadth of research as opposed to the depth (Rumrill et al., 2010). This review adopts this broad strategy with regard to transformational leadership, transactional leadership, leadership traits, and other researched

forms of leadership. This process of scoping provides for effective contrasting of research literature to enhance contextual development in the construction setting.

Approach to Literature Review

The three most common approaches to the review of literature and to synthesize and interpret content are narrative literature reviews, empirical literature reviews, and meta-analysis (Rumrill et al., 2010). Meta-analysis takes quantified data from a variety of published articles to aggregate the concepts and constructs (Rumrill et al., 2010). Insofar as construction health and safety is a relatively narrow topic, the meta-analysis approach is appropriate. However, the topic of leadership has an overwhelming repository of peer-reviewed journals and scholarly writings. Narrative literature reviews encourage a review of existing information in a way that would contribute new perspectives (Rumrill et al., 2010). This approach was appropriate, insofar as reviewing literature from the perspective of construction safety with the intent that this would offer new insight germane to this specific area of research.

Specific relevant research consistent with this research question was offered through an analysis of construction worker perception of management safety practices (Gillen et al., 2004). Although this investigation did not specifically investigate leadership's influence on safety, it provides insight into how worker perception may be collected, interpreted, and communicated. Other relevant research works are quantitative studies that evaluate and quantify safety risk, as well as offering insight regarding the engineering approach offered in construction safety (M. R. Hallowell & Gambatese, 2009).

Title Search and Selection Criteria

The literature reviewed was acquired from academic libraries, professional organizations, and professional magazines publications. Title searches included the following words and phrases: (a) systems safety, (b) safety climate, (c) safety culture, (d) transformational leadership, (e) transactional leadership, (f) construction safety, (g) OSHA, (h) accident prevention strategies, (i) safety organization design, (j) leadership traits, (k) methods of identifying leadership traits, and (l) emotional intelligence.

The review examined peer-reviewed articles, books, dissertations, and construction organization reports associated with safety and leadership in the contextual environment of construction. Selection criteria were based upon: (a) date of report, (b) geography of analysis, (c) organizational setting, (d) relevance and applicability of data, (e) diversity of findings, and (f) quality of research.

This literature review is topically organized. Major topics are: (a) systems safety and engineering, (b) safety organizational design, (c) social factors, and (d) leadership. Safety systems, refers to the process by which accident prevention methods are developed and implemented by an organization. Safety organizational design, presents rational for organizational structure and methods for accident prevention. Social factors, presents literature researching human factors such as safety culture and climate. The leadership review presents prior research into the topic of transactional and transformational leadership models in the context of construction safety.

Systems Safety and Engineering

Safety is an emergent system, insofar as it is not dependent upon any part of a system but is, in fact, dependent and derives from the interaction of system components (Black, Hull, & Jackson, 2011). This foundational definition provided context and reasoning because of the dynamic nature of safety management and accident prevention. At its most basic level, the interaction of individually safe elements creates the potential for an unsafe condition to emerge (Black et al., 2011). A focus on human behavior is generally more fruitful with regard to the development of accident prevention strategies; however, this can create confusion between safety management issues and psychological behavioral issues (Loud, 2012). Loud (2012) articulated the distinction of safety system elements of conditions and behavior, although it is central to systems safety that both elements are considered within systems safety. Contemporary definitions of systems safety expand system elements to include the design process (Suraji, Sulaiman, Mahyuddin, & Mohamed, 2006).

History of systems safety. The relationship between unsafe acts, minor incidents, major incidents, and fatalities can be traced back to the accident pyramid, originally developed by Heinrich in 1931 (Nash, 2008). The presumption of this ratio serves as a basis of the current safety systems paradigm. Nash (2008) presented Heinrich's original ratio of 300 unsafe acts to one major incident. The presumption of a direct and constant relationship between unsafe acts and serious injury while never scientifically validated has been deemed as intuitively plausible by safety professionals (Nash, 2008). This relationship seems both intuitive and logical, and because unsafe acts are very difficult to quantify, Heinrich's claim remains relatively unchallenged (Eckhardt, 2003). Eckhardt (2003) stated that external factors such as potential for

litigation influence accident investigations to cite employee misconduct as the primary cause, despite Heinrich's assertion that accidents are the result of many causes. Despite the longevity of the Heinrich pyramid and the resultant paradigm of safety management, Nash stated the way the relationship between accidents and corrective actions are viewed must be altered.

Heinrich (1931) postulated that the ratio of less severe accidents to more severe had a constant and measurable ratio. For example, near miss accidents, to those requiring first aid, to those requiring medical care, to those requiring time away from work to those resulting in a fatality are relative. Nash (2008) stated that this relationship, albeit intuitive, had never been scientifically validated.

Standing safety paradigm. Of every 100 accidents, 85 are caused by behavior, implying that the most effective way to reduce workplace accidents is to focus directly on behavior (Robertson, 2004). Although the separation of conditions and behavior seem logical and intuitive, it remains obscure in practice, resulting in the means of accident prevention being led through a prescriptive regulatory process (Robertson, 2004). Consistent with Heinrich's assertion of multiple causes (Eckhardt, 2003), the lack of behavioral focus of accident prevention (Robertson, 2004) represents traits of the current paradigm of systems safety.

Even with the popularity of behavior-based safety programs, the occupational health and safety administration (OSHA) serves as the enforcement arm devoted to ensuring safe working conditions is provided by employers. Michaels (2011) stated that the levy of enforcement of the agency saves lives and continues to drive improvement in safety performance. It was reasonable to assert that if the majority of accidents are caused by worker behavior, OSHA's focus on enforcement (Michaels, 2011) may not provide the best solution for accident prevention.

Safety management research. The research of safety management requires investigation of organizational and human factors that influence strategies devoted to the reduction of workplace incidents and injuries. Workplace safety often represents one of the highest organizational priorities (Lauver & Quinn Trank, 2008). The research conducted by Lauver and Quinn Trank (2008) posited hypotheses that suggested a relationship of safety performance with decentralized organizations, organizational alignment, and organizational influence. The quantitative analysis suggested a relationship between a decentralized structure and safety performance suggesting the importance of safety reinforcement personalized at each level of an organization (Lauver & Quinn Trank, 2008). Lauver and Quinn Trank identified the use of OSHA logs as a data source for dependent variables as a limitation to the study, because only serious injuries are reported.

An Australian national study was conducted in 2010 to understand motivators of safety culture and behavior (Biggs, Dingsdag, Kirk, & Cipolla, 2010). Biggs et al. (2010) suggested that accurate measurement of safety culture and safety climate may not be possible. The study was conducted in the construction sector, because this sector had not been successful in the design and implementation of generalizable indicators (Biggs et al., 2010). The results of the study suggested that safety culture had a positive effect on safety performance and only minor superficial predictive metrics were offered (Biggs et al., 2010).

Biggs et al. (2010) offered softer attributes of safety management that included visible and demonstrated leadership, collaborative work environment, and respect for the workers. Although it was acknowledged that leadership traits influenced safe behaviors, the traits were generally limited to superficial elements, such as managers wearing appropriate personal

protective equipment when visiting construction sites (Biggs et al., 2010). The research conducted by Biggs et al. did not investigate specific leadership attributes; however, the authors recognized its potential to influence safety performance.

Identification of essential attributes of an organization resilient to incident and injury includes the notion that leadership sets the example with regard to the priority of safety (Eckenfelder, 2000). Eckenfelder's (2000) observations would be consistent with the research conducted by Biggs et al. (2010); however, it remained vague with regard to leadership attributes that may have a greater influence on safety performance.

Research conducted in the construction sector in the Pacific Northwest of the USA found a significant difference between workers and management regarding risk tolerance (M. Hallowell, 2010). Hallowell (2010) asserted that workers were generally dissatisfied with high severity and high frequency of accidents. The variability of risk perception provides insight to the cause of accidents in the construction sector, where workers perform perceived high-risk activities daily, creating a level of comfort making the risk imperceptible. Hallowell identified several issues that required management response, which included that workers are dissatisfied with the rate of moderately severe accidents, workers and managers do not share the same safety perceptions, and that safety culture is generally weak in the construction sector.

Risk quantification helps to align risk perception with actual risk. Considerable research has been devoted to high-severity and low frequency risks in the construction sector; however, low-severity and high frequency risks account for a large portion of the total risk at a construction site (M. R. Hallowell & Gambatese, 2009). Hallowell and Gambatese (2009) conducted a quantitative study to target high-risk construction formwork for reduction of risk

and improvement of safety performance. The findings of this technical quantitative analysis suggested that defining risks based on worker activities as opposed to potential outcomes provides a more holistic and injury-reducing strategy (M. R. Hallowell & Gambatese, 2009).

Significant research has been conducted with regard to safety management in general, and specifically in construction safety. Topics ranging from organizational design (Doytchev & Hibberd, 2009), cultural drivers (Zou, 2011), leadership (Sivanathan, Turner, & Barling, 2005), risk perception (M. Hallowell, 2010), and risk quantification (M. Hallowell, 2010) are among the variety of research projects conducted in the recent past. Several reasons exist for this devotion to research, among which the significant cost burden borne by the construction sector because of workplace accidents (M. R. Hallowell & Gambatese, 2009).

Safety Organizational Design

Organizational design demands a level of reflection driven by strategy and vision. However, the notion that structure follows strategy potentially is influenced by technology, globalization, and other external factors (Galan & Sanchez-Bueno, 2009). Whereas the sequence of structure and strategy is not necessarily germane to safety organizational design, it is certainly reasonable to assert that a strategic vision of safety is required before an organization is designed. Galan and Sanchez-Bueno (2009) concluded that this construct is not unidirectional, and that strategy leads to structure and structure leads to strategy. The effective integration of management and strategy development is a dynamic and continuous process (Gibbs & DeLoach, 2006). The implication of the bidirectional nature of strategy and structure is that each would have influence upon the other, creating the need to consistently evaluate organizational design to ensure its ability to respond to the rigor of new demands.

Safety in the workplace is often among the highest of priorities faced by organizations, and there is growing evidence that organizational design and practices have a direct and significant effect on safety (Lauver & Quinn Trank, 2008). Lauver and Quinn Trank (2008) observed that the structure of an organization, and more specifically its attributes, influences the strategic direction and outcome of safety. Lauver and Quinn Trank specifically focused upon decentralization, alignment, and influence and their bearing upon organization-level safety outcomes (Lauver & Quinn Trank, 2008). Lauver and Quinn Trank developed three hypotheses that decentralization, alignment, and influence would each lead to fewer accidents. The dependent variable was defined as the number of injuries, identified by Lauver and Quinn Trank as a study limitation as injuries may not be reported consistently by organizations. This is vitally important to future quantitative and qualitative safety research, insofar that traditional accident statistics may also be lacking consistency of reporting, rendering them insufficient for use as a dependent variable. Despite the limitation imposed by the dependent variable, the study supported the impact of decentralization and alignment on safety performance (Lauver & Quinn Trank, 2008).

Building upon the ability of organizational structure as an antecedent of strategy and performance, a quantitative approach demonstrated a relationship between a decentralized structure and absorptive capacity (Shin-Tien & Bao-Guang, 2012). Key findings of Shin-Tein and Bao-Guang (2012) were that a formalized organizational structure has a positive effect on organizational learning and restrains organizational decision speed. The findings of Shin-Tein and Bao-Guang provided insight into the potential influence of organizational design and leadership on safety performance and the organization's ability to learn from experience.

Organization and safety management. Organizational change is occurring at a pace similar to that of the industrial revolution (Yarlagadda, Raju, & Raju, 2010). Yarlagadda et al. (2010) stated that adapting to developments of occupational health represent a significant challenge for countries in transformation. It is reasonable to assert that this demand for transformation is not limited to the public sector. A traditional systems response is that organizations must first develop a clear and comprehensive policy statement (Yarlagadda et al., 2010). While this assertion has validity, it is founded on the traditional epistemology that strategy must precede structure. Nevertheless, a clear and effective policy serves as a driving force in improving safety performance (Yarlagadda et al., 2010).

A defining characteristic of a decentralized organization is the pushing of responsibility and authority to lower levels of the organization (Lauver & Quinn Trank, 2008). Lauver and Quinn Trank (2008) stated that safety management is positively affected by a decentralized structure, because employees at lower levels are typically those exposed to higher levels of risk. A relationship between pushing decision-making down to lower levels of an organization and profitability with regard to high performance work practices provides another positive example of a decentralized organizational design (Colombo, Delmastro, & Rabbiosi, 2007).

Value proposition and business case of safety. The cost associated with occupational injury and illness is both dramatic and compelling. The costs of fatal and non-fatal using the most recent complete data of 2007 were estimated at $192 billion (McGuire, 2012). McGuire (2012) discussed that, of the more than eight million cases, over six million did not involve time away from work. These relatively minor accidents accounted for eight billion dollars in costs to organizations and the public sector (McGuire, 2012).

The costs of accidents and production efficiency are clearly linked, and effective safety programs can improve efficiency and reduce costs associated with lost wages and medical costs (Simonds, 1951). Simonds' (1951) observation in the mid-twentieth century demonstrated that well before the creation of the Occupational Safety and Health Act; the cost burden associated with safety was recognized.

Connectivity of leadership traits and organizational design. Although it has been asserted that leadership style is contingent upon the leader's potential influence in the hierarchical system, the style of leadership and variables that drive influence have not been established (Wager, 1965). Although Wager's (1965) analysis may have been conducted nearly 50 years ago, the debate of greater influence between the leader and the system provides insight regarding rationale and provides a framework for analysis. Employees that are ranked in the bottom tier of organizational hierarchy typically receive fewer rewards, are less able to personalize organizational activities, and generally view organizational functions and activities as less meaningful (Wager, 1965).

A metaphorical analysis encourages leaders to keep rowing ahead and navigate the organization through storms of change, led by the vision of safer ground on a distant horizon (Mosley & Matviuk, 2010). Mosley and Matviuk (2010) applied this metaphor to the role of leaders to transform organizations, and that this transformation is necessitated by unprecedented volatility in the business world. The transition from static to adaptive thinking does not require leaders to have or declare a vision, but instead a cardinal skill is the ability and willingness to draw out the vision from followers through inspiration and empowerment (Mosley & Matviuk, 2010). Mosley and Matviuk asserted that leadership's willingness to inspire and empower has

become critical to the success of an organization. Organizations often attempt solutions through organizational redesign; however, this inclination should be resisted before transforming culture (Mosley & Matviuk, 2010). Mosley and Matvuik's assertion of transformation before organizational design suggested that not only the relationship of leadership and organizational design, but also suggested the juxtaposition of processes.

The role of organizational failure as a development tool provides insight into the relationship of leadership and organizational design. McGrath (2011) offered seven principles that leverage learning from organizational failure: (a) decide what failure or success looks like, (b) convert assumptions to knowledge, (c) be quick in decision-making, fail fast, (d) fail cheaply, (e) contain the uncertainty, (f) create a culture of learning that celebrates intelligent failure, and (g) document what is learned. In a business climate as dynamic and volatile as is currently experienced, avoiding failure is simply not an option (McGrath, 2011). Each of the principles offered by McGrath demonstrated leadership actions that influence organizational outcomes and organizational design.

Boundary spanning refers to a creative process undertaken by organizations, which is accomplished through listening and networking with customers, other companies, and stakeholders external of the organization (Gilmore, 2009). Gilmore (2009) offered examples of both organizational boundary spanning and leadership boundary spanning and demonstrates the linkage of both elements.

