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Safety Professional Perceptions of Executive Leadership Interventions on Safety Culture

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Abstract

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by

Tamara Walters

MS, Eastern Kentucky University, 2010

BS, West Chester University, 2006

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Management

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Abstract

Nearly 20 employees are killed and 20,000 injured in the United States each day, with a contributing cause in nearly all being unsafe behavior. Unsafe behaviors are the result of a negative organizational safety culture, which includes the attitudes and beliefs toward safety transmitted from executives and front-line leaders to shop floor employees. While previous research indicated that front-line leaders have great impact on employee's perception of safety culture, how executives impact the development of safety culture was less understood. The theory of planned behavior and social exchange theory were used in this descriptive phenomenological research study to address the research question associated with the lived experience of safety professionals observing the development of safety culture in their organization, as impacted by the interventions of executives. Participants were purposefully selected based on criteria for professional experience, time with their current organization, and their affiliation with professional safety organizations. Semistructured interviews were conducted, transcripts created, and hand-coding was employed to identify trends in responses. Emergent themes identified the most impactful methods employed by executives to drive the development of a positive safety culture; engagement, trust, ownership, and integration. The social change that this research can drive is an improvement in safety culture, leading to an increase in safe behaviors and a reduction in occupational deaths and injuries. The practical application of this study to the safety profession is to help guide executives on the most appropriate actions to take to improve safety culture and injury reduction in their organization through the demonstration of engagement, trust, ownership and integration.

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Dedication

To my children, Bella and Colby, who kept the family functioning while I worked on this dissertation, albeit a few dirty dishes in the sink and an overflowing laundry hamper; I love you forever and always.

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Chapter 1: Introduction to the Study

Nearly 5,000 employees die each year in the United States as the result of occupational injury. Approximately 88% of occupational injuries are associated with unsafe behaviors which are a result of the safety culture that has developed within the organization through the interactions, messages and expectations of the organization. It has long been identified that management plays a role in the development of safety culture. The most consistent demonstration of safety culture comes from the relationship with an employee's direct manager (Kozlowski & Doherty, 1989). However, organizations struggle with ensuring that the safety culture of the executive leadership team is conveyed to shop for employees through their front-line supervisor (Antonsen, 2009). This is vital, as senior managers set the tone for safety culture within their organizations (Pilbeam, Doherty, Davidson, & Denyer, 2016). Research into the interventions employed by management to improve safety culture is necessary (Bronkhorst, Tummers, & Steijn, 2018).

I investigated the interventions employed by executive leaders in organizations, as perceived by safety professionals supporting the organization, in order to identify effective interventions for developing a positive organizational safety culture. Through this research, I identified effective interventions that can be employed by executives in order to build a positive safety culture for their organization, reduce unsafe behaviors and reduce occupational injury and death, resulting in improvements for employees and the general economy.

This chapter will include a brief summary of existing literature on the topic, the gap that my proposed study addressed, the research problem, the purpose of the study, research questions. The chapter will also include the theoretical framework for the study, the rationale for the design of the study and the methodology to be employed, definitions, assumptions, the scope of the study, transferability, limitations, professional application of the research and the positive social change that it may drive.

Background of the Study

Historical research and current research continue to reinforce that a contributing cause in nearly all occupational injuries is unsafe behavior (Goh, Ubeynarayana, Wong, & Guo, 2018). In many cases, this unsafe behavior is noncompliance with safety procedures (Dahl & Olsen, 2013). Employee safety behavior is influenced by an organization's safety culture, which is based on the organization's values and beliefs regarding safety (Choudhry, Fang, & Mohamed, 2007) and exhibited in the behaviors of employees (Brettel, Chomik, & Flatten, 2015). If safety is perceived as a value by management and upheld, employees will reduce unsafe behaviors and perform work with safety in mind, reducing injuries (Zacharatos, Barling, & Iverson, 2005).

The relationship between the front-line employee and their direct supervisor drives employee behaviors (Kapp, 2012). Supervisors who place greater value on safety experience greater compliance, while those who place lower value on safety experience lower levels of compliance (Kapp, 2012). Pilbeam et al. (2016) found that the relationship between the front-line supervisor and his/her direct reports has been studied, while other leadership relationships, such as senior managers, that set the tone for safety

culture within their organizations, need to be investigated. Where studies on senior managers and their commitment to safety culture have been conducted, limitations still exist. Fruhen, Mearns, Flin, and Kirwan (2014) conducted a study after previous research indicated that senior leaders had significant influence on safety culture but did not explain which characteristics of the senior leader had the greatest effect. Fruhen et al. (2014) indicated characteristics of senior leaders that were key to influencing safety among air traffic management companies. Transferability was limited in this study because the study indicated attributes, not specific actions that were most beneficial at improving safety culture. Biggs, Banks, Davey, and Freeman (2013) found that leadership and visibility of senior leaders was the primary, effective means to implementing a positive safety culture in the Australian construction industry. This study showed the need for additional research to determine if the findings were applicable outside of Australia and outside of the construction industry.

In addition to addressing the issues of transferability and generalizability associated with previous studies, future research is needed to address limitations or recommendations from previous research. One such application of a recommendation includes the review of the attitude and commitment of the senior leader as observed by their organization's safety professional. This is in alignment with Fruhen et al. (2014), who suggested researching the perception of safety culture through the views of other employees in the organizational hierarchy. Bronkhorst et al. (2018) indicated significant improvement in the perception of senior management priority of safety after conducting walk arounds on the shop floor. However, the study was unable to identify which

intervention at which hierarchical level had the greatest effect on safety culture improvement. "Future studies could try to develop intervention studies using various treatment arms to disentangle individual effects and fruitful combinations." (Bronkhorst et al., 2018, p.28).

Recommendations for future research also originated from the Gravina, Cummins, and Austin (2017) study and the Engemann and Scott (2018) study. These studies showed that senior leaders have been found to use dynamic or *on the fly* leadership methods (Gravina et al., 2017), which raise concerns about leaders' interventions on safety culture and the implications of those interventions on safety behaviors and work-related accidents (Engemann & Scott, 2018). Bronkhorst et al. (2018) also identified a limitation of the study that there was no qualitative data collected on the interventions to understand the why and the how of the effectiveness of the intervention, which was addressed in this research.

In this study, I addressed the recommendations of Engemann and Scott (2018), Bronkhorst et al. (2018), Gravina et al. (2017) and Fruhen et al. (2014) as well as address the generalizability issues associated with the Fruhen et al. (2014) and the Biggs et al. (2013) studies. I examined which characteristics, at the senior manager organizational levels, have been observed by the organization's safety professional as having the greatest impact on the development of safety culture. The research is necessary to address recommendations and limitations in previous studies in order to improve employee safety behaviors through the development of a positive safety culture, reducing occupational death and injury.

Problem Statement

Each year United States occupational accidents result in the death of more than 4,600 individuals and the serious injury of nearly 5 million more (Hofmann, Burke, & Zohar, 2017). These injuries result in hardships to the family of the employee and to the economy as nearly $50 billion dollars is spent on direct medical costs alone (Marucci-Wellman et al., 2015). The general problem is that a contributing cause in nearly 88% of occupational incidents is unsafe behavior (Goh et al., 2018) affected by the attitudes and beliefs toward safety due to a lack of management commitment to maintaining a positive safety culture (Zhang et al., 2018). Conversely, if safety is perceived as a value by management and upheld, employees will perform work with safety in mind, reducing injuries (Zacharatos et al., 2005).

The specific management problem is that when executives use dynamic or on the fly leadership methods (Gravina et al., 2017), concerns are raised about leaders' interventions on safety culture and the implications of those interventions on safety behaviors and work-related accidents (Engemann & Scott, 2018). Bronkhorst et al. (2018) identified the need for a study of interventions employed by management to improve safety culture.

Purpose of the Study

The purpose of this qualitative descriptive phenomenological research study was to describe the effectiveness of executive interventions on the safety culture within their organizations, as perceived by safety professionals. A greater understanding of how safety professionals perceive executive interventions, such as words, actions, or voice,

may allow for improved development of training. The training could encourage executives to practice interventions that foster a positive safety culture that reduces occupational death and injury. I asked safety professionals to describe the interventions that have been employed by executives in their organization and their perception of the effectiveness of such interventions on the safety culture and voice of the organization. My intent was to capture the lived experience of the safety professionals, as identified by Giorgi (2009).

Research Questions

The purpose of this descriptive phenomenological research study was to describe the effectiveness of executive interventions on the safety culture within their organizations, as perceived by safety professionals. The central research question (RQ) was:

RQ: What are the lived experiences of safety professionals observing the development of safety culture in their organization as impacted by the interventions of executives?

Theoretical Foundation

I situated this study between the gaps identified by Pilbeam et al. (2016) and Fruhen et al. (2013) by describing the lived experience of the safety professional as safety culture develops through executive interventions within the organization. I analyzed the artifacts of culture through the lived experiences of organizational insiders, to make deciphering the artifacts possible, as explained by Schein (1990).

The framework for this study draws upon the theory of planned behavior and social exchange theory. Ajzen (1991), using his theory of planned behavior, suggested that employee behavior is based on the norms accepted by significant individuals in the organization, which includes managers. Montano and Kasprzyk (2015) proposed the use of the theory of planned behavior in conjunction with the theory of planned action in order to consider accepted norms as well as attitudes, behaviors and feelings of control. These theories are applicable to safety culture as employee safety attitude and behavior have been found to be influenced by an organization's safety culture, which is based on the employee beliefs and attitude toward safety (Choudhry et al., 2007).

Social exchange theory indicates that if employees perceive that the company is concerned with their wellbeing, employees will work to benefit the company (Blau, 1964). When applying social exchange theory to occupational safety, the theory suggests that if safety is seen as a concern, employees will comply with safety requirements, with exchanges influencing safety culture as described by Reader, Mearns, Lopes, and Kuha (2017). This is echoed by Zacharatos et al. (2005), who found that if safety is perceived as a value by management and upheld, employees will perform work with safety in mind.

In Chapter 2, I will provide additional details about the framework that I used in this research. This will include the applicability to safety culture, and how I conducted the study in alignment with the framework.

Nature of the Study

The purpose of the qualitative, descriptive phenomenological study was to describe executive effectiveness in influencing the safety culture within their

organizations, as perceived by safety professionals. Qualitative research is in alignment

with Antonsen (2009), who confirmed previous research suggesting that qualitative

analysis of a safety culture may be more appropriate than quantitative analysis. To

understand the perception of cultural interventions at executive levels of organizations, I

interviewed safety professionals at various organizations. I used safety professionals as

part of the research to address recommendations highlighted by previous research

indicating that executives may, when questioned, respond in a manner which indicates

that they exhibit the expected level of safety engagement, as indicated by Flin (2003).

The safety professional, on the other hand, has unique access to executive level

employees, shop floor employees and all management levels in between and has training,

experience, and education to understand safety culture and implications. Based on

experiences, safety professionals are uniquely positioned to describe their perceptions of

effectiveness of leader interventions on the safety culture of the organization. This is also

in alignment with Schein (1990), who expressed the struggle to decipher artifacts of

culture without an insider's perspective. In this study, the safety professional is the

insider.

I asked the participants to participate in interviews consisting of open-ended

questions. I designed these questions to elicit the safety professional's perception of the

effectiveness of interventions employed by executive levels of management on improving

the safety culture. The names of the organizations that the safety professional

participants represent remained anonymous; as this information was not collected and

was redacted from the transcript if unintentionally provided by the participant.