Ad hoc and special purpose teams in organization design. With many tasks being interdependent in the current business climate, teams are dominant tools employed by organizations (Barczak, Lassk, & Mulki, 2010). Insofar that teams demand some level of

decision-making driven by someone initiating action, teams provide a venue to observe leadership traits through behavior of individuals (Hirschfeld, Jordan, Thomas, & Feild, 2008). Hirschfeld et al. (2010) stated that the observed leadership potential often represents a summary of exhibited behavior and is often operationalized as an evaluative measure. Therefore, teams also demonstrate a multi-dimensional aspect of leadership and organizational design and purpose.

In a responsive strategy to a high level of muscular skeletal injuries, safety experts develop a set of strength and flexibility exercises prior to workers starting work (Drennan, 2012). A significant difference between safety performance was observed, with the only variable being frontline supervision (Drennan, 2012). Drennan (2012) concluded that leadership of a team or workgroup is a key determinant and predictor of outcome. Building teams was rated as second among the top 15 leadership skills that improve safety performance (Drennan, 2012).

Construction companies promote safety work in teams because mistakes typically occur as a result of poor individual decision-making (Willard, 2009). Peer correction and coaching was much more likely to occur when safety is considered a team activity (Willard, 2009). Willard (2009) stated that some construction companies build team cultures through team-based performance in lieu of personal based safety performance.

Social responsibility, sustainability, and safety. The broad range of topics included under the heading of corporate social responsibility has both social and environmental concerns (Krumwiede, Hackert, Tokle, & Vokurka, 2012). Working conditions that include health and safety are elements of CSR under social aspects (Krumwiede et al., 2012). Noteworthy to Krumwiede et al.'s (2012) findings were seven elements of CSR to ensure that every company

included in this study devoted more resources to worker health and safety. Krumwiede et al. offered two possible reasons for this finding; first that organizations recognize the relative importance of worker health and safety as an element of CSR, or second, that this aspect of CSR is more regulated and enforced than other elements.

The drivers or motivators of CSR implied by Krumwiede et al. (2012) raised the question of how CSR influenced the attitudes or behaviors of stakeholders. A hypothetical question to clarify this construct would be; would employees' attitudes about health and safety be impacted if the organization devoted resources based solely on concern for the employees or if it was to avoid fines imposed by regulators? In one study, CSR activities were divided into three broad categories; philanthropy, business practices, and product-related (Peloza & Shang, 2011). Peloza and Shang (2011) found philanthropy to be the dominant category of CSR activities. Peloza and Shang assumed that managerial motivation to invest in CSR was improved financial performance, and noted that this may not be a universal attribute. The findings regarding a relationship of motivator and stakeholder effects of CSR were inconclusive insofar that CSR is overly broad.

Social Factors

Ontological and epistemological awareness, combined with reflexivity, are factors that aid in the ability to adjudicate between various theoretical perspectives (Hay, 2007). Hay (2007) implied that research aimed at the discovery of both the ontology and epistemology of a given topic is at a minimum suggested and likely required to reveal a sound construct for analysis. The evaluation of new theories discovered from qualitative work should be contrasted with prior qualitative works, or when new questions arise from quantitative work (Žydžiumaite, 2007).

Whereas Žydžiumaite (2007) focused on the sequence of qualitative to quantitative research, awareness of the core contruct and context of prior research are vital to new research and new questions. Data obtained in qualitative research are both contextual and bound to values, and as such, are both subjective and dependent upon context (Žydžiumaite, 2007).

Science is generally accepted to give objective access to the physical world and social sciences access to the mind and internal world (Healy, 2004). Healy (2004) described this aspect as a mind/body dualism, which decribed an ontological distinction between the physical and internal worlds. The complexity of risk management led to the development of statistical and probalistic models designed to quantify and classify risk (Healy, 2004). Healy stated though foundational numerical approaches remain valid, they are limited to objectified circumstances and subjectivist approaches considering context.

The proclivity toward a quantitative and scientific approach is at least in part based in the dominance of positivist philosophy within Western culture (Johnson & Duberly, 2000). Johnson and Duberly (2000) asserted that this is not necessarily a conscious devotion to positivist philosophy, but instead it is ingrained so deeply that it is perceived as a common sense approach to research. Johnson and Duberly asserted that the aim of positivist-centered management research is the identification of causal laws that serve to explain human behavior. Where the foundational philosophy of research is positivism, the method of natural science serves as the only rational source of knowledge (Johnson & Duberly, 2000).

A paradox has been observed regarding the proliferation of risk, despite increasingly stringent risk management efforts to demonstrate the inseparability of social and technical matters (Healy, 2004). Healy (2004) stated that this connectivity of physical and social risk

results from complex ensembles of human and non-human elements, and is therefore a dynamic entity. The existence of Healy's paradox and the dynamic characteristic of risk provided the foundation that leads to understanding processes and limitations of risk management and safety systems as a means of loss prevention.

Safety culture as a social factor of safety. External factors such as increasing globalization and increasingly efficient communication have resulted in developing corporate responsibility from being legally compliant and profit-focused to demonstrating social responsibility (Camplin, 2011). Camplin (2011) identified worker health and safety as a key element of corporate social responsibility, and as such provided impetus for organizations to move beyond regulatory compliance in their strategies to protect the health and safety of their workers. The construction industry continues to be classified as one of the most hazardous industry segments in the United States (Gillen et al., 2004). Gillen et al. (2004) identified several objective and subjective variables found to be instrumental in an organization's quest to reduce illness and injury rates. Gillen et al. identified empowerment of the workforce and the level of engagement of top management to be germane to any discussion regarding workplace safety.

Safety culture as a broad concept has garnered interest from industries globally, as a means to reduce accidents associated with workers' daily and routine tasks (Kulchartchai & Hadikusumo, 2010). Kulchartchai and Haikusumo (2010) identified seven distinct obstacles in the development of a meaningful safety culture. Although their research was focused on the Thai construction industry, the seven obstacles are factors in building a safety culture worldwide (Kulchartchai & Hadikusumo, 2010). These obstacles were uniquely germane to this research,

insofar that elements unique to construction were documented. The seven obstacles identified by Kulchartchai and Haikusumo were:

1. Problems related to traits routinely observed on construction projects such as high turnover, decentralization, and skill of the workforce.
2. Decentralization creates a diversity of safety cultures creating various subcultures on any specific construction project.
3. Problems related to the use of subcontractors, accounting the various training levels of workers and a limited sphere of influence of the general contractor.
4. Problems related to supervisor-worker relationships.
5. Problems related to communication.
6. Problems related to reporting of accidents and near misses.
7. Problems related to a blame culture, offering a condition in which there is a tendency to find individual fault as opposed to accident cause (p. 49).

Corporate safety cultures serve to enhance good quality safety programs (Molenaar et al., 2009). Molenaar et al. (2009) offered that this relationship between safety performance and safety culture might seem intuitive; however, little research has been done to measure elements of safety culture that may influence safety. This quantitative research attempted to provide a framework for measuring the effectiveness of a safety culture and to find common causal elements that serve as conditions for a positive safety culture (Molenaar et al., 2009). The framework identified five common elements: (a) increase company safety commitment, (b) offer incentives for safety performance, (c) integrate subcontractors into company safety culture, (d) clearly assign accountability, and (e) employ disincentives in a consistent and non-capricious

manner. Molenaar et al. identified a small sample size of only three construction companies as a limitation of the study.

Traditional lagging safety metrics provide the only commonly used guides to evaluate safety performance (Biggs et al., 2010). Biggs et al. (2010) determined that positive performance indicators that could serve as a meaningful predictor safety performance do not exist, despite the need to accurately measure safety performance on a construction site. It was suggested that positive performance indicators lack the capacity to measure safety performance while attributes of safety culture such as leadership and communication are measureable (Biggs et al., 2010). Examples of observable elements of safety performance that may imply the presence of a vibrant safety culture, are executive presence on the site for the purpose of safety, work being done collaboratively, listening to each other, and a demonstrated respect for people (Biggs et al., 2010).

The term "corporate safety culture" is used frequently without adding specificity of definition, rendering the construct somewhat vague. (Zou, 2011) provided a good definition of construction safety culture:

> ...an assembly of individual and group beliefs, norms, attitudes, and technical practices that are concerned with minimizing risks and exposure of workers and the public to unsafe acts and conditions in the construction environment. (Zou, 2011, p.13)

Zou (2011) provided a comprehensive definition specific to the construction industry. Among the characteristics of a good safety culture is that the value and beliefs in safety and health are universally and deeply shared by the organization (Zou, 2011). This characteristic

provides the connectivity and relationship between safety culture and transformational leadership. A paradox is presented by the transactional characteristic of incentives presented by Molenaar et al. (2009), as well as the transformational characteristic of shared vision described by Zou. The paradox illustrated the influence of leadership constructs with regard to construction safety. The focus of the research was to increase our understanding of the transactional and transformational traits that may have more significant influence on building a positive safety culture and safety performance.

Safety climate and beliefs as foundations for construction safety. In contrast to safety culture that is based upon the shared value and beliefs of the organization (Zou, 2011), safety climate is defined as the individual beliefs and perceptions relating to safety in the workplace (Lingard, Cooke, & Blismas, 2010). It can be argued that safety climate is a greater predictor of safety performance in the construction sector, insofar that workers typically have little interaction with top management and are influenced by frontline supervisors and co-workers (Lingard et al., 2010). Lingard et al. (2010) stated that, although some research has been done at group level, the results are typically aggregated at organizational level, thereby masking the variability of local leadership influence on safety climate. This observation suggests that group-level research might be more revealing with regard to understanding the influence of particular leadership traits on worker safety.

Lingard et al. (2010) constructed four distinct types of safety climate, based upon strengths and levels of safety climate. The four types of safety climate presented were indifferent, obstructive, contradictory, and strongly supportive (Lingard et al., 2010). A focus of the study was to determine if there was a causal relationship between safety climate and injury

frequency and severity (Lingard et al., 2010). Although the study found statistically lower injury rates in the strongly supportive climate, it was recommended that additional research with a larger sample size would be required to validate that finding (Lingard et al., 2010).

A complementary definition of safety climate is that safety climate is an assessment of worker perception of job site safety, and safety culture is determined from a top-down organizational perspective (Choudhry, Dongping, & Lingard, 2009). Choudhry et al. (2009) further asserted that safety climate is not about values or attitudes, but specifically addresses perception of workers about management commitment to safety. This distinction is noteworthy, insofar that worker perception is likely more variable and influenced by demonstrated leadership. Although safety climate may be an effective diagnostic tool, safety needs to be measured at regular and frequent intervals due to dynamic nature and variability of worker perception (Choudhry et al., 2009). Nevertheless, the classifications of safety climate and safety culture are important distinctions when researching social elements of construction safety (Choudhry et al., 2009).

Leadership

Leadership is both a skill-based and value-based role, and in order to cope with volatile social and environmental trends leaders must evolve and integrate cognitive and emotional processes (Looman, 2003). Traditional leadership traits such as sound analytical skills, developed organizational skills, and the ability to learn from adversity are no longer sufficient, due in part to the pace of social change (Looman, 2003). Looman (2003) asserted that we have reached a point where human ability to invent has outpaced the ability to adapt. Leadership

demands a developed emotional intellect that is more people-centered and less profit-centered (Looman, 2003).

The literature on leadership is prolific and requires context and structure to produce a meaningful review. The review therefore focused on literature descriptive of observable leadership traits associated with transactional leadership and transformational leadership. Although some background is needed to formulate definition and meaning, the focus of this literature review was to identify specific traits and actions associated with a broad topic of leadership style.

Transactional leadership traits. A defining characteristic of transactional leadership is when employees are controlled and motivated through rational or economic means (Bono & Judge, 2004). In the context of construction safety, the implication is that some sort of incentive, typically economic, is offered to workers for accident avoidance. In the framework for measuring safety culture presented by Molenaar et al. (2009), the offering of safety incentives were identified as an important component of safety culture.

Incentive programs are prolific with the United States Government Accounting Office (GAO), reporting that nearly 25 percent of manufacturing organizations employ a transactional-based safety incentive program (Moran, 2012). Moran (2012) classified two distinct types of incentive plans; first, a rate-based incentive where the incentive was based on reported accidents, and second, a behavior-based program where the behaviors were rewarded. The transactional basis of such incentives may not be sustainable insofar that workers may eventually view them as an entitlement (Gangwar & Goodrum, 2005).

Regardless of the type of transactional incentive employed by an organization, the proliferations of such programs demonstrate the application of transactional leadership. Under the heading of transactional leadership, three distinct forms were cited as contingent reward, management by exception-active, and management by exception-passive (Bono & Judge, 2004). Bono and Judge's (2004) definition is best put into context through the application of hypothetical scenarios. Incentives offered to construction workers for accident avoidance provide an example of contingent reward (Bono & Judge, 2004). Active management by exception (Bono & Judge, 2004) is demonstrated when a punitive response is imposed by leadership when an unsafe act is observed. Passive management by exception (Bono & Judge, 2004) is demonstrated when unsafe acts are not responded to, and only accidents or serious breaches in safety protocol result in leadership intervention or action.

Transformational leadership traits. Authentic transformational leadership is characterized by idealized influence, inspirational motivation, intellectual stimulation, and individual consideration (B. M. S. P. Bass, 1999). Transformational leadership is linked to virtue and moral character, personified in history by Socratic and Confucian illustrations (B. M. S. P. Bass, 1999). Bass and Steidlmeier (1999) stated that most leaders exhibit traits associated with transactional and transformational leadership; however, a transformational leader exhibits much more of the traits associated with transformational behavior. Bass and Steidlmeier asserted that the transformational safety leader would exhibit many traits, but those associated with transformational leadership would be the primary or dominant traits. This adds some subjectivity to differentiating leader types, but also creates a framework where the primary focus is on exhibited traits instead of a general classification.

Selling and leading have similar traits insofar that both actions involve the ability to influence behavior (B. M. Bass, 1997). Bass (1997) presented clear definitions of the seven factors of leadership through examples of traits associated with each factor. The definitions of the factors presented by Bass served as one foundation of the research, because of the use of the Multifactor Leadership Questionnaire (B. M. Bass & Avolio, 1990). Bass believed that the alignment of factors provided for both congruency of language and consistency of data interpretation.

Summary of Prior Research and Gaps

Leadership research is lacking both from within and across trait and behavior paradigms (Derue et al., 2011). The gap in research identified by Derue et al. (2011) is significant with regard to research that proposes to align specific leadership traits within a particular work environment such as construction safety.

The study of worker perception regarding safety practices provided insight as to a potential method to evaluate worker perception (Gillen et al., 2004); however, no relationship between worker perception and leadership traits was included in this qualitative study. Gillen et al. (2004) explained the role of manager commitment, concern for workers, communication skills, and other demonstrated skills; however, the study did not include leadership traits of the managers in their assessment. The qualitative study by Gillen et al. did demonstrate the relationship of a positive safety culture to safety performance, although it was limited by the size of the sample population.

Another project to measure the safety climate of a construction company determined that a positive safety climate contributed to improved safety performance (Choudhry et al., 2009).

Management commitment and employee involvement were determined to play a significant role in the creation of a positive safety climate, but the influence of leadership traits were not a variable of the study (Choudhry et al., 2009).

In summary, there is a gap in research and a lack of understanding of the influence of transactional and transformational leadership traits on construction worker behavioral choices with regard to safe work practices. The role of safety climate and safety culture has been demonstrated; however, the relationship of leadership traits to safety culture climate is not yet understood.