My use of the phenomenological research method in the study is similar to other phenomenological research conducted to understand the feelings and experiences of others, within the realm of occupational health and safety. Høivik, Moen, Mearns, and Haukelid (2009) conducted a phenomenological study on the phenomenon of safety culture to produce a description of safety culture at one facility. Chikudate (2009) conducted a phenomenological study to describe the experiences of Japanese train companies and post incident learnings. Burgoyne and Hodgson (1983) conducted phenomenological research on learnings of management based on their experiences in the workplace. Catlette (2005) conducted a phenomenological study on the lived experience of workplace violence survivors, including their fears, actions within the workplace and recommended safety improvements.

Following the interview of participants, I analyzed the data by first creating a written transcript. From the transcript, coding occurred to identify themes in the responses of participants. The themes have been reported from the research.

Definitions

Safety Commitment: Kark, Katz-Navon and Delegach (2015) define safety commitment as the desire to invest in safety as well as the personal values of safety in the workplace. An employee who is committed to a culture of safety follows the rules for safety and speaks to peers about working safely because he/she is committed to the goal of reducing injuries.

Safety Culture: Hofmann et al. (2017) defines safety cultures as time-tested values and expectations of the organization. These values are rewarded. An example of a poor

safety culture might be when employees continually see production valued over safety. An example of a positive safety culture might be when employees see pauses in production to execute a needed safety improvement, designed to prevent injury.

Safety Intervention: Hofmann et al. (2017) defines safety intervention as tasks/activities that are implemented in a social system. These tasks/actions may have a positive or negative influence on the safety culture.

Unsafe Behavior: Li, Lv, Zhu, and Sheng (2018) define unsafe behavior as an action taken by an employee that is without regard to direction, rules, procedures, training, etc.

Assumptions

One of my assumptions for this study was associated with the ability to obtain data saturation through solicitation of research participants by use of only one professional safety organization. I selected this organization as I believed it provided access to participants who met the inclusion criteria. However, as I could not reach data saturation by working through one organization, it was necessary to identify another method of identifying participants while also ensuring the inclusion criteria of safety professionals who participated in the research.

Additional assumptions were associated with the participants and the collection of data. I assumed that the questions that I selected for the interview were the most appropriate questions to address the research question. I also assumed that participants would provide honest responses to interview questions and that they are knowledgeable in the field to respond to such questions.

Scope and Delimitations

The specific management problem is that some executives use dynamic or on the fly leadership methods (Gravina et al., 2017), which raises concerns about leaders' interventions on safety culture and the implications of those interventions on safety behaviors and work-related accidents (Engemann & Scott, 2018). Since Bronkhorst et al. (2018) identified the need for a study of interventions employed by management to improve safety culture, I focused on the effectiveness of executive interventions on influencing a positive safety culture, reducing unsafe behaviors and increasing safety performance.

I conducted interviews with safety professionals, who have a minimum standard of education and experience. The minimum standard of education was a bachelor's degree in safety, environmental, or engineering field; at least 5 years of experience in the field of occupational safety; and at least 2 years of experience within the organization in which they will describe their experiences. Participants who were no longer employed by the organization that they would describe were not be included in the research, as it was possible that their employment status may have resulted in additional bias.

I conducted interviews with safety professionals from the United States representing many different types of organizations (private and public, high and low hazard) in different sectors (service industry, manufacturing, healthcare, etc.), in order to fill a research gap indicated by Fruhen et al. (2013). I collected data in the form of individual interviews, allowing the participant to describe the interventions employed by executives within the organization and their perceptions of those interventions. I

conducted the interviews with safety professionals supporting organizations, in order to provide a perspective from individuals who understand the importance of safety, how to identify concerns, and how to correct hazards.

Limitations

A limitation to the study is the transferability of the study outside of the research population. There are generalities that apply; however, the study shows what was determined to be most effective safety interventions implemented by the leaders of the organizations represented by the research participants. In order to determine applicability outside of the research participants, I have included the context of the research in detail. This will allow readers to determine applicability outside of the research population and will also assist in ensuring dependability of the study.

Another limitation of the study is the knowledge of participants and their ability to gauge the intent of leaders within their organization. In order to minimize this potential limitation, each participant holds a minimum of a bachelor's degree in safety, environmental or engineering field, at least 5 years of experience in the field of occupational safety, and at least 2 years of experience within the organization in which they will describe their experiences.

Significance of the Study

This study is unique in that I addressed an under-researched area of the safety profession. This includes the development of safety culture at the senior management level within the organization as indicated by Pilbeam et al. (2016) and across different types of organizations as indicated by Fruhen et al. (2013), all with the intent of reducing

death and injury by creating a positive safety culture. A positive safety culture reduces death and injury within an organization (Neal & Griffin, 2006) and influences positive social change through reductions in the loss of life and loss of financial resources (Marucci-Wellman et al., 2015).

Significance to Practice

The practical application of this study to the safety profession may be to help develop training and guidance on actions for senior managers to develop a systematic approach to fostering a positive safety culture. These actions may improve safety culture and reduce unsafe acts. Ultimately, this can result in improved safety performance.

Significance to Theory

Executives influence safety culture through their words and deeds, or their interventions. The outcome of this study may produce a better understanding of the words and actions, or voice, used by executives to effectively influence safety culture regardless of the heuristic and dynamic method employed. The study may also help to identify additional applications of the theory of planned behavior and social exchange theory, as applicable to the development of safety culture.

Significance to Social Change

The social change that this research may drive is an improvement in safety culture, leading to a reduction in occupational death and injuries. This improvement can be brought about by understanding how safety culture cascades through an organization through the specific actions of the senior manager to the shop floor employee, then

developing a plan to for executive interventions in alignment with the interventions most effective at fostering a positive safety culture.