Chapter 3: Methodology

The purpose of the qualitative phenomenological study was to understand the influence of leadership traits associated with transformational leadership on construction safety behavior and performance. Specifically the understanding of how leadership traits are interpreted may have provided insight with regard to how the construction worker is motivated to the point where behavior may be influenced. Human factors such as attitude, beliefs, values, and mindset play a key role in the development of a positive and proactive safety culture (Zou, 2011). Zou (2011) postulated that a strong proactive safety culture is essential to shaping beliefs and values that result in safe behavior.

A phenomenological design facilitated the exploration of the construction workers' lived experience and the perceptions and beliefs that influence behavior. Chapter 3 contains a discussion of the study problem, research method, research design, appropriateness of design, research and interview objective, pilot test, sample population, participant rights, and data collection and analysis.

Study Problem

Because the study problem required an improved understanding of how construction workers interpret leadership direct and implied communication the researcher determined a qualitative approach was the best fit to analyze the problem. The problem was the lack of understanding regarding leadership traits that affect safety, creates an over-reliance on rules and enforcement, resulting in the lack of success to eliminate injury on construction sites. Michaels (2011) gave evidence of the reliance on rules and enforcement through his statement that rules and stringent enforcement by the occupational health and safety administration saves lives.

Leadership is a generic term often used without specificity, and may refer to the exhibition of traits such as charisma, organization skills, heightened emotional intelligence, and others. Similarly, leadership development and training include a variety of aspects. The construction industry has begun to realize that the leadership development process may take years to produce results; nevertheless, leaders in the industry have recognized the need for effective and focused leadership development (Skipper & Bell, 2008).

Research Method

Qualitative research focuses on how individuals and groups create meaning from experience and understand their environment (Baker, 2006). The uniqueness of qualitative research is that the focus is not to identify and explain facts, but rather to understand how those facts are interpreted (Žydžiumaite, 2007). Consistent with the objective of qualitative research, the focus of this study was to understand how the construction worker interprets the attributes of leadership.

Qualitative research uses interviews and observations that are contextual so that interpretations can vary and are dependent upon subjective interpretation (Žydžiumaite, 2007). Consistent with Žydžiumaite's (2007) assertion, qualitative research follows a naturalistic paradigm with the underlying notion that reality is constructed rather than predetermined (Vishnevsky & Beanlands, 2004). With regard to sample selection, qualitative researchers select participants based upon their experience with the phenomena of concern, such as the construction workers lived experience regarding their inspiration to adopt safe working practices (Vishnevsky & Beanlands, 2004).

The central thought behind qualitative research is to learn about the issue from the participant perspective (Creswell, 2009). It remains unclear through current research and inquiry which leadership traits have the greatest potential to create a positive safety culture and reduce workplace injury. The aspiration of this research was specifically to gain an understanding of the phenomenon from the perspective of the construction worker.

Qualitative research designs include; phenomenology, ethnography, case study, and grounded theory (Christensen et al., 2010). Christensen et al. (2010) provided the following conditions where each design is best suited. Ethnographic design is appropriate when investigating the culture of a group of people or a cultural event. A case study is suited when detailed analysis of one or more cases is required. Grounded theory is an approach to qualitative research for generating a theory or explanation from empirical data. Phenomenology was identified as the best fit when the description of a conscious experience of an individual or a group of individuals is researched.

Research Design

A phenomenological qualitative design involves an individual or a group of individuals' conscious life experience of a phenomenon (Christensen et al., 2010). The intent of this study was to understand the life experience of the construction worker regarding safety, in the context of a leader who exhibits a specific trait that leads him or her. The classic alignment of this research with the academic definition of a phenomenological design validates the selection of this method and design.

A cornerstone of phenomenological design is that the subjective experience of the participants is prioritized (Fisher & Stenner, 2011). Central to understanding the ability of

leadership to influence the behavior of followers is the idiosyncratic experiences of the follower. This study focused on the construction worker's reality, based upon the lived experience of the individual worker and construction crews. Although the study was based upon subjective experience from the perspective of the participant, the researcher needs to embrace an inter-subjective perspective insofar that he or she makes discrimination from more than a personal perspective (Giorgi, 2006).

The use of phenomenological research presupposes phenomenological theory, despite the proclivity toward empiricism (Giorgi, 2006). Giorgi (2006) presented the key concept that qualitative phenomenological researches are destined to make practical decisions through the blending of empirical and phenomenological criteria. The value of qualitative phenomenological research is determined by the richness of exploration of the participants' lived experience in the context of the phenomenon studied.

The ambiguity of language and terms can lead to confusion, making the setting of context and definition of terms significant. In fact, some concepts and theories lose meaning through popularity and variance of application (Roberge, 2011). It is relevant to contrast historical positivist approaches with regard to construction safety; not with the intent to dismiss the legitimacy of past studies, but rather to understand study limitations that bring to light the opportunity of a qualitative approach.

Appropriateness of design. Only a developed knowledge of philosophical phenomenology coupled with a sound background of research design have the potential to determine the adequacy of decisions made (Giorgi, 2006). Phenomenology is difficult to comprehend, not because of its complexity, but because of the empirical philosophical

framework that dominates current scientific culture (Girogi, 1997). Giorgi (1997) stated that phenomenology is not in conflict with empiricism, but that it is more than merely empirical. The ontological divide between qualitative and quantitative methods is counter-productive (Fisher & Stenner, 2011). Giorgi (2006) stated the philosophical phenomenological method includes three interconnected processes, which are phenomenological reduction, description, and search for essences.

Phenomenological reduction. The process of phenomenological reduction requires an active cognitive process to acknowledge past knowledge and assumptions and to encounter the phenomenon freshly (Girogi, 1997). Knowledge, both empirical and subjective, regarding construction safety is well documented. The subject of leadership continues to draw the attention of scholars and industry that has resulted in volumes of peer reviewed discourses on the topic. The essence of the research was to observe the effects that factors of leadership had on construction safety through the experience of the worker. This represented a phenomenological reduction from the natural and general attitude that implied leadership may influence safety performance. The research sought to explore this influence beyond that of intuition or natural agreement. Giorgi (1997) stated that the essence of phenomenological reduction is that it demonstrates a departure from the natural attitude, and this condition is a minimum to claim phenomenological status for one's research.

Description. Giorgi (1997) defined description as the linguistic expression given to an object or action as it appears within the act. The significance is that description is distinct from interpretation or the accounting for a phenomenon (Girogi, 1997). Within the context of this study, this suggested that the experience of the construction worker is significant to

understanding, rather than an interpretation of why that experience exists. Giorgi asserted that it is critical for the description to minimize generalities or abstractions. It is with the construct of description that the experience of the construction worker was received. As Giorgi postulated, phenomenological reduction and description are interconnected, creating a case where an active effort is given to the data gathering process.

Search for essences. Within the processes of phenomenological reduction and description, the researcher searches for features that is essential to the phenomenon being queried. The presupposition that leadership factors influence safety must be discovered within the study and not simply validated. A quasi-experimental empirical study found a positive association between transformational leadership and safety performance (Sivanathan et al., 2005). Phenomenology is not in conflict with empiricism; it is simply more (Girogi, 1997). The essence of factors of leadership that influence safety performance was the center of attention of this study, rendering a qualitative phenomenological approach the most appropriate design.

Summary of design appropriateness. A qualitative phenomenological research design was appropriate to this study, because each of the elements presented by Giorgi (1997) is present. More germane to this discussion was that through the diligent application of phenomenological reduction, description, and search for essences, the likelihood of meaningful discovery was increased. Through the lived experience of the construction worker, reduced to unbiased concrete perceptions, the potential for new insight emerged. Within the realm of qualitative research alternative approaches such as case study, ethnographic, and others have been applied to research (Creswell, 2009). These alternative methods were evaluated and the selection of a phenomenological design was chosen because it best fit the research purpose.

Prior to the selection of a qualitative phenomenological research design each of the established qualitative designs were considered. Grounded theory was considered because of the abundance of empirical data associated with safety performance. Upon consideration of the problem statement explanations or theory derived from this data would likely not be specific enough to research the intended problem effectively. Similarly, upon consideration of a case study approach it was determined that the dynamics of the construction processes rendered this method as not suited to research the intended problem.

Ethnographic research is appropriate when investigating the culture of a group of people or a cultural event (Christensen et al., 2010). This design seemed intuitively appropriate because the safety culture of a group of construction workers is certainly germane to the research problem in specific and construction safety in general. Ethnographic research encompasses an array of research activities and seeks to enhance the understanding of the real world (Serrant-Green, 2007). The determination of design appropriateness required the contrasting of the research problem and purpose with the methodology inherent in ethnographic research. This contrast proved to be enlightening because it revealed that the investigation lived experience of the construction worker would be better suited to the research problem than an understanding of the culture of a group of construction workers.

Research and Interview Objective

Qualitative interviewing encourages the participant to share descriptions of phenomena, without interpretation regarding rationale, leaving the interpretive process to the researcher (DiCicco-Bloom & Crabtree, 2006). The objective of the interview in the study was for the construction worker to reveal how leadership factors influenced their behavior with regard to

safe working practices through their lived experience. It was vital to recognize that social roles and status shaped the interview and that by definition an interview is invasive (DiCicco-Bloom & Crabtree, 2006). DiCicco-Bloom and Crabtree (2006) advised that the researcher consider their own social role, acknowledge power differentials, and integrate reciprocity within the interview process. The research questions that guided this study were:

RQ1: How does the construction worker interpret the spectrum of leadership behaviors, with regard to decision-making involving safe performance?

Sub-question 1: What are the leadership styles of the operational leaders most commonly observed by the construction worker?

Sub-question 2: What does the workers' experiences say regarding leadership approaches to influence safe behavior, what drives them to change?

Sub-question 3: What role do the workers' experiences play with regard to how leadership behaviors are interpreted?

Instrumentation. Listed below are the open-ended questions designed to capture themes described during interviews with participants:

1. Please describe with examples of actions taken by leaders that have influenced your behavior both positively and negatively.
    (a) Describe how leadership styles affects your resolve to intervene when peers' working behavior is unsafe.
2. What leadership actions do you believe are most likely to influence safety culture?

(a) Describe the working environment that you have experienced with regard to safety culture.

(b) Are certain types of leaders more likely to give you a feeling of empowerment?

3. If you were the leader at this project, what actions would you take to ensure workers make good decisions regarding safety?

This in-depth interview process required a rapport to be established between the interviewer and the construction worker. Although the interview questions were focused, it became paramount that time would be considered for rapport and trust to be built, especially given the potential for power differentials to affect the interviewee's responsiveness. The interview questions and procedure were validated through a pilot test.

Pilot Test

Upon approval from the dissertation committee, University of Phoenix Institutional Review Board (IRB), and the participating organization, a pilot test was conducted. Prior to the administration of the pilot test a signed consent from (see Appendix B) was obtained from each participant selected for interview. The purposes of the pilot test were to measure the appropriateness of the questions, the time needed to conduct the interviews, and the best location and logistical process to perform the interviews.

The pilot test was conducted at one construction jobsite of the participating organization, where three construction workers were interviewed. The data collected from the pilot study were used to refine the research. The pilot study participants did not participate in the final study. In

addition to the interview, each participant of the pilot study was asked to make recommendations to improve the interview questions and process.

Population and Sample

Opportunistic sampling is the identification and selection of samples that meet a criteria of usefulness in the context of a research study (Christensen et al., 2010). This method of sampling was germane to this research, insofar that the worker sample population was determined not by worker attribute, but through the presence of a leader exhibiting a variety of transactional and transformational leadership traits. This section serves to provide understanding with regard to the total population of leaders and construction workers and the method of sampling to ensure the study could be replicated.

Population. The total research population consisted of construction projects underway by the participating company with a contract value greater than $50 million. A pivotal attribute of the sample was to develop a pool of leaders that exhibited a variety of leadership traits, both transactional and transformational. 50 leaders in the participating organization were invited to participate and take the Multifactor Leadership Questionaire.

The population for the study was 17 senior leaders of the participating organization that agreed to participate and the construction workers actively engaged in construction work on projects under contract to the participating organization. The total construction worker population of the participating organization consisted of approximately 10,000 workers, consisting of employees from the participating organization, as well as sub-contractor employees under the direction of the participating organization.

Geographic location. The study participants were all construction workers actively engaged in construction at a construction project of the participating organization in the continental United States. The participating organization has an average of 400 construction sites with active construction ongoing at any given time. Additionally, the participating organization has offices in over 40 cities across the United States.

Sample description and selection criteria. The sample for the study consisted of five groups of three construction workers actively working on a construction site of the participating organization in the continental United States. Instrumental to the research objective was that the full range aspects of leadership factors influenced the five participant groups. The selection of five groups was determined by leaders from the participating organization, which demonstrated a variety of dominant leadership factors determined by the administration of the multi-factor leadership questionnaire (B. M. Bass & Avolio, 1990). The electronic version of the MLQ (B. M. Bass & Avolio, 1990) was offered to 50 organizational leaders of the participating organization. Leader and worker participation was voluntary, and was administered with full disclosure and the protection of participant rights in place. Subsequent to the selection of the five construction sites three workers from each site were randomly selected to participate in the reaseacher led interviews.

The purpose of the qualitative phenomenological study was to understand the influence of leadership traits associated with transformational leadership on construction safety behavior and performance, through lived experience. Although there was no intent to imply a relationship of any particular leadership factor to the workers' safety experiences, it was important that the sample population of leaders reflected the full spectrum of leadership traits. There were no

specific criteria of factor loadings for specific responses for predetermining the sample pool. The purpose of administrating the *MLQ* was to ensure that an array of leadership behaviors have been observed and experienced by the construction worker. An inventory of leadership behaviors documented and validated helps to ensure that bias given to a particular leadership trait was minimized and that the workers lived experience was reflective of a variety of leadership behaviors.

Informed Consent

Two participant groups (the leaders taking the multifactor leadership questionnaire, and the construction workers) were directly involved in the research creating an ethical demand that ensured their right to privacy. Goals of ethical measures related to the interview process and those taking the leadership survey included reducing the risk of unanticipated harm, protection of personal information, full disclosure to all participants about the nature of the research, and reducing the risk of exploitation (DiCicco-Bloom & Crabtree, 2006).

Reducing the risk of unanticipated harm. In-depth interviews are processes of dialog between the researcher and participants that, by definition, are unpredictable. As the researcher reflects and investigates, the dialog leads the interview process may take unforeseen directions (DiCicco-Bloom & Crabtree, 2006). Although this unforeseen directionality of the interview is of benefit to the validity of the research, it could result in unintended harm to the interviewee (DiCicco-Bloom & Crabtree, 2006). Protection of privacy was of paramount concern, both of the study process and of the data collected.

Protection of personal information. Although knowledge of the identities of the leaders taking the multifactor leadership questionnaire was necessary to ensure a variety of traits

were included in the sample, these data were not included in the study. Additionally, once the sample population had been selected, the leaders' identities were securely destroyed and further identifying was with a variable name (e.g. leader 1, leader 2, and so forth). The interview participants' identities were not germane to this study, and no personal information was collected.

Full disclosure. Participant involvement in this study and a full disclosure of the study's intent, process, and reporting were offered in written form to every participant . This disclosure was in written form, and a signed copy was securely retained separate from the study. DiCicco-Bloom and Crabtree (2006) offered two essential elements by which to gauge the effectiveness of informed consent: (a) the outcome of the research enhances the interviewee more than it enhances the researcher's career, and (b) the contributions of the participants are acknowledged.

Reducing the risk of exploitation. The probative characteristic of a qualitative interview not only determines the likelihood of meaningful data, but also heightens the potential of interviewee exploitation. A limitation of full disclosure of the intent of qualitative research, is that often the researcher cannot anticipate the discovery made during an interview (DiCicco-Bloom & Crabtree, 2006). Consistent with the recommendation made by DiCicco-Bloom and Crabtree (2006), verbal consent was interlaced within each interview to reduce the risk of exploitation. Although the University of Phoenix and the Institutional Review Board demanded ethical standards, researcher experience in the construction industry also guided the research to ensure ethical standards were applied effectively throughout the research.

Data Collection

A hallmark of qualitative research is that data collection and analysis occur concurrently (DiCicco-Bloom & Crabtree, 2006). The data required to select the interview participants, in particular the multifactor leadership questionnaire (Bass & Avolio, 1990), were gathered electronically, via a web browser. Prior to the administration of the multifactor leadership questionnaire a signed consent form from each leader was obtained. Prior to conducting worker interviews a signed consent form was obtained. The interviews were held at the project site in the jobsite trailers or temporary offices at the project site. Care was taken to ensure that privacy was maintained during the course of the interview.

Interviews continue to be a primary research strategy in qualitative studies (DiCicco-Bloom & Crabtree, 2006). A main focus of the pilot testing was to ensure the process for recording the interview and transcribing were fully developed.

Instrument appropriateness. The in-depth interview is intended to be an intimate verbal experience by which the respondents provide detailed narratives and personal stories (DiCicco-Bloom & Crabtree, 2006). The determination and evaluation or instrument appropriateness is dependent upon the ability of the instrument to solicit meaningful narratives from each participant. The script of questions was open-ended, which provided flexibility for the researcher to alter the dialog, dependent upon the direction of dialog determined by the participant.

The multifactor leadership questionnaire (MLQ) (Bass & Avolio, 1990) is a proven instrument with good construct validity, adequate reliability, and a strong research base. The

MLQ measures constructs of transformational leadership, transactional leadership, and non-leadership (Bass & Avolio, 1990).

Reliability and Validity

The view of the world from a quantitative perspective is stable and predictable (Žydžiumaite, 2007). Quantitative research requires precise measurement tools, validated through statistical analysis, to determine significant relationships (Žydžiumaite, 2007). Qualitative data cannot be interpreted or analyzed to support hypotheses and develop generalizable observations. Criteria applied to determine reliability and validity in quantitative research are also valid in qualitative research, which is to say these concepts are meaningful and to be considered (Moret, Reuzel, Wilt, & Grin, 2007). Moret et al. (2007) stated that validity is context bound, insofar as the aim of the research is in the context of the method used. Christensen et al. (2010) asserted that research validity in qualitative research refers to the correctness of inferences made from the results of a research study.

The stated context of this study was to understand those leadership factors that influenced behavior of construction workers, specifically with regard to embracing safe work practices. Although leadership factors are rarely isolated in practice through the selection of a sample population exposed to a variety of dominant factors, the lived experience of those workers may have provided better understanding. The rigor of reliability cannot be ignored in qualitative research; instead, meaningful framing of context is core in determining reliability and validity.

Internal validity is determined by the degree a researcher is justified in concluding that an observed relationship is causal (Christensen et al., 2010). Christensen et al. (2010) stated that qualitative research has a narrow and defined scope and is focused on particular contexts. Prior

to the development of a conclusion, each potential causal relationship was carefully considered and alternative possibilities considered. Ideographic causation refers to making a very specific and context bound claim (Christensen et al., (2010). This research aimed to better understand how leadership behaviors are interpreted by the construction worker and to understand how those interpretations might have influenced behavior.

Žydžiumaite (2007) stated that because interviews and observations are context bound textual data is subject to interpretation which has to be acknowledged when discussing the trustworthiness of findings. One method to aid the researcher to establish and maintain reliability is to condut a pilot test, fixed designs always need to be piloted Žydžiumaite. The pilot study conducted as a component of this research provided insight into the applicability of the interview questions, opportunities for error in understanding meaning, and sort out details like where the interview is conducted.

Data Analysis

Qualitative data such as notes, transcribed recordings, interview recordings, and observations can generate a vast amount of textual data (Pope, et al., 2000). The process of qualitative data analysis involves: (a) organization of data to reveal themes, (b) interpreting the data to identify meaning, and (c) to develop conclusions to provide greater understanding, while exploring alternative interpretations of the observed phenomena. Textual data routinely requires inductive reasoning to generate themes and resultant explanations (Pope et al., 2000).

Organization of data. NVivo8 qualitative software by QSR International was used to identify word frequencies and to aid in the identification of themes. The source data input into the software were the transcribed interviews of the construction workers in the sample

population. Qualitative data do not aim to identify statistical relevance; however, qualitative research does use analytical categories to describe and explain social phenomena (Pope et al., 2000). Although software packages such as NiVivo8 can provide help with organization of data, identification of word frequencies, and analysis, it should not be perceived as a short-cut to analysis (Pope et al., 2000) The effectiveness of the inductive exploratory process required to construct meaning of the construction worker interview rested with the researcher. Steps taken to ensure authenticity was the accurate transcription of the interviews, the use opf open-ended and non-leading questions, and a consistent analytical approach to interpret data.

Interpretation of data. Pope et al. (2000) described five stages of data analysis using a framework approach: (a) familiarization, (b) theme identification, (c) indexing, (d) charting, and (e) mapping and interpretation. This sequential and logical approach created a framework by which the interview data could be interpreted effectively. The process of data interpretation was both rigorous and time-consuming, with the goal being the development of generalizable theory that could be applied to the context of construction safety. Upon identification of themes that offered explanation to the studied phenomenon, a spreadsheet was used to index and chart the interpretation. In addition to the use of software for data organization the researcher validated the NVivo results to ensure the textual data was context bound to support the confirmability of the textual data.

Developing conclusions. Meaningful qualitative analysis should reflect some truth about the phenomena being studied beyond being merely anecdotal (Pope et al., 2000). The effectiveness and quality of this research was determined by the depth of understanding gained

by the ability to answer the research questions, through the lived experience of the construction workers participating in the research.

Summary

The primary questions addressed in this research were reaching an understanding of the traits of leadership experienced by the construction worker may influence safe behavior, and the identification of leadership traits most likely to influence safety culture. Chapter 3 provided a discussion of the study problem, research method, research design, appropriateness of design, research and interview objective, pilot test, sample population, participant rights, and data collection and analysis. This research was submitted to demonstrate the adequacy of methodology and provision of detail to maximize the potential of success with regard to the ability to answer the research questions and meet the purpose of the research.

Chapter 4: Results

The purpose of this qualitative phenomenological study was to gain a better understanding of the influence that specific leadership traits had in building a positive and proactive safety culture. An investigation of the specific leadership traits may provide insight concerning the motivations of constructor worker that could influence their behavior. In this study, operation leaders in a large construction company were recruited to participate in a survey that identifies leadership traits and behaviors using the Multifactor Leadership Questionnaire (Bass & Avolio, 1990). The purpose of the administration of the Multifactor Leadership Questionnaire (Bass & Avolio, 1990) was to identify five leaders that exhibited a tendency toward specific and different leadership traits thus ensuring that that aggregate of the worker participant pool had experience with a spectrum of leadership factors.

The responses of the worker participants were analyzed to answer the main research question: How does the construction worker interpret the spectrum of leadership behaviors, with regard to decision-making involving safe performance? This chapter contains a discussion of the results of the study. The section will be organized in the following order: (a) data collection method and analysis of data, (b) findings, (c) evaluation of data findings, and (d) summary.

Data Collection and Analysis

This qualitative phenomenology study utilized the multifactor leadership questionnaire (MLQ) to survey via web 17 potential leaders concerning their leadership traits. From the results of the survey, five sites were selected to solicit workers to participate in an in-depth interview held at jobsite trailers or temporary offices at the project site. The sites were selected such that worker participant population would have exposure to a broad spectrum of leadership traits.

Table 1 presents the spectrum of leadership traits exhibited by the operational leaders at the specific site. A dominant trait as determined by the highest MLQ score is noted with an asterisk demonstrating the spectrum of traits likely experienced by the worker-participant sample population.

Table 1

Operational leader MLQ scores by site

Site	Idealized Influence	Inspirational Motivation	Intellectual Stimulation	Individual Consideration	Transactional Leadership
Site #1	3.8*	3.8	3.0	3.5	3.5
Site #2	2.8	2.5	2.8	3.5*	3.3
Site #3	2.7	3.7*	2.5	3.0	2.8
Site #4	3.0	3.3	3.3*	3.3	3.3
Site #5	3.3	3.8	3.3	4.0	3.5*

The focus of the interview with open-ended questions was to answer one research question and three sub-questions.

RQ1: How does the construction worker interpret the spectrum of leadership behaviors, with regard to decision-making involving safe performance?

Sub-question 1: What are the leadership styles of the operational leaders most commonly observed by the construction worker?

Sub-question 2: What are the workers' experiences regarding leadership approaches to influence safe behavior that are most likely to inspire them to change behavior?

Sub-question 3: What role do the workers' experiences play with regard to how leadership behaviors are interpreted?

From the pool of the construction sites managed by the five selected construction company leaders in continental United States, the present study recruited 15 construction workers. These construction workers were selected on the basis of the full range aspects of leadership factors demonstrated by their leaders. Each of this participants participated in the semi-structured interview. The interview contained open-ended questions listed below:

1. Please describe with examples of actions taken by leaders that have influenced your behavior both positively and negatively.
    (a) Describe how leadership styles affects your resolve to intervene when peers' working behavior is unsafe.
2. What leadership actions do you believe are most likely to influence safety culture?
    (a) Describe the working environment that you have experienced with regard to safety culture.
    (b) Are certain types of leaders more likely to give you a feeling of empowerment?
3. If you were the leader at this project, what actions would you take to ensure workers make good decisions regarding safety?

Following the data analysis plan of this study, the researcher organized the transcribed interview data using NVivo8 qualitative software by QSR International. Although software packages such as NiVivo8 can provide help with organization of data, identification of word

frequencies, and analysis, the researcher of this study manually analyzed the emerging codes to construct the meaning of the construction workers' phenomenological experiences.

The analysis of the emerging data codes followed the data analysis framework postulated by Pope et al. (2000). The researcher began with familiarization of the codes generated from the transcript followed by the identification of the theme, indexing or categorizing the themes, and charting the meaning of the themes and categories of themes, and mapping and interpreting the meaning of the data. The researcher believed that this sequential and logical approach creates a framework by which the interview data are interpreted effectively.

The objective of the data analysis process was to develop a generalizable theory applicable in the context of the construction safety. A spreadsheet was used in indexing and charting the interpretation emerging from the data. Evidences of these interpretations were presented to provide the truth beyond what are merely anecdotal (Pope et al., 2000).

Demographic Characteristics of the Participants

There were five groups of participants included in this qualitative phenomenological study. The researcher interviewed three construction workers per group. The participation of these 15 construction workers in the semi-structured interview achieves the sufficient thematic saturation required in this study. The workers ages ranged from the mid 20s to the mid 60s with 6 of the 15 participants of Hispanic heritiage and the remaining being Caucasian. Additiona demographic factors such as marital status, geographic locale, and particlar trade (e.g. carpenter, plumber, laborer, etc.) were not considered to be germane to this study.

Findings

This section presents the data collected from the transcripts of the 15 construction

workers. The analytical framework of Pope et al. (2000) with the aid of NVivo qualitative software was utilized as a method of analysis. Each of the suggested data analysis procedures played an important role in describing the lived experiences and perceptions of construction workers regarding the specific leadership traits of their leaders that builds a positive and proactive safety culture in the construction industry. With the aid of NVivo, the preliminary groupings in the study were coded. These grouping of codes were used to identify the themes. The themes were then re-grouped to form the themes and sub-themes of the study. In the analysis of the codes, the researcher utilized the thematic analysis. Coded datum identified in the NVivo analysis was reviewed to ensure accurate representation and understanding of the phenomenon. These codes were then categorized for similar meanings. In order to be categorized as a theme relevant to this study, the researcher ranked the responses of the participants from highest to lowest. These categories of themes were then used to establish the themes of the study. Themes were also assessed to ensure that each moment of the perception was a necessary and sufficient constituent in understanding the phenomenon. Finally, vague participant descriptions were condensed and presented in more descriptive terms.

The data analysis process generated four thematic labels critical to the central question: (a) characteristics of the operational leader in the construction industry, (b) leadership approaches that influence safe behavior, (c) followers-leadership reflective behavior, and (d) process of followership. These categories of themes represent the answer to the central and sub-research questions.

Theme 1: Characteristics of the operational leader in the construction industry. The construction workers involved in the study identified 11 characteristics they observed with their

operational leader. Fourteen of the participants articulated the sub theme *accountability* to refer to the character of a leader who held him or her accountable to the operational success and/or failure of the organization. These participants articulated that their leaders always support the limitations of the team and guided the staff in order to meet the expectations and goals of the operation. In some cases, the leaders who are accountable to the accomplishments of the followers are aware of how to help resolve cases of downtime operation and demonstrate care for the welfare of their subordinates. Participant #13 shared an example of how a leader must be prepared to support the team.

> He obviously does his homework and he prints everything out. He gives me very detailed stuff about how to run certain things. Sometimes a whole week in advance, sometimes a day in advance, two days in advance, but it's never like then until he gets word from his boss telling him it needs to be done. That's when he changes, but even then it's already meditated out.

Participant #14 shared a similar thought in the context of construction safety.

> If you've got the leader that actually cares about ... I'll just call him Tom. If you've got Tom who actually cares about safety and whatnot, he has ... And I've seen him do it, advise the entire crew that if they see something unsafe, they are to stop what's going on right then and there, and if there are people who don't want to listen, obviously you get a phone call to him, and he'll come and make sure.

The second sub theme, *direction setting*, emerged after nine of the participants claimed that their operational leaders set-forth the mission and activities of the team. Nine of the participants shared that their leaders plan out the weekly and monthly activities for them.

Participant #1 claimed that his leader evaluates pre-task plans. These plans are then shared among the members of the team. Participant #1 said:

> The foreman I have now he goes through, right from the gate, goes through the pre-task plan and actually pulls out the plans that we'll be working with, and shows us what we'll be working on for the day, and all that. It's just really a good direction.

The third sub theme, *interpersonal skills*, emerged from the eight participants of the study. This refers to the ability of the leaders to interact with other members of the organization. These participants shared that interpersonal skills of their leaders extend in building good rapport with their subordinates. Participant #12, who is a construction leader, shared that:

> I try to build a bond, a family bond, within my crew so I keep them for long periods of time. I learned from the older guys. I've hired older guys my whole life and I've learned so much from the older guys.

The fourth sub theme, *communication skills*, emerged from the transcript of the eight participants of the study. These participants postulated that leaders should have the skills in communicating their plans with their subordinates. Crucial to the success of the construction leadership was that leaders should be able to educate as well as to facilitate all meetings with their subordinates. Effective communication skills are essential in establishing friendship and camaraderie among the organizational stakeholders. According to the participants, yelling and shouting at the workers are not effective in delivering the message. Participant #2 shared that with effective communication skills, friendship at work emerged. Participant #2 said:

> I've been working with him for a long time, and we were good friends. We really communicate. We bond together. And I knew all the other people from other jobs before

> that. We were really good friends, I try to remain friends with people, and I think that's why he did that.