Summary and Transition

Each year, United States' occupational accidents result in the death of more than 4,600 individuals and the serious injury of nearly five million more (Hofmann et al., 2017). These injuries result in hardships to the family of the employee and to the economy as nearly $50 billion dollars is spent on direct medical costs alone (Marucci-Wellman et al., 2015). The general problem is that a contributing cause in nearly 88% of occupational incidents is unsafe behavior (Goh et al., 2018) affected by the attitudes and beliefs toward safety due to a lack of management commitment to maintaining a positive safety culture (Zhang et al., 2018).

The specific management problem is that executives use dynamic or on the fly leadership methods (Gravina et al., 2017), which raises concerns about leaders' interventions on safety culture and the implications of those interventions on safety behaviors and work related accidents (Engemann & Scott, 2018). Bronkhorst et al. (2018) identified the need for a study of interventions employed by management to improve safety culture.

In Chapter 2, I will show how this descriptive phenomenological research study on safety professional perceptions of the effectiveness of the influence of executive interventions on the safety culture within their organizations fits into the literature gap. This may ultimately lead to a greater understanding of how safety professionals perceive interventions, the words and actions or voice, of executives may allow for the

development of training. The training could encourage executives to practice

interventions that foster a positive safety culture that reduces occupational death and

injury.

Chapter 2: Literature Review

Each year United States' occupational accidents result in the death of more than 4,600 individuals and the serious injury of nearly five million more (Hofmann, Burke, & Zohar, 2017). These injuries result in hardships to the family of the employee and to the economy, as nearly $50 billion dollars is spent on direct medical costs alone (Marucci-Wellman et al., 2015). The general problem is that a contributing cause in nearly 88% occupational incidents is unsafe behavior (Goh et al., 2018), which is affected by the attitudes and beliefs toward safety due to a lack of management commitment to maintaining a positive safety culture (Zhang et al., 2018). Conversely, if safety is perceived as a value by management and upheld, employees will perform work with safety in mind, reducing injuries (Zacharatos et al., 2005).

The specific management problem is that executives use dynamic or on the fly leadership methods (Gravina et al., 2017), which raises concerns about leaders' interventions on safety culture and the implications of those interventions on safety behaviors and work-related accidents (Engemann & Scott, 2018). Bronkhorst et al. (2018) identified the need for a study of interventions employed by management to improve safety culture.

The purpose of this descriptive phenomenological research study was to describe the effectiveness of the influence of executive interventions on the safety culture within their organizations, as perceived by safety professionals. A greater understanding of how safety professionals perceive interventions; the words and actions or voice, of executives may allow for the development of training. The training could encourage executives to

practice interventions that foster a positive safety culture that reduces occupational death and injury. I asked safety professionals to describe the interventions that have been employed by executives in their organization and their perception of the effectiveness of such interventions on the safety culture and voice of the organization. I intended to capture the lived experience of the safety professionals as suggested by Giorgi (2009).

Literature Search Strategy

The purpose of this literature review is to provide a history of safety management and effective influence on safety culture and safety performance. Reviewing existing research identified a gap in literature that my research may address; the interventions of executives that result in the greatest improvement to safety culture and performance.

I conducted at search within the Walden Library for resources in the following databases: Business Source Complete, EBSCOhost, ProQuest, ScienceDirect. Google Scholar was also utilized to access literature.

Key terms or key phrases included the following: *safety culture, safety performance, safe behavior, occupational death, management support for safety, executive support for safety, safety professional impact safe behavior, safety professional impact safety performance, theory of planned behavior, theory of planned management, transformational leadership, transactional leadership, phenomenological research,* and *multifaceted intervention (intervention at various levels of the organization).*

I combined key terms to further investigate the relationship between terms. These terms included: *front-line leadership/safety culture, safety culture/safety performance, safe behavior/manager, occupational death/injury, occupational injury/management,*

transformational leadership/safety, transactional leadership/safety,

phenomenological/safety, phenomenological/management, phenomenological/research,

and *multifaceted intervention/safety.*

Theoretical Foundation

I situated this study between the gaps identified by Pilbeam et al. (2016) and

Fruhen et al. (2013) by describing the lived experience of the safety professional as safety

culture develops within the organization. I analyzed the artifacts of culture through the

lived experiences of organizational insiders, to make deciphering the artifacts possible, as

explained by Schein (1990).

I selected the framework for this study to draw upon the theory of planned

behavior and social exchange theory. Ajzen's (1991) theory of planned behavior,

suggests that employee behavior is based on the norms accepted by significant

individuals in the organization, which includes managers. Montano and Kasprzyk (2015)

proposed the use of the theory of planned behavior in conjunction with the theory of

planned action in order to consider accepted norms as well as attitudes, behaviors, and

feelings of control. These theories are applicable to safety culture as employee safety

attitude and behavior have been found to be influenced by an organization's safety

culture, which is based on the organization's beliefs and attitude toward safety (Choudhry

et al., 2007).

Since the theory of planned behavior is good at explaining behavior, it is often

used to measure interventions used to modify culture. Steinmetz, Knappstein, Ajzen,

Schmidt, and Kabst (2016) conducted a meta-analysis of 123 interventions conducted

utilizing the theory of planned behavior. "The theory states that the main driver for behavior is the intention to perform the behavior. The intention, in turn, is a function of underlying motivational variables (i.e., attitude toward the behavior, subjective norm, and perceived behavioral control)" (Steinmetz, et al., 2016). This meta-analysis also confirmed the usefulness of the theory of planned behavior in designing interventions intended to change behavior.

Social exchange theory indicates that if employees perceive that the company is concerned with their well being, employees will work to benefit the company (Blau, 1964). When applying social exchange theory to occupational safety, the theory suggests that if safety is seen as a concern, employees will comply with safety requirements, with exchanges influencing safety culture as described by Reader, Mearns, Lopes and Kuha (2017). This is echoed by Zacharatos et al. (2005) who found that if safety is perceived as a value by management and upheld, employees will perform work with safety in mind. The perception commitment of management commitment to safety predicts behavior (Zohar & Polachek, 2014).

> From a functional perspective, climate perceptions should refer to policies-in-use, or enacted policies, rather than to their formal counterparts, because only the former inform employees of the probable organizational consequences of acting safely (vs. speedily). Thus, a consensus should occur when management and peers display an internally consistent pattern of action concerning safety, even if it differs from the formally declared policy. For example, site managers might

expect workers to cut corners whenever production falls behind schedule, despite

official claims to the contrary

(Zohar & Polachek, 2014, p.377).

Reader et al. (2017) found that health and wellness initiatives implemented by

employers similarly influenced employee perception of concern by employers and lead to

increased safety behaviors. Employees perceive that their safe behaviors are reciprocity

for the concern expressed by employers. Mullen, Kelloway, and Teed (2017), conducted

a study utilizing social exchange theory framework, in which they indicate that future

research is needed to assess the impact of the interventions that can improve safety

leadership and encourage employee safety behaviors to prevent incidents. My study

focused on the perception of the effectiveness of influence of executives on the safety

culture of the organization.

Literature Review

Occupational Incidents and Safety Culture

Each year United States' occupational accidents result in the death of more than

4,600 individuals and the serious injury of nearly five million more (Hofmann et al.,

2017). Occupational injuries effect employees, employers, and the general economy, yet

it is difficult and imprecise to calculate losses, as assumptions are made that change

across generations, genders, and family status (Lebeau, Duguay, & Boucher, 2014). As

Serrier, Sultan-Taieb, Luce, and Bejean (2014), indicated, occupational incidents have

"an impact on economic growth by affecting the labor supply, in particular through the

number of working days lost because of illness or accident and the reduced productivity

of employees at work" (p.661). Marucci-Wellman et al. (2015) estimated an annual

impact to the United States' economy of nearly $50 billion dollars on direct medical costs

alone and an impact of $600 billion over the course of the research (1998–2010). While

the number of occupational injury cases in the United States has been reduced yearly, the

costs has not; it is unknown if this is due to more severe injuries, an aging workforce, or

more costly treatment (Marucci-Wellman et al., 2015). Despite limitations, studies

calculating the costs of occupational injuries are conducted with the intent to highlight

the appropriate path forward and the importance of research and injury prevention

(Lebeau et al., 2014). For example, Serrier, Sultan-Taieb, Luce, and Bejean (2014) found

that the cost of occupational lung cancer can cost between 500,000 to 1.5 million Euros.

The study showed that asbestos exposure, which can result in occupational cancer, is

avoidable through the use of existing technology and preventative measures, which

means that the most effective means is to prevent, rather than treat occupational cancer as

a result of asbestos exposure (Serrier et al., 2014). Similarly, Fabius et al. (2013) built on

previous research which indicated that every dollar spent on the medical bills of an

occupational injury resulted in an additional $2.13 lost by the company. The results

showed that there is a correlation between organizations that reduce health and safety

risks and those that outperform the market (Fabius et al., 2013). In order to prevent

incidents, the cause must be understood.

In many cases, investigations associated with occupational incidents show that

noncompliance with safety procedures is a root cause of incidents (Dahl & Olsen, 2013).

Historical research and current research showed that a contributing cause in nearly all

occupational incidents is unsafe behavior (Goh et al., 2018). Research conducted by Shea et al. (2016) showed significant correlation between occupational injury occurrence and employee attitude toward safety. Employee safety attitude and behavior are influenced by an organization's safety culture, which is based on the organization's beliefs and attitude toward safety (Choudhry et al., 2007) and exhibited in the behaviors of employees (Brettel et al., 2015).

Employee behaviors were explained in the the Deepwater Horizon incident investigation through analyzing the oil rig fire that killed 11, injured 16 and cost $34 billion in medical claims and legal settlements (Reader & O'Connor, 2014). This event demonstrates the association between leadership acceptance of unsafe behaviors, unrealistic production expectations, and the occurrence of serious occupational incidents (Oudhuis & Tengblad, 2018). Unsafe behavior is formed by the attitudes and beliefs toward safety due to a lack of management commitment to maintaining a positive safety culture (Zhang et al., 2018). Conversely, when a positive safety culture is evident, injuries will be reduced as all employees will be continually looking out for and correcting hazards before injuries occur (Vredenbrugh, 2002). If safety is perceived as a value by management and upheld, employees will perform work with safety in mind, reducing injuries (Zacharatos et al., 2005). This is especially important when considering that management is responsible for addressing conflicts between strategic goals such as safety and production (Engemann & Scott, 2018). One way in which leaders can influence the development of a safety culture is through leadership styles.

The leadership style embraced by organizational leaders can influence employee safety culture, behavior, and ultimately safety performance (Clarke, 2013). Kark, Katz-Navon, and Delegach, (2015) described two types of employee safety behavior: voluntary proactive behaviors and mandatory compliance behaviors. The voluntary behaviors are often driven by leadership styles, which result in employees working to improve conditions and practices and a reduced rate of injury. For example, while transactional leadership has been found to elicit the minimum response required to maintain safety compliance, leadership in the form of transformational leadership has been shown to reduce the occurrence of injuries by improving the safety culture of the organization (Clarke, 2013). A true and genuine compassion for employees must be exhibited by a leader in order to truly demonstrate transformational leadership as it applies to safety management (Clarke, 2013). When leaders encourage and motivate their employees using transformational leadership styles, the employees ultimately adopt the value of the leader, adopting values that improve the safety culture within the organization and increase the proactive safety behaviors of employees (Clarke, 2013). Transactional leadership, on the other hand, typically fosters mere compliance in safety, as it rewards the right behavior and punishes bad behavior (Clarke, 2013).