The fifth sub theme, *competence and knowledge in planning and management*, refers to the technical knowledge that operational leaders should possess in a construction industry. Seven of the participants postulated that leaders plan the activities as well as assign specific works appropriate for their subordinates. When leaders are able to plan, all activities in the construction site are manageable even without the leaders supervising the activities. Participant #9 shared that his leader does the planning a week or even days before the activities are scheduled to be done. Participant #9 said:

> The guys that have influenced me most have spent time with me and just was really detailed in teaching me how to do the work I need to do. I worked with a foreman as his apprentice for four years and I learned a lot about how to work because he was a foreman he would often have to leave. When we worked we had to get things done and had to make use of his time as much as possible so that when he's gone I could continue working.

The sixth sub theme, *proactive in safety measures*, refers to the ability of the leader to control possible construction safety issues by preparing counter measures and strategies. Seven of the participants indicated that leaders in the construction industry might need to educate and consciously remind the workers concerning the safety measures of the sites. Safety measures that could be influenced by operational leaders include the proper use of tools, material handling, working at height, and observation of other work-taking place in the proposed workspace. Participant #7 shared:

> Making sure that all our tools are working properly. Pushing us to make sure that our saws work properly, our chop saws, everything, because any little mishap with the tool, it could kick back and hurt us. That's really important. They push us to always drink water, drink plenty of water. They always have it on handy for us, and make sure that we're hydrated and are able to keep pushing through the job.

Participant #2 shared:

> As far as efficiency, the best leaders to me have been guys who are well prepared. They have good proper pre-planning, and they have all the material and all their ducks in a row, and organized and assertive. There are a lot of guys who are a little bit more bashful about it. I'm not as assertive as some of the other guys, but I do the best I can. I'm not as good at public speaking, so public speaking is a good thing. There's a lot of good aspects about it. Being safety-conscious, of course, and having a broad-spectrum mind, in my opinion. Being able to multi-task on a lot of things. Those are all good things and help for production and safety. Right? Keeping all your guys safe.

The seventh sub theme, *learn with the team,* refers to the ability of the leaders to stimulate the subordinates' knowledge concerning the construction operation. Six of the participants claimed that operational leaders must not just direct the construction work but also to understand the situation from the perspectives of their subordinates. Participant #1 described his leader as, "He's not somebody that jumps down your throat every time you turn around, and if you make a mistake he works with you with it, and he treats you right."

Table 2

Theme 1: Characteristics of the operational leader in the construction industry

Sub Themes	# of participants to offer this experience	% of participants to offer this experience
Accountability	14	93%
Direction setting	9	60%
Interpersonal skills	8	53%
Skills in communication	8	53%
Competence and knowledge in planning and management	7	47%
Proactive in safety measures	7	47%
Learn with the team (intellectual stimulation)	6	40%
Empathy	6	40%
Assertive	4	27%
Ensures quality work	3	20%
Balance priorities	1	7%

Theme 2: Leadership approaches that influence safe behavior. Twelve sub themes constitute the theme label 2. The first sub theme, *empowering through building workers' confidence*, emerged from the 12 transcripts of the participants. These participants shared that safe behavior is influenced by the ability of the leader to provide knowledge concerning safety

measures. These participants claimed that leaders should be able to increase the worker's capacity to gain knowledge on safety measures and apply this information in the constructions sites. Participant #2 said that confidence in the application of the safety measures is an empowerment. Participant #2 said, "So if you're confident, you feel empowered. If you're confident you're more likely to go correct on safe behavior."

The second sub theme, *stimulate learning*, refers to the ability of the leader to find ways to do effective and efficient manner of accomplishing the goals and tasks of every member. Participant #1 shared:

> Somebody that's willing to get in there and help you rather than just harp on you for not having it done on time. They're willing to put their bags on and work with you, and they don't just throw it all on your shoulders and expect you to have it all done.

The participants claimed that leaders could influence the workers' safe behavior when they are able to engage themselves in regular inquiry and dialogue with the members of the team. Participant #3 said:

> I mean the pre-task plans and the safety meetings and stuff that we hold is a good thing, right? That's reiterating everything every day and kind of drilling it into them so that they know everything. You cannot be watching them all the time, and there's some people that break the rules as soon as you turn your back.

The participants claimed that engaging the workers in conversation concerning their safety practices stimulates group learning. Participant #7 said:

> I like certain guys that push and let myself, personally, learn and do work. There's other leaders who feel like they have to, maybe, baby or feel like, "Oh, I don't want this person

> to get this far. I want to make sure they do it right, but I don't want them to go above and beyond, maybe, what they're capable of." Make sure that you have meetings about it, weekly is probably good enough, where everybody's aware of all the dangers that you might come across with different, whether it be power tools or ladders, or so-on and so-forth. I know as far as our company, when we've had a good year as far as safety, we have a safety picnic once a year where we take the guys that have been safest on our jobs and they're in drawings and stuff like that. That way, I mean there's a reward system as well.

The third sub theme, *doing-by example,* emerged from the 11 transcripts of the participants. These participants claimed that leaders who can influence the workers' safe behavior led by example. Participant #2 explained this as:

> Teaching them by self, seeing the guys struggle because they don't know how to do it, jump in and kind of help show them how to do it. Then when they finish, the next time you tell them how to do something, they will do it, and they will know how to do it, and it builds confidence some more.

Participant #7 further described this quality as:

> Someone who shows me the right way to do it and get it done properly, even if it takes a little more time. Someone who shows me the proper way to do it, instead of taking the short cut and risk getting hurt.

Participant #12, a construction leader described his leadership as:

> My style is to lead by example and lead ... I won't have one of my men do a job that I wouldn't do myself. A lot of times you may have to go into a sewer line and clean it out

> just to show them. As I get older, I'm a little less likely to do it, but I've always lived with the theory that if I can do it, they can do it. I wouldn't put them on anything I wouldn't do.

The fourth sub theme, *trust and confidence with knowledge*, relates to the ability of the leaders to trust the capacity of an individual concerning their knowledge on the safety measures in the construction sites. The participants explained that the ability of the leader to trust them empowers as well as motivates them in doing their tasks. Participant #7 shared that, “It empowers me. It makes me feel good. Somebody who can trust me makes me want to work harder and keep that person impressed with me…” Participant #7 further described the situation where he encountered this situation.

> The person who gives you a task and they feel like, "Okay. Here you go. Go ahead and do it. I'll see you in a couple of hours. Call me if you need me." They're not, "All right. Let me walk you over here. This is where this is. You need to do it this way, or that way." The person who gives you that freedom to work at the pace you need to do it and safely, is the ones who are empowering to me.

The fifth sub theme, *cares for people*, emerged after eight of the participants said that leaders who ensured safety of the people influenced more followers when they is able to show that they genuinely care as opposed to doing just their responsibility in implementing safety program. Participant #15 said:

> The one who's more willing to share their experience and wants a good job. It all kind of goes hand in hand. Make sure your employees are happy and safe they're going to do a better job for you. The other ones, they don't really care about the well being of you, just like they don't care the product that you're trying to give them

The sixth sub theme, *interpersonal relationship,* relates to the ability of leaders to interact with their subordinates. Participant #8 described this ability as, "It's just more personable with me, to get to know them a little bit and to blend characters, not just so you're worker to worker."

Table 3

Theme 2: Leadership approaches that influence safe behavior

Sub Themes	# of participants to offer this experience	% of participants to offer this experience
Empowering through confidence	12	80%
Stimulate learning	11	73%
Doing-by example	11	73%
Trust and confidence with knowledge	9	60%
Cares for people	8	53%
Establish interpersonal relationship	8	53%
Recognize accomplishment/appreciate	6	40%
Provide opportunities to self-manage	6	40%
Enthusiastic	5	33%
Innovative/problem solving skills	5	33%
Organizational consciousness	5	33%
Management motivational policies	5	33%

Theme 3: Followers-leadership reflective behavior. Theme 3 emerged after five sub themes were culled from the transcripts of the participants. Theme 3 suggests the leadership

behaviors that the participants intend to implement following the characters their former leaders have demonstrated on them. The sub themes constituting this category are: (a) trustful, (b) caring for others, (c) implement accountability, (d) willingness to listen and accept new ideas, and (e) participatory decision-making.

The first sub theme, *trustful*, emerged after seven of the participants shared that trust develops as workers prove their competency in a particular task. Seven of the participants believed that being trustful to workers are reflective on the kind of leadership their leaders have demonstrated. Participant #1 described his experiences as:

> Well, I think that first of all you have to prove yourself to him. You have to show him that you're a good worker, and that they can trust you. You can't just jump on the job and expect them to. They don't know you. You might be a flake as far as they know. You got to do your job and when they tell you to do something, don't fight with them about it, and then also look out for everybody else too. If they see that you're looking out for the other guy that might be doing something wrong, and going to get hurt or something like that, then they will eventually know that you have enough experience or whatever to let you go on your own.

Participant #6 described this type of trust as something a leader exhibits by allowing him to learn it on his own. He offered the following:

> They're going to put you out there and let you figure it out for yourself. For me for instance, I've been working with a guy that's my General Foreman that I've known for quite a while. We've worked together and he lets me kind of get to a point and then, if I'm

> not covering all my bases or I don't have all the info, he'll step in and be like "Well, why don't you look at it like this?" Or "Maybe you should hit it from this way."

The second sub theme, *caring for others*, refers to the caring behaviors their leaders have demonstrated in reminding them of the safety measures in the construction sites. Seven of the participants shared that they intend to follow the caring their leaders have provided them. Participant #3 explained that, "it might just be because I'm a caring character, is to know that people care about you. As far as literature and all that and going through the meetings, that's probably the most important and reiterating." Participant #2 shared a personal example about how his leader demonstrated caring for others.

> Well, about four years ago I had a small stroke. It didn't happen on the job, it happened at home. So I didn't know what it was at the time, and I ended up taking a month to figure out what was wrong with me, and I had to like leave my job. So all of a sudden when I was at the rehab like two months down the line, I get a big envelope, and I didn't know what it was, so I opened it up, (my boss came to me and dropped it off). I'm like, well I opened it up and I see it's a big amount of money that everybody at the whole Skanska family kind of picked up, which was a lot of money. I guess it was my boss, who was my leader, kind of took it upon himself to go in front of everybody and announce what had happened to me and how we should help him out. That's something I really admire that he did for me. And not just that job, it was like four different jobs that came together.

The notion of caring is often more subtle and less dramatic than expressed by participant #2. Participant described caring as:

> ... people kind of can get that feeling from you that you care. I can from somebody else. It's kind of, you figure out what you see in people that you think are in the position above you that care about that you're doing and trying to do the same thing.

The third sub theme, *implement accountability*, emerged after seven of the participants shared that accountability is a desirable character that any potential leaders could emulate. Participant #4 described these qualities as:

> First, make sure everything is running smoothly. You set your organization, you plan everybody's schedule at that time. I like the way our system going right now, it look good because we got stuff coming in, delivery, we got crew members that taking care of that section and set up and a few other ... everybody seem to get their stuff going, it's flowing. That's it, just keep things flowing and safety is very important to me because war and military life and stuff, I see those things that help me to recognize why life is so precious to me.

The fourth sub theme, *willingness to listen and accept new ideas*, refers to the willingness of the leader to understand different perspectives by listening and accepting ideas from the subordinates. The participants shared that their leaders adopted regular dialogue to collate information from the field, which could benefit the project site. Participant #8 described this behavior as:

> Even the craft workers are encouraged to speak up if they see unsafe things as well. There's just a general discussion among the entire site as opposed to just foreman… sure that what you guys do every day after stretch and flex I think is a good idea where everybody has a chance to say something where it's not just foreman sitting in on a safety

meeting once a week like we do, but even the craft workers are encouraged to speak up if they see things as well. There's just a general discussion among the entire site as opposed to just foreman.

Table 4

Theme 3: Followers-leadership reflective behavior

Sub Themes	# of participants to offer this experience	% of participants to offer this experience
Trustful	7	47%
Caring for others	7	47%
Implement accountability	7	47%
Willingness to listen and accept new ideas	5	33%
Participatory decision-making	4	27%

Theme 4: Process of followership. Five sub themes constitute theme 4, which explains the adoption of leadership aspects experienced through the leader-follower experience. Following the leadership attributes the participants identified, the participants reiterated the need for them to (a) establish communication, (b) set by examples, (c) listen and respect others, (d) provision of opportunity, and (e) evaluate the capacity of an individual.

The first sub theme, *establish communication*, calls for the need for effective communication with the subordinates. Six of the participants indicated that communication facilitates understanding and growth between the leader and the followers. Participant #1

explained that future mistakes are prevented when leaders are able to remind and encourage followers to adopt system of safety practices. This is achievable among leaders who had good discipline in sending messages without yelling and/or shouting.

The second sub theme, *set by examples*, reiterated the need for the experienced construction worker to demonstrate his or her practices such that younger workers are able to integrate the safety practices in the culture of the organization. Participant 4 shared how he was able to adopt the practices he learned from previous superiors. Participant #4 said,

> Demonstrate how you set your example as a leader. Then that's why I said, that is play high major role in our career. I learn a lot from the old guys [inaudible 00:16:38] and some of the Skanska guys. They've been Skanska for years and I had a chance to work with those guys. They share a lot of ideas. I'm listening.

The third sub theme, *listen and respect others,* emerged after four participants shared that leadership is about listening and respecting others. When leaders listen, they learn from the information and potentially improve their leadership efficacy. Participant #4 said:

> About leadership is learn how to listen. Learn to listen, learn how to share, and also guide them. They would do anything for you. If they make a mistake, correct it properly, respect is everything about our trade. You respect each other how they respond to situation. Say I make mistakes, how you approach me, how you're going to talk to me is very important as a leader. If you correct me in a manner that I would learn to respect you, oh man, I'd do anything for you.

Table 5

Theme 4: Process of followership

Sub Themes	# of participants to offer this experience	% of participants to offer this experience
Establish communication	6	40%
Set examples	6	40%
Listen and respects others	4	27%
Provision of opportunity (trial and error)	4	27%
Evaluate individual capacity/ good judgment	4	27%

Summary

The purpose of this qualitative phenomenological study was to understand the influence of specific leadership traits on building a positive and proactive safety culture in the construction industry. Five sites were selected in the recruitment of 15 construction workers who participated in the semi-structured interview. Following the data analysis procedures, the research question "How does the construction worker interpret the spectrum of leadership behaviors, with regard to decision-making involving safe performance?" was answered through synthesizing the responses into thematic sets and subsets. Beyond process the research question was addressed through the lived experience of construction workers exposed to broad spectrum of transformational and transactional leadership traits. The worker sample population was determined first by identifying leaders in the participating organization that possessed a variety of traits determined

by the administration of the multifactor leadership questionnaire. Upon selection of construction sites for work interviews the construction worker was interviewed at the construction site. Participation was voluntary and interviews were non-structured open-ended questions.

The data analysis process generated four thematic labels critical to the central question: (a) characteristics of the operational leader in the construction industry, (b) leadership approaches that influence safe behavior, (c) followers-leadership reflective behavior, and (d) process of followership. The research question was answered through the interpretation and organization of the worker participants such that justifiable and reasonable conclusions could be inferred. These categories of themes and findings are further discussed in the subsequent section.

Chapter 5: Conclusions and Recommendations

Chapter 5 includes (a) a review of research questions and the purpose of the study, (b) the implication of the findings, (c) the recommendations, and (d) a summary of the findings. The objective of this qualitative phenomenological study was to gain a better understanding of the influence that specific leadership traits had in building a positive and proactive safety culture. Specifically the understanding of how leadership traits were interpreted provided insight with regard to how the construction worker was motivated to the point where behavior would be influenced. The significance of this study was that through a non-traditional perspective, founded on epistemologies divergent from the historical norm, the potential of new insight to help construction organizations and government entities develop means and methods to reduce human pain and suffering as well as reduce the significant financial burden associated with workplace injury was offered.

Research Questions and Study Purpose

The general problem was that the lack of understanding about how leadership traits affect safety demonstrated a reliance on rules and enforcement, this resulting in the failure to eliminate injury on construction sites.

The research questions that guided this study were:

RQ1: How does the construction worker interpret the spectrum of leadership behaviors, with regard to decision-making involving safe performance?

Sub-question 1: What are the leadership styles of the operational leaders most commonly observed by the construction worker?

Sub-question 2: What does the workers' experiences say regarding leadership approaches to influence safe behavior, what drives them to change?

Sub-question 3: What role do the workers' experiences play with regard to how leadership behaviors are interpreted?

The selection of a phenomenological qualitative design was based upon a number of constructs, which included the lack of prior qualitative research, the construction worker lived experience served as a perception tool, and that the investigation was emerging and iterative. Creswell (2009) stated that when a phenomenon needs to be understood because of limited prior research, it merits a qualitative approach. Although significant qualitative and quantitative research has been conducted in the areas of construction safety and leadership, the influence of particular leadership traits on safety culture and safety performance has not been adequately researched. The lived experiences of the construction worker with regard to safety culture and behavior served as the foundation for data gathering.

The participants provided important information regarding the attributes of leadership that influence change through their own language and lived experience. Through analytical tools and interpretation, themes emerged that enabled the data to be organized, structured, and analyzed. Through categorization and synthesis the participants' descriptions of their lived experience provided great insight and understanding of the study phenomenon.

Implications of the Findings

Theme 1: Characteristics of the operational leader in the construction industry. The participants identified several leadership characteristics identified as crucial to building a positive dialog with workers. Of the fifteen participants interviewed fourteen articulated the

importance of accountability. Other stated characteristics included direction setting, interpersonal skills, skills in communication, and competence in knowledge in planning. This research infers that accountability and direction setting are central to a leader's ability to influence behavior regardless of the specific context (e.g. safety performance, job tasks, training, etc.). This set of characteristics reveals those of importance and specific to the research target group, the construction worker.

The distinction of the construction worker is an important limitation of this study as this population in particular provides both the specificity correctly narrowing the scope of the study and provides insight into the mind of the construction worker. The participants consistently described the importance of a leader willing to be personally accountable and that consistently demonstrates competence. The participants gave much more credence to field experience as opposed to academic experience. This observation is significant insofar that a routine practice in the construction sector is to assign leadership tasks to new engineering graduates designated as project engineers.

In addition to participants responses was a frequent self-reference to being "just a worker". Whereas this type of description might be interpreted as low self-esteem in this case it was in the context of describing the social barriers between site leadership and worker. It is important to acknowledge this emotive state of the participant to correctly interpret and classify the articulated leadership characteristics. The unique perspective of the construction worker coupled with the difference of inexperienced engineers creates fertile ground for errant communication and divergent understandings.

A paradox has been observed regarding the proliferation of risk, despite increasingly stringent risk management efforts to demonstrate the inseparability of social and technical matters (Healy, 2004). The paradox referred to by Healy (2004) is consistent with the assertion that a difference exists between the intended meaning of leadership and the constructed meaning by the worker. Although the technical safety training for construction workers is comprehensive and prolific (risk management efforts) employee misconduct continues to be observed. Consistent with the findings of the current study it is reasonable to assert that human factors contribute to the paradox identified by Healy (2004).

Theme 2: Leadership approaches that influence safe behavior. One measure to determine leadership effectiveness is the ability of the leader to affect the behavior of followers. Providing a context such as safety conveys opportunity for a focused study into the leadership characteristics that alter behavior such that safety performance is improved. Through adding context the ambiguity of the term leadership is refined to specific characteristics that are more likely to influence behavior in such a way that workplace injuries are reduced. It is important to clarify that these approaches are inter-dependent and should be considered as such when specific leadership development is planned.

The participants articulated the notion that empowering is more than the assignment of responsibility but more importantly the consistent demonstration that the application of safe means and methods to a task is taught, encouraged, and expected. Specifically the participants asserted the connection of the feeling of self-confidence is central to the characteristic of empowerment. The construction worker must feel confident in his or her specific knowledge of

the correct safety approach and the desire of management to intervene in the event an unsafe condition or practice is observed.

Training of workers to perform high risk activities safely is required by law, enforced by regulatory agencies such as the Occupational Safety and Health Administration (OSHA), and routinely administered by construction organizations. This study suggests that the success of any safety training is best measured by the rise of the level of confidence experienced by the participant as opposed to the fulfillment of a regulatory requirement. Therefore while training content must meet a minimum criterion as defined by law, the quality of that training is dependent on the organization.

The study identified trust as another leadership characteristic as a key determinant of the ability to influence safe behavior. Although a majority of the participants identified trust as important there was significant difference among the participants in how a trust relationship is fostered. While this creates complexity in the design of a meaningful response by leadership, it also demonstrates the importance of dialog between leaders and followers.

The leader's ability to influence the safe behavior of the construction worker must go well beyond the regulatory minimum training requirements. This study suggests that while knowledge of what to do is important, it will have minimal effect on the behavior of the construction worker unless tactics that empower the worker accompanies it. Although this research identified several leadership traits vital to a successful intervention of behavior change, it also demonstrates the complexity of leader-follower interaction and offers some rationale why the reduction of injury in the construction workplace is difficult to realize.

Biggs et al. (2010) offered softer attributes of safety management that included visible and demonstrated leadership, collaborative work environment, and respect for the workers. Although it was acknowledged that leadership traits influenced safe behaviors, the traits were generally limited to superficial elements, such as managers wearing appropriate personal protective equipment when visiting construction sites (Biggs et al., 2010). The current study is in alignment with the assertion that leadership traits have the potential to influence behavior and surpasses the notion that this is limited to superficial leadership traits.

Theme 3: Followers-leadership reflective behavior. The research confirmed the construct that the leader-follower roles are dynamic insofar that a construction worker becomes aware of his or her leadership opportunities and obligation as a normal part of the construction process. The findings suggest that this is particularly the case with regard to safety and injury prevention. Reflective behavior implies the process of aligning values and feelings with cognitive processes. Looman (2003) characterized a reflective leader as one who is value-driven, intuitive, and able to link his or her cognitive processes with his or her emotional processes. Although the views expressed were more pragmatic than academic, the views clearly aligned with those advocated by Looman (2003). It is within this idea that the participants shared more value-based sub themes such as trustfulness, caring, the act of accountability, open mindedness, and collaborative decision-making. The participants articulated a desire to emulate the leadership attributes they found meaningful.

Participants described trustfulness as something that develops between leader and follower as competency and is demonstrated such that it can be accomplished without supervision. When this ideal is conceptualized on a continuum with trustfulness at one end the

opposite end could be characterized as micro-management. While this thought is common among leader-follower relationship it becomes central in the context of construction worker safety. It is therefore reasonable to assert that when leader-follower safety values are aligned, the leader is more likely to trust the worker to perform the assigned task safely. The follower is then likely to perform the task safely and appreciates the trust demonstrated by his or her leader.

While this concept seems both intuitive and reasonable there are several barriers that influence behavior such that injury occurs. The alignment of values is often accomplished by other than direct cognitive processes and therefore the potential for meaning to be interpreted incorrectly is great. For example the worker may feel trusted to work safely provided he or she meets other constraints such as time and budget. The participants identified that trust is crucial to a positive safety culture and is communicated by dialog and action. Because of the limitation of inferred and indirect communication (interpretation of leadership actions) it becomes vital that leadership consistently reinforces the expectations regarding safe behavior. Leaders that show concern for others often invoke a strong interpersonal connection between leader and follower (Derue, 2011). Whereas the link between demonstrated concern and strong interpersonal connection is logical and intuitive, the demonstration of concern is less dependent on the leaders actions than is the workers interpretation.

In the context of safety management is the influence of positivist philosophy in expressing the knowledge of method of accident prevention. Heinrich (1931), through a series of empirical observations, developed the Heinrich ratio. This simple assertion posits that less severe accidents have a constant ratio to severe and fatal accidents. This groundbreaking research resulted in a paradigm shift regarding the measurement and classification of accidents

as well as the development of prevention strategies. This research challenges the traditional assumptions regarding accident cause (e.g. lack of knowledge, unsafe conditions, etc.) insofar that emotional and non-cognitive factors that influence decision-making with regard to safe working practices were not previously considered to be a factor. The current study suggests specific leadership characteristics that have the potential to influence the construction worker's decisions regarding the adoption of safe work practices. Therefore leadership introduces a new variable that with the development of the Heinrich ratio was not considered.

Theme 4: Process of followership. The process of followership, specific to the study participant group, identifies how leadership attributes are interpreted and adopted by the construction worker. Derue et al. (2011) hypothesized that leadership traits affect outcomes not through behavior but how they are perceived. Central to this study was that the perspective of the construction worker be better understood and to identify possible variance between the intent of leadership and the interpretation of the construction worker. The research participants identified that when leaders are able to remind and encourage workers to embrace safe working practices, prior assumptions that might be barriers to safe performance are confronted. This active process on the part of leadership serves to bring particular knowledge regarding safe practices to a cognitive level for the worker.

Participants articulated that the communiqué of a leader need not be limited to what is said, but also followers interpret actions. In the event a leader does not respond to an unsafe act or condition and does respond to being behind schedule, it is reasonable for a follower to interpret that schedule is more important to the leader than working safely. Participants identified the need to demonstrate their practices to serve as an example for followers. The

importance of setting examples identified the role of senior workers and their obligation to set examples for the young apprentices. This observation by the participants identified a more holistic view of leadership and they did not limit the term *leader* to the organizational hierarchy.

The construction worker participants articulated that central to effective leadership is the ability to listen and learn. Participants stated that when leaders actively listen to them it is an act of respect for them personally and their craft. The implication of this observation is both intuitive and profound. Organizational leaders in the construction sector deal with a variety of constraints around resources such as time, material, manpower, logistics, and other stakeholder concerns. The construction worker understands this pressure, making the act of listening a meaningful gesture of respect that determines the leader's ability to influence behavior, and the worker's commitment to followership.

Loud (2012) articulated the distinction of safety system elements and behavior. A focus on human behavior might be fruitful with regard to the development of accident prevention strategies it can create confusion between management issues and psychological issues (Loud, 2012). The current study is consistent with the literature insofar that organizational leaders confront both system and psychological issues. Moreover the agreement with literature is supported with the assertion that the consideration of both system and human factors are essential to accident prevention.

Recommendations

The current study was an exploration of construction workers' experiences to determine how various leadership characteristics this specific population was interpreted. The recommendations for leadership are presented for the individual leader in the construction

industry and for organizations that aspire to increase the likelihood of safe behavior and decision-making that result in the reduction of workplace injury. Organizational recommendations are offered for organizations to consider both organizational structure and means and methods employed that support the creation of a positive and proactive safety culture. This section concludes with specific recommendations for additional research that can provide deeper insight and possible means for the reduction of workplace injury in the construction sector.

Recommendations for leadership. Looman (2003) asserted that for leaders to cope with an increasingly complex and volatile environment, they must integrate cognitive and emotional processing systems and function from a metacognitive perspective. The notion of working from a metacognitive perspective is consistent with the findings of this research. Although this study focuses on a particular population segment, the findings that leaders in the construction sector need to incorporate feelings with cognitive processes is verified through the mindset of the participant group interviewed in this research.

Although the term *reflective leadership* has academic reference and definition it remains relatively ambiguous as a strategic approach to leadership in the construction sector. One output of this study is to reduce the variability of interpreted meaning regarding leadership. The participants identified four thematic references, which can be crafted to identify recommendations and opportunities for leaders in the construction sector. It is important to acknowledge that this study focused specifically on the interpretation of leadership attributes by the construction worker. The context of this study was construction safety and how safe practices and behavior can be improved.

The specific recommendation for leaders in the construction sector is that there may be a significant difference between the intent of the leaders' message and the interpretation of that message by the construction worker. Although the focus of the study identified how leadership attributes are likely interpreted, leaders can benefit from an improved understanding of that interpretation. Through an improved understanding of how leadership efficacy influences behavior, the gap between intended meaning and constructed meaning might be reduced such that safe behavior becomes more prolific, and workplace injury is significantly reduced and potentially eliminated.

Organizational recommendations. A key element to organizational economic and social sustainability is the control of losses attributed to workplace injury. The two populations construction organizations need to affect to reduce workplace injury are operational leaders and the construction worker. Moreover, the contribution of human factors, specifically rationale for decision-making by the construction worker, have on accident causation should be considered by safety professionals. Especially in those cases where employee misconduct is determined as a root cause or major contributing cause, this research suggests that the leadership attributes should be considered as a potential remedy.

Curriculum development for leadership skills, safety skills, incident investigation, and accident prevention strategies should not be limited to empirical and quantitative data. The study identified the importance of leadership actions that resulted in how the worker interpreted them and how it made him or her feel. Empirical safety metrics, training, means, and methods continue to dominate the construction industry.

Organizations have opportunity to include the construction worker in safety strategy development in addition to implementation and deployment. The study identified the importance of trust and respect particularly in the construction industry. The inclusion of this employee segment could enhance strategy development, moreover it would likely contribute a great deal in the building of trust and respect between leader and follower.

Recommendations for further study. There is opportunity for both qualitative and quantitative studies that further the current study. The empirical method for tracking safety performance is longstanding which provides a robust inventory of historical information. Research that identifies the effects of specific leadership actions or inactions using the established metrics would provide organizations and leaders more focused insight that could result in targeted strategies to further reduce incident and injury.

The current study was limited to a relatively small group of participants. The participating organization is a large construction organization that has capacity to devote resources toward injury prevention. It remains unclear if similar participant response would be given if the safety culture at a specific project were confrontational or less constructive than what is experienced by the participating company. Another area for study would be to replicate a similar qualitative approach with a participating company that is less proactive with regard to safety and loss prevention. There is opportunity to develop a hypothesis with the identification of themes that could be crafted to form a basis for a meaningful quantitative analysis. Finally, this study did not consider or differentiate between union and non-union labor. The effect of organized labor on an organization's safety culture is another area for future study.

While there is opportunity for additional qualitative research and focused empirical study there exist prospect for a mixed method research design to add additional focus to this research topic. Case oriented analysis focuses on a selected case where the goal is to interpret the meanings and opinions of one person or a group (Onwuegbuzie, Johnson, & Collins, 2009). The existing study would be well served through a focused case oriented analysis examining a construction work team and how the derive meaning from leadership direction and dialog focusing specifically on the adoption of safe working practices.

Summary of the Findings

Chapter 5 contained a review of the research definition, method, and findings. The purpose, significance, and data analysis methods were reviewed resulting in the emergence of four general thematic labels, (a) characteristics of the operational leader in the construction industry, (b) leadership approaches that influence safe behavior, (c) followers-leadership reflective behavior, and (d) process of followership.