Karim (2016) evaluated the relationship between transformational leadership and safety climate in the Pakistani pharmaceutical industry. The study showed a positive relationship between transformational leadership and safety climate.

The core concept of safety climate is that they are formed on the basis of practical and visible actions taken by an organization to improve the safety situation. So a

leadership style like transformational leadership is a kind of action which can be seen by the workforce which helps to form and improve their perception about the safety climate that is evident. (Karim, 2016, p.509)

Kark et al. (2015) developed a study based on the recommendations for future studies of the Clark (2013) study; identifying the mechanisms that make transactional and transformational leadership successful. The study indicated that "when the leader is perceived as transformational, he or she is able to enhance a variety of behaviors contributing to organizational safety including those of compliance" (p.1343).

Similarly, the differences between positional and inspirational leaders can impact safety culture. Positional leaders achieve results by telling people what to do because they have power over them, while inspirational leaders achieve results because they are passionate about the cause and are able to clearly communicate the why and the importance of acting in a certain way (Cooper, 2015). Thus, inspirational leaders often inspire others to comply (Cooper, 2015).

Safety behavior is composed of participation and compliance, where compliance is mandatory and participation is not. To sustain a reduction in injuries, safety participation must be a focus, over mere safety compliance (Clarke 2013). This focus is derived from management, from front line to executives.

With regard to safety culture and the front line employee, the most consistent demonstration of safety culture and the most important relationship molding the safety culture of the employee comes from their direct manager (Kozlowski & Doherty, 1989). Kapp (2012) found that the relationship between the front line employee and their direct

supervisor drives employee behavior and safety compliance. Supervisors who place

greater value on safety experience greater compliance, while those who place lower value

on safety experience lower levels of compliance (Kapp, 2012). The study conducted by

Michael, Guo, Wiedenbeck, and Ray (2006) found that positive exchanges between

employees and supervisors can affect employee's behaviors, impacting safety

performance because those with high quality relationships feel as though they can express

concerns with workplace safety, resulting in fewer accidents. Zohar and Polachek

(2014), investigated the effect of communications from the front line manager on the

safety culture and resulting safety performance of shop floor employees. When there was

communication from the front-line manager to the shop floor employees, the results

found improvements to safety behavior and culture, teamwork and safety performance

(Zohar & Polachek, 2014).

Michael et al. (2006) found that positive exchanges between employees and

supervisors can affect employee's behaviors, impacting safety performance. This occurs

because those with high quality relationships feel as though they can express concerns

with workplace safety, resulting in fewer accidents (Michael et al., 2006).

Kapp (2012) found that the relationship between the front line employee and their

direct supervisor drives employee behavior and safety compliance (Kapp, 2012).

Supervisors who place greater value on safety experience greater compliance, while those

who place lower value on safety experience lower levels of compliance (Kapp, 2012).

Similarly, Dahl & Olsen (2013), hypothesized that worker compliance would increase

with leadership involvement. The results of the study confirm previous research, which

identifies that leaders who emphasize the importance of safety realize greater safety performance (Dahl & Olsen, 2013).

The connection between safety culture development and the direct manager of the front line employee is vital, however, the direct manager also oversees quality and production, among other business aspects (Witherill & Kolak, 1996). A study conducted by Nordlöf, Wiitavaara, Winblad, Wijk, and Westerling (2015) in Sweeden, in a high risk metalworking facility. In this type of organization, the rate of significant days away from work (> 90) is nearly twice the average of other high risk industries. For that reason, is important to understand the drivers of injuries. The results of this study showed that management expectations, leading to a trade off of safety for productivity, were the main reasons for employee risk taking (Nordlöf et al., 2015). In the example of the Deepwater Horizon catastrophe, employees were rewarded for cost-cutting measures and on time production delivery, not for safety performance (Smith, 2011). It is for this reason that the direct manager of the front line employee may not convey the same level of enthusiasm and level of commitment as the senior management demonstrates. This research intended to fill gaps in existing research as well as address limitations in recent studies.

Pilbeam et al. (2016) found that the relationship between the front line supervisor and his/her direct reports have been studied, while other leadership relationships (such as senior managers) that set the tone for safety culture within their organizations are in need of investigation. Where studies have been conducted, their transferability is limited. A study was conducted by Fruhen et al. (2014) since previous research indicated that senior

leaders had significant influence on safety culture but did not explain which characteristics of the senior leader had the greatest effect. The study indicated that policy making of senior leaders was key to influence of safety among air traffic management companies (Fruhen et al., 2014). Biggs et al. (2013) found that leaders identified leadership and visibility as the primary, effective means to implementing a positive safety culture in the Australian construction industry.

Antonsen (2009) found that organizations struggle with ensuring that the safety culture of the executive leadership team is conveyed to shop for employees through their front line supervisor (Antonsen, 2009). Most recently, it has been found that senior leaders use dynamic or *on the fly* leadership methods (Gravina et al., 2017) which raise concerns about leaders' interventions on safety culture and the implications of those interventions on safety behaviors and work related accidents (Engemann & Scott, 2018).

In alignment with the recommendations of Sheehan, Donohue, Shea, Cooper and De Cieri (2016), the data to be used in my research will be collected from across the United States, representing many different types of organizations (private and public, high and low hazard) in different sectors (service industry, manufacturing, healthcare, etc.) and across multiple organizations and those which do not represent only blue collar jobs.

My research collected information from safety professionals supporting various organizations. This is in alignment with Vredenbrugh (2002) who stressed the importance of "research concerning culture frequently focuses upon key informants who are identified as those possessing special or more complete knowledge than others in the

organization" (p.266). The safety professional has access to all levels of employees; from senior management to shop floor employees. Olle-Espluga et al., (2014) also acknowledged the unique perspective of safety professionals in assessing management attitudes and safety climate. My study also addresses a limitation of the Michael et al. (2006) study, by collecting information from the perspective of the safety professional; not senior leaders, the supervisor or shop floor employees measuring themselves.