The results of the current study might help leaders in the construction industry to better understand how the construction worker interprets their actions. It is reasonable to infer that through an improved understanding, removing the variance of meaning a worker can construct, would better align behavior with the desired message.

Workplace injury in the construction sector continues to be a major financial burden on construction organizations and the toll of human suffering experienced by the worker is not quantifiable. The occupational health and safety administration continues to report that there are nearly 100,000 accidents per year that result in the worker loosing time from work due to injuries suffered. Although it is not reasonable to conclude that this study provides the solution to this

industry and social problem, however it might serve to promote a new approach beyond traditional empiricism and begin to explore how leadership can be more focused to align with this unique population, the construction worker.

Reflections

I have been a safety professional for over 30 years devoted to the prevention of harm to workers from the field level up through the ranks of senior leadership. Although the profession has changed over the years the aspiration continues to be the development of systems and means to reduce and ultimately eliminate harm to workers. As I began this doctoral journey my conception was that it would be similar to my past academic experience, that it have marginal relevance to the practical world, but it would provide a foundation from which to build.

In the past three and half years I found the classroom process to be structured with a clear direction from which to build knowledge, however the selection and delivery of a meaningful research project exceeded every personal expectation. I have often heard the claim that safety is very dependent upon leadership, however that term was not only ambiguous, its meaning was entirely dependent upon the receptor.

Through my research I found that leadership need not be a term lost in ambiguity, but rather it can have specific structure meaning and provide insight that may lead to the elimination of accidents and injury in the construction industry. Statistics tell us that nearly 100,000 workers annually are injured at construction projects in the United States so severe that they are not able to return to work the next day. Thousands are permanently disable, and nearly 1,000 workers are killed on construction sites in the United States. It is too easy to accept this as a necessity of business, especially since each one could have been prevented.

If I were asked to sum up my doctoral journey in one word it would be humility. Despite any personal and professional accolades I may receive, this journey has been a delightful revelation into what is possible.

References

Åge, L.-J. (2011). Grounded theory methodology: Positivism, hermeneutics, and pragmatism. *The Qualitative Report, 16*(6), 1599-1615.

Avolio, B. J. B. B. M. (1999). Re-examining the components of transformational and transactional leadership using the Multifactor Leadership Questionnaire. [Article]. *Journal of Occupational & Organizational Psychology, 72*(4), 441.

Baker, L. (2006). Ten common pitfalls to avoid when conducting qualitative research. *British Journal of Midwifery, 14*(9), 530-531.

Barczak, G., Lassk, F., & Mulki, J. (2010). Antecedents of team creativity: An examination of team emotional intelligence, team trust and collaborative culture. *Creativity & Innovation Management, 19*(4), 332-345. doi: 10.1111/j.1467-8691.2010.00574.x

Bass, B. M. (1997). Personal Selling And Transactional/ Transformational Leadership. [Article]. *Journal of Personal Selling & Sales Management, 17*(3), 19-28.

Bass, B. M., & Avolio, B. J. (1990). Multifactor Leadership Questionnaire. *MLQ*.

Bass, B. M., & Avolio, B. J. (1994). Introduction *Improving organizational effectiveness: Through transformational leadership* (pp. 1-9). Thousand Oaks, CA: Sage.

Bass, B. M. S. P. (1999). Ethics, character, and authentic transformational leadership behavior. [Article]. *Leadership Quarterly, 10*(2), 181.

Biggs, H. C., Dingsdag, D. P., Kirk, P. J., & Cipolla, D. (2010). Safety culture research, lead indicators, and the development of safety effectiveness indicators in the construction sector. *International Journal of Technology, Knowledge & Society, 6*(3), 133-140.

Black, D. D., Hull, M. E. C., & Jackson, K. (2011). Systems engineering and safety - a framework. *IET Software, 5*(1), 43-53. doi: 10.1049/iet-sen.2009.0082

Bono, J. E., & Judge, T. A. (2004). Personality and transformational and transactional leadership: A meta-analysis. *Journal of Applied Psychology, 89*(5), 901-910. doi: 10.1037/0021-9010.89.5.901

Burns, J. M. (1978). Transactional and transforming leadership. In J. T. Wren (Ed.), *The leaders companion: Insights on leadership through the ages* (pp. 100-101). New York: The Free Press.

Camplin, J. C. (2011). Aligning safety & social responsibility. *Professional Safety, 56*(5), 46-55.

Choudhry, R. M., Dongping, F., & Lingard, H. (2009). Measuring safety climate of a construction company. *Journal of Construction Engineering & Management, 135*(9), 890-899. doi: 10.1061/(asce)co.1943-7862.0000063

Christensen, L. B., Johnson, R. B., & Turner, L. (2010). *Research methods, design, and analysis* (11 ed.). Boston, MA: Allyn & Bacon.

Colombo, M. G., Delmastro, M., & Rabbiosi, L. (2007). High performance work practices, decentralization, and profitability: Evidence from panel data. *Industrial & Corporate Change, 16*(6), 1037-1067.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed method approaches* (3rd ed.). Thousand Oaks, CA: Sage Publications Inc.

Derue, D. S., Nahrgang, J. D., Wellman, N. E. D., & Humphrey, S. E. (2011). Trait and behavioral theories of leadership: An integration and meta-analytic test of their relative validity. *Personnel Psychology, 64*(1), 7-52. doi: 10.1111/j.1744-6570.2010.01201.x

DiCicco-Bloom, B., & Crabtree, B. F. (2006). The qualitative research interview. *Medical Education* Retrieved 4, 40, from http://search.ebscohost.com/login.aspx?direct=true&db=rzh&AN=2009353964&site=ehost-live

Doytchev, D., & Hibberd, R. E. (2009). Organizational learning and safety in design: Experiences from German industry. *Journal of Risk Research, 12*(3/4), 295-312. doi: 10.1080/13669870802604307

Drennan, F. S. R. D. (2012). Skills-based leadership: The first-line supervisor part I. *Professional Safety, 57*(2), 59.

Eckenfelder, D. J. (2000). Safety culture enrichment: Why take the circle route? *Professional Safety, 45*(5), 42.

Eckhardt, B. (2003). Reevaluating the incident pyramid. *Concrete Products, 106*(5), 38.

Falconer, L. (2002). Management decision-making relating to occupational risks: the role of 'grey data'. *Journal of Risk Research, 5*(1), 23-33. doi: 10.1080/13669870010011449

Fisher, W. P., & Stenner, A. J. (2011). Integrating qualitative and quantitative research approaches via the phenomenological method. *International Journal of Multiple Research Approaches, 5*(1), 89-103. Retrieved from http://search.proquest.com/docview/872088083?accountid=35812

Galan, J. I., & Sanchez-Bueno, M. J. (2009). The continuing validity of the strategy-structure nexus: new findings, 1993–2003. *Strategic Management Journal, 30*(11), 1234-1243.

Gallivan, S., Taxis, K., Dean Franklin, B., & Barber, N. (2008). Is the principle of a stable Heinrich ratio a myth? A multimethod analysis. *Drug Safety: An International Journal Of Medical Toxicology And Drug Experience, 31*(8), 637-642.

Gangwar, M., & Goodrum, P. (2005). The effect of time on safety incentive programs in the US construction industry. [Article]. *Construction Management & Economics, 23*(8), 851-859. doi: 10.1080/01446190500184527

Gibbs, E., & DeLoach, J. (2006). Which comes first: Managing risk or strategy-setting? Both! *Financial Executive, 22*(1), 34-39.

Gillen, M., Kools, S., Sum, J., McCall, C., & Moulden, K. (2004). Construction workers' perceptions of management safety practices: a qualitative investigation. *Work, 23*(3), 245-256.

Gilmore, B. (2009). Decreasing organizational design failure: Organizational and leadership boundary spanning. *Organization Development Journal, 27*(2), 97-105.

Giorgi, A. (2006). Concerning variations in the application of the phenomenological method. *Humanistic Psychologist, 34*(4), 305-319. doi: 10.1207/s15473333thp3404_2

Girogi, A. (1997). The theory, practice, and evaluation of the phenomenological method as a qualitative research procedure. *Journal of Phenomenological Psychology, 28*(2), 26. Retrieved from http://search.proquest.com.ezproxy.apollolibrary.com/docview/211498419?accountid=35812

Hallowell, M. (2010). Safety risk perception in construction companies in the pacific northwest of the USA. *Construction Management & Economics, 28*(4), 403-413. doi: 10.1080/01446191003587752

Hallowell, M. R., & Gambatese, J. A. (2009). Activity-based safety risk quantification for concrete formwork construction. *Journal of Construction Engineering & Management, 135*(10), 990-998. doi: 10.1061/(asce)co.1943-7862.0000071

Hay, C. (2007). *Does ontology trump epistemology? Notes on directional dependence of ontology and epistemology in political analysis* (Vol. 27). Birmingham: Political Studies Association.

Healy, S. (2004). A 'post-foundational' interpretation of risk: risk as 'performance'. *Journal of Risk Research, 7*(3), 277-296.

Heinrich, H. W. (1931). *Industrial accident prevention: A scientific approach* (1st ed.). New York and London: McGraw-Hill Insurance Series.

Hirschfeld, R. R., Jordan, M. H., Thomas, C. H., & Feild, H. S. (2008). Observed leadership potential of personnel in a team setting: Big five traits and proximal factors as predictors. *International Journal of Selection & Assessment, 16*(4), 385-402. doi: 10.1111/j.1468-2389.2008.00443.x

Huang, X., & Hinze, J. (2003). Analysis of construction worker fall accidents. *Journal of Construction Engineering & Management, 129*(3), 262.

Johnson, P., & Duberly, J. (2000). *Understandiing management research: An introduction to epistemology*. London: Sage Publications Ltd.

Krause, T. R. W. T. (2005). Safety leadership: A four-factor model for establishing a high-functioning organization. *Professional Safety, 50*(11), 34.

Krumwiede, D., Hackert, A. M., Tokle, J., & Vokurka, R. J. (2012). The practice of corporate social responsibility in different countries: A study of firms in Canada, Hungary, Italy, Lebanon, Taiwan and the United States. *International Journal of Management, 29*(1), 389-402.

Kuhn, T. S. (1996). *The Structure of Scientific Revolutions* (Third ed.). Chicago, IL: The University of Chicago Press.

Kulchartchai, O., & Hadikusumo, B. H. W. (2010). Exploratory study of obstacles in safety culture development in the construction industry: A grounded theory approach. *Journal of Construction in Developing Countries, 15*(1), 45-66.

Lauver, K. J. L., & Quinn Trank, C. (2008). Safety and organizational design factors: Decentralization, alignment, and influence. *Academy of Management Annual Meeting Proceedings*, 1-6. doi: 10.5465/ambpp.2008.33662643

Lingard, H. C., Cooke, T., & Blismas, N. (2010). Properties of group safety climate in construction: The development and evaluation of a typology. *Construction Management & Economics, 28*(10), 1099-1112. doi: 10.1080/01446193.2010.501807

Looman, M. D. (2003). Reflective leadership: Strategic planning from the heart and soul. *Consulting Psychology Journal: Practice and Research, 55*(4), 215-221. doi: 10.1037/1061-4087.55.4.215

Loud, J. (2012). Taking safety seriously: A contrarian view of the safety practice. *Professional Safety, 57*(3), 55.

McGrath, R. G. (2011). Failing by design. *Harvard Business Review, 89*(4), 76-83.

McGuire, C. (2012). The cost of occupational injuries and illness. *Safety Compliance Letter*(2535), 1-4.

Michaels, D., OhD, MPH. (2011). Statement of Dr. David Michaels, PhD, MPH, Assistent Secretary Occupational Safety and Health Administration US Department of Labor Before the Committee on Oversight and Government Reform Retrieved March 21, 2011

Mitropoulos, P., & Cupido, G. (2009). Safety as an emergent property: Investigation into the work practices of high-reliability framing crews. *Journal of Construction Engineering & Management, 135*(5), 407-415. doi: 10.1061/(asce)co.1943-7862.0000002

Molenaar, K. R., Park, J.-I., & Washington, S. (2009). Framework for measuring corporate safety culture and its impact on construction safety performance. *Journal of Construction Engineering & Management, 135*(6), 488-496. doi: 10.1061/(asce)0733-9364(2009)135:6(488)

Moran, R. E. (2012). Workplace safety and health: Better OSHA guidance needed on safety incentive programs. *GAO Reports*, 1.

Moret, M., Reuzel, R., Wilt, G. J. v. d., & Grin, J. (2007). Validity and reliability of qualitative data analysis: Interobservor agreement in reconstructing interpretative frames. *Sage Journals, 19*(1), 24-39. doi: 10.1177/1525822X06295630

Mosley, C., & Matviuk, S. (2010). Impact of leadership on identifying right organizational designs for turbulent Ttimes. *IUP Journal of Soft Skills, 4*(1/2), 57-67.

Nash, J. (2008). Preventing death on the job did Heinrich get it wrong? *Industrial Safety & Hygiene News, 42*(11), 18-18.

Onwuegbuzie, A. J., Johnson, R. B., & Collins, K. M. T. (2009). Call for mixed analysis: A philosophical framework for combining qualitative and quantitative approaches. International Journal of Multiple Research Approaches, 3(2), 114-139.

OSHA. (2013). Commonly used statistics Retrieved Feb, 2013, from http://www.osha.gov/oshstats/commonstats.html

OSHA. (2006). OSHA record keeping handbook: The regulation and related interpretations for recording and reporting occupational injuries and illnesses. In OSHA (Ed.), (Vol. OSHA 3245-09R 2005): U.S. Department of Labor.

Peloza, J., & Shang, J. (2011). How can corporate social responsibility activities create value for stakeholders? A systematic review. *Journal of the Academy of Marketing Science, 39*(1), 117-135. doi: 10.1007/s11747-010-0213-6

Pope, C., Ziebland, S., & Mays, N. (2000). Analyzing qualitative data. *British Medical Journal, 320*(7227), 114-116.

Roberge, J. (2011). What is critical hermeneutics?Thesis Eleven (pp. 18): SAGE. Retrieved from http://the.sagepub.com/content/106/1/5.abstract. doi: 10.1177/0725513611411682

Robertson, G. (2004). A business case for safety. *Canadian Manager, 29*(1), 24.

Rumrill, P. D., Fitzgerald, S. M., & Merchant, W. R. (2010). Using scoping literature reviews as a means of understanding and interpreting existing literature. *Work, 35*(3), 399-404. doi: 10.3233/wor-2010-0998

Serrant-Green, L. (2007). Ethnographic research. *Nurse Researcher, 14*(3), 4-6.

Shin-Tien, C., & Bao-Guang, C. (2012). The effects of absorptive capacity and decision speed on organizational innovation: A study of organizational structure as an antecedent variable. [Article]. *Contemporary Management Research, 8*(1), 27-50.

Simonds, R. H. (1951). Estimating industrial accident costs. *Harvard Business Review, 29*(1), 107-118.

Sivanathan, N., Turner, N., & Barling, J. (2005). *Effects of transformational leadership training on employee safety performance: A quasi-experiment study*. Proceeding. Academy of Management. Retrieved from https://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=18780756&site=eds-live

Skipper, C. O., & Bell, L. C. (2008). Leadership development and succession planning. *Leadership & Management in Engineering, 8*(2), 77-84. doi: 10.1061/(asce)1532-6748(2008)8:2(77)

Suraji, A., Sulaiman, K., Mahyuddin, N., & Mohamed, O. (2006). Rethinking construction safety: An introduction to total safety management. *Journal of Construction Research, 7*(1/2), 49-63.