Flin (2003) found that senior leaders are more likely to share what they believe are the safety related responses of a senior leader; rather than their actual beliefs. My study reviewed the attitude and commitment of the senior leader through their interactions with their organization's safety professional. This is in alignment with Fruhen et al. (2014) who suggested researching the views of other employees in the organizational hierarchy. Specifically, Fruhen et al. (2014) found that including other individuals within the organizational hierarchy can "help identify whether senior managers' personal characteristics differ in their influence on safety at different organizational levels" (p.18). This research aimed to fill the identified gap by identifying which characteristics, at the senior manager organizational levels, have been identified as having the greatest impact on safety culture and safety performance (Fruhen et al., 2014). One of the limitations presented in the research of Dahl & Olsen (2013) is that the questionnaire did not consider the different hierarchical levels of leaders in their analysis. Dahl and Olsen's study (2013) has an identified limitation that my research filled; assessing leadership engagement at various organizational levels.

Bronkhorst (2018) revealed significant improvement in the perception of senior management priority of safety after conducting walk arounds on the shop floor. However, the study was unable to indicate which intervention at which hierarchical level had the greatest effect on safety culture improvement. "Future studies could try to develop intervention studies using various treatment arms to disentangle individual effects and fruitful combinations." (Bronkhorst, 2018, p.28). Bronkhorst (2018) also identified a limitation of the study was that there was no qualitative data collected on the interventions to understand the why and the how of the effectiveness of the intervention.

Noncompliance with safety procedures is a root cause in a majority of investigations, which "underlines the importance of identifying the organizational factors that affect the level of safety compliant behavior" (Dahl & Olsen, 2013, p.17).

Development of Safety Culture

During 2014, the United States' working population witnessed the death of greater than 4,600 individuals who reported to work for the day with the intent of providing for their livelihood (Hofmann et al., 2017). Several million additional individuals are injured at work each year, causing various levels disability, which result in hardships to the family of the injured employee and society as a whole (Hofmann et al., 2017). The direct costs of injuries alone cost the United States' economy approximately $50 billion dollars per year (Marucci-Wellman, Courtney, Corns, Sorock, Webster, Wasiak, & Leamon, 2015).

Unsafe behaviors are "affected by an organization's socially transmitted beliefs and attitudes toward safety" (Vredenbrugh, 2002, p.260). The organization's beliefs and

attitudes toward safety form an organization's safety culture, which influences employee safety behavior (Choudhry, Fang, & Mohamed, 2007). When a positive safety culture is evident, injuries will be reduced as all employees will be continually looking out for and correcting hazards before injuries occur (Vredenbrugh, 2002).

Connection Between Incidents and Unsafe Behavior

There are nearly 20 employees killed each day and nearly 20,000 injured in the US, however a contributing cause in nearly all is unsafe behavior (Vredenburgh, 2002). This is supported by previous research that indicates that "safety performance is affected by an organization's socially transmitted beliefs and attitudes toward safety" (Vredenbrugh, 2002, p.260). Vredenburgh (2002) indicates that the goal of a positive safety culture is to have all employees continually looking out for and correcting hazards. "A safety culture motivates and recognizes safe behavior by focusing on the attitudes and behaviors of the employees (Vredenbrugh, 2002, p.260). This research was conducted by NIOSH and involved surveying risk managers from ~60 hospitals throughout the United States. Risk managers were interviewed as "research concerning culture frequently focuses upon key informants who are identified as those possessing special or more complete knowledge than others in the organization" (Vredenbrugh, 2002, p.266). It is for this reason that the proposed research will include interviewing safety professionals regarding their perceptions of safety culture within organizations. The Vrendenbrugh study (2002) involved surveying the participants on elements of safety culture, as they were employed at the hospital. Such items included training, management commitment, communication and feedback, selection and participation. Injury rates and injury severity

were also considered. With regards to findings, "The most important finding of this

study is that when organizations take proactive measures to protect their employees, the

company derives a financial benefit in reduced lost time and workers compensation

expenses. While previous research has typically discussed management practices as

general goals, the current study systematically examined the specific elements of these

practices that predict employee injury rates (Vredenbrugh, 2002, p.273).

Typical workplace safety programs

Safety programs are often built around the ability of an employee to recognize

hazards (Albert, Hallowell & Kleiner, 2013). However, research indicated that in the

construction industry, approximately 38% of hazards are identified. This means that the

ability to prevent accidents by identifying hazards is significantly lower than desired. In

order to facilitate change, this research began with 14 safety professionals coming

together to develop a classroom and field training program intended to improve the

recognition of hazards. To ensure construction employees were engaged and willing to

accept change, the process consisted of the following: explaining the risk of uncorrected

hazards, explaining the impact to the worker and their family, explaining what constitutes

a hazard, training with the use of mnemonics to help enhance recognition and providing

instruction on how to correct hazards. The result was a 31% improvement in the

recognition of hazards over the course of 1 year and 8 sessions. This research will be

used as part of the proposed research to begin investigating how the safety professional

impacts the front line employee commitment to safety and any mediating role the safety

professional has compared to the effect of executive level commitment to safety on the front line employee.

Impact of safety professionals

Olsen (2012) recognized that safety professionals within an organization are often viewed as *technical* in their approach. Therefore, when strategic organizational decisions are required, input from the safety professional may not be considered. However, tactics employed by safety professionals can allow them to have strategic impact by influencing the change process. Previous research indicated that safety professionals prefer to work within the areas of regulation and technical knowledge but does not identify the methods that are used by those who work strategically to implement change. To conduct the study addressing this gap, 10 safety professionals were interviewed. A qualitative analysis was conducted where participants shared examples of changes that they have facilitated and how they did so. Some of the methods employed with middle managers included expressing buy in from upper management, trying to get middle managers to understand their responsibility for safety (which produced various levels of success, ranging from managers writing operating procedures including safety means to safety professionals filing incident reports on behalf; mostly due to management engagement). Most safety professionals worked with site committees and all identified the importance of influencing stakeholders. The trend was that knowledge was used to influence others, followed by auditing to show deficiencies and share with senior management. This research was used as part of my research to begin investigating how the safety professional impacts management commitment to safety and any mediating role the

safety professional has on middle and front line management's commitment compared to the impact of executive level commitment to safety.