U.S. dol. (2014). The occupational safety and health act. Retrieved 2014, 2014, from http://www.dol.gov/compliance/laws/comp-osha.htm - overview

van Eeden, R., Cilliers, F., & van Deventer, V. (2008). Leadership styles and associated personality traits: Support for the conceptualisation of transactional and transformational leadership. *South African Journal of Psychology, 38*(2), 253-267.

Vishnevsky, T., & Beanlands, H. (2004). Interpreting research in nephrology nursing: Qualitative research. *Nephrology Nursing Journal, 31*(2), 234 - 238.

Waehrer, G. M., Dong, X. S., Miller, T., Haile, E., & Men, Y. (2007). Costs of occupational injuries in construction in the United States. *Accident Analysis and Prevention, 39*(6), 1258-1266.

Wager, L. W. (1965). Leadership style, hierarchical influence, and supervisory role obligations. *Administrative Science Quarterly, 9,* 391-420.

Willard, M. (2009). Three construction companies: Share best practices in safety. *Buildings, 103*(2), 48.

Yarlagadda, M. B., Raju, U. B., & Raju, A. V. S. R. (2010). Occupational safety and health policy: A tool for improving working conditions of an organization. *CURIE Journal, 3*(3/4), 1-9.

Zou, P. X. W. (2011). Fostering a strong construction safety culture. *Leadership & Management in Engineering, 11*(1), 11-22. doi: 10.1061/(asce)lm.1943-5630.0000093

Žydžiumaite, V. (2007). Methodological considerations: Sequential linking of qualitative and quantitative research. *Social Sciences (1392-0758), 55*(1), 7-14.

Appendix A: Certificate of Originality

CERTIFICATE OF ORIGINALITY

I certify that the attached paper is my original work. I am familiar with and acknowledge my responsibilities, which are part of the University of Phoenix Student Code of Academic Integrity. I affirm that any section of the paper which has been submitted previously is attributed and cited as such, and that this paper has not been submitted by anyone else. I have identified the sources of all information whether quoted verbatim or paraphrased, all images, and all quotations with citations and reference listings. Along with citations and reference listings, I have used quotation marks to identify quotations of fewer than 40 words and have used block indentation for quotations of 40 or more words. Nothing in this assignment violates copyright, trademark, or other intellectual property laws. I further agree that my name typed on the line below is intended to have, and shall have, the same validity as my handwritten signature.

Student's signature (name typed here is equivalent to a signature):

Hendrik van Brenk

Appendix B: CITI Completion Report

CITI Collaborative Institutional Training Initiative

Human Research Curriculum Completion Report
Printed on 2/3/2013

Learner: Hendrik van Brenk (username: Van1951)
Institution: University of Phoenix
Contact Information 851 Hardage Farm Drive
Marietta, GA 30064 United States
Department: SAS
Phone: 404 734 6427
Email: hendrik@vanbrenk.us

Group 1.Social / Behavioral Research Investigator and Key Personnel.:
Complete all required modules. Complete optional modules if they pertain to your research activities.

Stage 1. Basic Course Passed on 02/03/13 (Ref # 9639137)

Required Modules	Date Completed	Score
Introduction	01/31/13	no quiz
History and Ethical Principles - SBR	01/31/13	4/5 (80%)
Defining Research with Human Subjects - SBR	02/02/13	4/5 (80%)
The Regulations and The Social and Behavioral Sciences - SBR	02/02/13	4/5 (80%)
Assessing Risk in Social and Behavioral Sciences - SBR	02/02/13	4/5 (80%)
Informed Consent - SBR	02/02/13	5/5 (100%)
Privacy and Confidentiality - SBR	02/02/13	5/5 (100%)
Vulnerable Subjects - Research Involving Workers/Employees	02/03/13	4/4 (100%)
University of Phoenix	02/03/13	no quiz

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI participating institution. Falsified information and unauthorized use of the CITI course site is unethical, and may be considered scientific misconduct by your institution.

Paul Braunschweiger Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Course Coordinator

Return

Appendix C: Confidentiality Statement

University of Phoenix®

Exploring How Construction Workers Interpret the Efficacy of Leadership Traits

A Phenomenological Study

CONFIDENTIALITY STATEMENT

As a researcher working on the above research study at the University of Phoenix, I understand that I must maintain the confidentiality of all information concerning all research participants as required by law. Only the University of Phoenix Institutional Review Board may have access to this information. "Confidential Information" of participants includes but is not limited to: names, characteristics, or other identifying information, questionnaire scores, ratings, incidental comments, other information accrued either directly or indirectly through contact with any participant, and/or any other information that by its nature would be considered confidential. In order to maintain the confidentiality of the information, I hereby agree to refrain from discussing or disclosing any Confidential Information regarding research participants, to any individual who is not part of the above research study or in need of the information for the expressed purposes on the research program. This includes having a conversation regarding the research project or its participants in a place where such a discussion might be overheard; or discussing any Confidential Information in a way that would allow an unauthorized person to associate (either correctly or incorrectly) an identity with such information. I further agree to store research records whether paper, electronic or otherwise in a secure locked location under my direct control or with appropriate safe guards. I hereby further agree that if I have to use the services of a third party to assist in the research study, who will potentially have access to any Confidential Information of participants, that I will enter into an agreement with said third party prior to using any of the services, which shall provide at a minimum the confidential obligations set forth herein. I agree that I will immediately report any known or suspected breach of this confidentiality statement regarding the above research project to the University of Phoenix, Institutional Review Board.

Signature of Researcher	Hendrik J. van Brenk Printed Name	Feb 4, 2013 Date
Signature of Witness	Jessica Vann Printed Name	Feb 4, 2013 Date

Current version 032012

Appendix D: Informed Consent Construction Worker

University of Phoenix®

INFORMED CONSENT: PARTICIPANTS 18 YEARS OF AGE AND OLDER

Dear Worker Participant,
My name is Hendrik van Brenk and I am a student at the University of Phoenix working on a Doctor of Management degree. I am doing a research study entitled *"Exploring How Construction Workers Interpret the Efficacy of Leadership Traits"*. The purpose of the research study is to gain a better understanding of the influence that specific leadership behaviors have in building a positive and proactive safety culture.

Your participation will involve a one on one interview anticipated to last from 60 to 90 minutes, where you will be asked to discuss aspects of leadership and safety practices you experience at this project. The interview will be recorded and transcribed and included in this study. You will be on of the three participants at this project site and you identity will be protected and remain confidential.You can decide to be a part of this study or not. Once you start, you can withdraw from the study at any time without any penalty or loss of benefits. The results of the research study may be published but your identity will remain confidential and your name will not be made known to any outside party.

In this research, there are no foreseeable risks to you.

Although there may be no direct benefit to you, a possible benefit from your being part of this study is that organizations may gain insight as to means and methods that will make construction sites safety. Through a better understanding of how leaders actions are interpreted by you the construction worker, a better and more meaningful dialog may be created that results in progress toward an injury free work place.

If you have any questions about the research study, please call me at (404) 734-6427 or email me at Hendrik.vanbrenk@skanska.com. For questions about your rights as a study participant, or any concerns or complaints, please contact the University of Phoenix Institutional Review Board via email at IRB@phoenix.edu.

As a participant in this study, you should understand the following:

1. You may decide not to be part of this study or you may want to withdraw from the study at any time. If you want to withdraw, you can do so without any problems.
2. Your identity will be kept confidential
3. Hendrik van Brenk, the researcher has fully explained the nature of the research study and has answered all of your questions and concerns.
4. If interviews are done, they may be recorded. If they are recorded, you must give permission for the researcher, Hendrik van Brenk, to record the interviews. You understand that the information from the recorded interviews may be transcribed. The researcher will develop a way to code the data to assure that your name is protected.
5. Data will be kept in a secure and locked area. The data will be kept for three years, and then destroyed.
6. The results of this study may be published.

"By signing this form, you agree that you understand the nature of the study, the possible risks to you as a participant, and how your identity will be kept confidential. When you sign this form, this means that you are 18 years old or older and that you give your permission to volunteer as a participant in the study that is described here."

(☐) I accept the above terms. (☐) I do not accept the above terms. (CHECK ONE)

Signature of the interviewee _____ Date _____

Signature of the researcher _____ Date _____

Appendix E: Informed Consent Leader

INFORMED CONSENT: PARTICIPANTS 18 YEARS OF AGE AND OLDER

Dear Leader Participant,
My name is Hendrik van Brenk and I am a student at the University of Phoenix working on a Doctor of Management degree. I am doing a research study entitled *"Exploring How Construction Workers Interpret the Efficacy of Leadership Traits"*. The purpose of the research study is to gain a better understanding of the influence that specific leadership behaviors have in building a positive and proactive safety culture.

Your participation will involve taking an online survey called the multifactor leadership questionnaire, where you will be asked to discuss aspects of your leadership styles and behaviors. The results of the survey will remain confidential, and you may elect to review the results prior to inclusion in the research. You will be one of 50-70 leaders participating and your identity will be protected and remain confidential. You can decide to be a part of this study or not. Once you start, you can withdraw from the study at any time without any penalty or loss of benefits. The results of the research study may be published but your identity will remain confidential and your name will not be made known to any outside party.

In this research, there are no foreseeable risks to you.

Although there may be no direct benefit to you, a possible benefit from your being part of this study is that organizations may gain insight as to means and methods that will make construction sites safety. Through a better understanding of how leaders actions are interpreted by the construction worker, a better and more meaningful dialog may be created that results in progress toward an injury free work place.

If you have any questions about the research study, please call me at (404) 734-6427 or email me at Hendrik.vanbrenk@skanska.com. For questions about your rights as a study participant, or any concerns or complaints, please contact the University of Phoenix Institutional Review Board via email at IRB@phoenix.edu.

As a participant in this study, you should understand the following:

1. You may decide not to be part of this study or you may want to withdraw from the study at any time. If you want to withdraw, you can do so without any problems.
2. Your identity will be kept confidential
3. Hendrik van Brenk, the researcher has fully explained the nature of the research study and has answered all of your questions and concerns.
4. If interviews are done, they may be recorded. If they are recorded, you must give permission for the researcher, Hendrik van Brenk, to record the interviews. You understand that the information from the recorded interviews may be transcribed. The researcher will develop a way to code the data to assure that your name is protected.
5. Data will be kept in a secure and locked area. The data will be kept for three years, and then destroyed.
6. The results of this study may be published.

"By signing this form, you agree that you understand the nature of the study, the possible risks to you as a participant, and how your identity will be kept confidential. When you sign this form, this means that you are 18 years old or older and that you give your permission to volunteer as a participant in the study that is described here."

(☐) I accept the above terms. (☐) I do not accept the above terms. (CHECK ONE)

Signature of the interviewee _____ Date _____

Appendix F: IRB Approval

2/20/2014

Dear **Hendrick Van Brenk**:

The role of the University of Phoenix Institutional Review Board (IRB) is to review research studies proposed by students, faculty and others to determine compliance with federally mandated regulations and local requirements regarding protection of human subjects in research studies conducted in accordance with University policies. Your IRB Application for the research study titled Exploring **How Construction Workers Interpret the Efficacy of Leadership Traits** was recently reviewed by the Board. I am pleased to confirm that the Board has determined your IRB Application is approved and your study is determined to be exempt. This means you may proceed with data collection.

Please understand that this approval is subject to the following:

1. The approval is valid for one year from the date of this communication. If your research study is not completed by one year from the date of this communication, the approval will expire and you must resubmit a completed “Request for IRB Time Extension” form and an updated copy of your IRB Application. These should be submitted to the Dissertation Process Liaison for the School of Advanced Studies through SAS Web.

2. IRB approval for your research study is based upon the information you provided in your IRB Application. If any aspects of your research study change significantly (such as a change in scope, data collection sites, etc.), you must notify the Board of the changes and request approval for continuance of the research under the new conditions. This can be done through the “IRB Change Request for Previously Approved Study” form. Please consult with

your Dissertation Chair if you have a question as to whether a change you have made requires Board review and approval.

3. Any conditions that may be associated with this approval decision must be satisfied before data collection commences. Notification of fulfillment of conditions to the Board is required and Board concurrence is expected. Notification may be done by contacting the Board at: IRB@phoenix.edu.

4. Please retain this communication as documentation of IRB approval of your study.

5. Any conflict of interest that may occur with regard to your study or your role as the primary researcher must be reported promptly to the IRB.

6. Permission to use published surveys, materials, private databases, or other records must have the explicit approval of the author/owner.

7. Any tape recording associated with data collection must be explicitly stated as part of the Informed Consent to which subjects must agree.

8. Individual identity protection must be maintained and separation of Informed Consent from the primary data collection instrument is required.

If you have any questions about human subject protection in research, please refer to the CITI web site (www.citiprogram.org) or contact the University of Phoenix IRB at IRB@phoenix.edu. Best wishes for the successful completion of your study.

Sincerely,

Dissertation Services
School of Advanced Studies | 1625 W. Fountainhead Pkwy. | Tempe, AZ 85282-2371
Mail Stop: CF-S909 | direct: 602.387.2763 | fax 602.383-2667
email: dissertationservices@phoenix,edu

Appendix G: Permission to Use Premises

University of Phoenix®

PREMISES, RECRUITMENT AND NAME (PRN) USE PERMISSION

Permission for all projects and offices in the United States managed by

Skanska USA Building

Please complete the following by check marking any permissions listed here that you approve, and please provide your signature, title, date, and organizational information below. If you have any questions or concerns about this research study, please contact the University of Phoenix Institutional Review Board via email at IRB@phoenix.edu.

x I hereby authorize Hendrik van Brenk, a student of University of Phoenix, to use the premises (of all construction sites and offices in the United States managed by Skanska USA Building) to conduct a study entitled "The influence of leadership on construction safety: A qualitative investigation to understand how construction workers interpret the efficacy of leadership traits on construction safety".

x I hereby authorize Hendrik van Brenk, a student of University of Phoenix, to recruit subjects for participation in a conduct a study entitled "The influence of leadership on construction safety: A qualitative investigation to understand how construction workers interpret the efficacy of leadership traits on construction safety".

x I hereby authorize Hendrik van Brenk, a student of University of Phoenix, to use the name of the facility, organization, university, institution, or association identified above when publishing results from the study entitled "The influence of leadership on construction safety: A qualitative investigation to understand how construction workers interpret the efficacy of leadership traits on construction safety"

Signature

2/1/2013

Date

Mike McNally

President & CEO
Skanska USA Inc
www.skanska.com

Address of Facility
All Offices and Construction Sites managed by Skanska USA Building

Appendix H: Permission to Use Survey

www.mindgarden.com

To whom it may concern,

This letter is to grant permission for the above named person to use the following copyright material for his/her research:

Instrument: ***Multifactor Leadership Questionnaire***

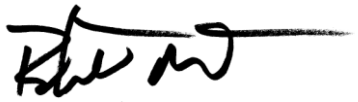
Authors: ***Bruce Avolio and Bernard Bass***

Copyright: ***1995 by Bruce Avolio and Bernard Bass***

Five sample items from this instrument may be reproduced for inclusion in a proposal, thesis, or dissertation.

The entire instrument may not be included or reproduced at any time in any published material.

Sincerely,



Robert Most
Mind Garden, Inc.
www.mindgarden.com