Leadership styles of management and the impact on safety

Clarke (2013) conducted a meta analytic review of existing research on transactional and transformational leadership. Transformational leadership has been seen to increase proactive safety behavior in employees. Transactional leadership, on the other hand, typically fosters compliance in safety, as it rewards the right behavior and punishes bad behavior. Clarke (2013) has identified that it is likely appropriate to use a combination of both styles; in order to first ensure compliance and then establish proactive behavior. One limitation of the study is that there must be further research on how to implement the results of this study.

According to Karim (2016), every 15 seconds, a person dies in a work related incident and that rate of injury is even higher when unemployment is high as there is less consideration for workplace health and safety. The study intended to indicate the relationship between transformational leadership and safety climate in the Pakistani pharmaceutical industry. Questionnaires were distributed with a rate of return greater than 75%, indicating a positive relationship between transformational leadership and safety climate. "The core concept of safety climate is that they are formed on the basis of practical and visible actions taken by organization to improve the safety situation. So a leadership style like transformational leadership is kind of action which can be seen by the workforce which helps to form and improve their perception about the safety climate that is evident" (p.509). The study indicated the disproval of a hypothesis associated with

safety attitudes mediating safety knowledge and safety climate. However, the authors

further hypothesize that the individuals involved in the study did not develop a positive

safety attitude (despite safety knowledge) because their religion (Muslim) indicates that

destiny will determine whether or not an injury occurs and there is no intervening

measure that can then prevent such an event.

Uhl-Bien (2006) presents the theory of relational leadership as a framework to

study the leadership that, among other things, influences values, attitudes and their

corresponding behaviors. Relational leadership is associated with the connections

formed between organizations and their members. Uhl-Bien (2006) explains how

relationship is the new form of leadership; rather than power and authority. The article

also indicated the need to research the development of the research (through relational

leadership theory) as opposed to simply observations of the quality of relationships

(through leader member exchange).

Organizational culture can have an effect on worker behavior; leadership style can

be a determinant of safety behavior and thus, safety performance. While transactional

leadership has been found to elicit the minimum response required to maintain safety

compliance, safety leadership in the form of transformational leadership has been shown

to reduce the occurrence of injuries by improving the safety culture/safety behavior of the

organization (Clarke, 2013). When leaders encourage and motivate their employees

through the practice of transformational leadership, the employees ultimately adopt the

value of the leader. Thus, when the leader is transformational, the employees adopt

values that improve the safety culture/safety behavior within the organization (Clarke, 2013).

Container terminals are hazardous locations, resulting of the death of nearly 100 people each year with nearly an additional 100,000 injured (Lu & Yang, 2010). "The United States Occupational Safety and Health Administration (OSHA) has recognized the power of leadership and pointed to management leadership as a key element in safety issues. Safety leadership that motivates team members to work harder, to work efficiently, and to take ownership of responsibility for safety performance is encouraged" (Lu & Yang, 2010, p.123). The results of this study indicated three dimensions of safety leadership. These dimensions included safety motivation, policy and concern. The findings of this study are relevant to my research as these terms are included in the questions included in the interview process.

Curcuruto, Conchie, Mariani, and Violante (2015) were able to demonstrate the effect of transformational leadership by measuring employee engagement in safety and safety behaviors compared to safety performance. Leaders who empower their employees are generally associated with the development of positive behaviors while a strict adherence to a hierarchical reporting structure is not (Lee, Idris & Delfabbro, 2016).

Transformational leadership leads to improved safety perception, safety culture and provide guidance for training and program development (Clarke, 2013). The leadership style embraced by organizational leaders can be a determinant of safety performance. For example, while transactional leadership has been found to elicit the minimum response required to maintain safety compliance, safety leadership in the form

of transformational leadership has been shown to reduce the occurrence of injuries by improving the safety culture of the organization (Clarke, 2013). In the realm of occupational safety, performance can be impacted by transformational and transactional leadership styles. A true and genuine compassion for employees must be exhibited by a leader in order to truly demonstrate transformational leadership as it applies to safety management (Clarke, 2013). When leaders encourage and motivate their employees, the employees ultimately adopt the value of the leader. Thus, when the leader is transformational, the employees adopt values that improve the safety culture within the organization (Clarke, 2013).

Hierarchical structure relating to incidents and safety performance

A study conducted by Hill, Seo, Kang, and Taylor (2012) found that top management impact on change in an organization was related to their hierarchal distance from employee. The Brettel, Chomik, and Flatten (2015) study involved the review of entrepreneurial orientation, leading to better performance. A negative relationship was found between entrepreneurial orientation and the impact of hierarchical culture (Brettel, Chomik, & Flatten, 2015). This study filled a gap in existing research as previous research indicated the link but failed to identify how culture impacts entrepreneurial orientation/organizational success. Culture of the organization is exhibited in the behaviors of employees. Group culture is based on trust and mutual respect, where hierarchical culture is based on rules, control, structure and regulations. The concern for an organization is that the organization will be less innovative with employees at lower levels feeling powerless. Other barriers of hierarchical cultures include slow

communication, slow decision making and a lack of trusts between departments which negatively impacts the flow of knowledge. This research includes a great example of a purpose statement, indicating that "the primary purpose of this study is to investigate whether organizational culture plays a significant role in determining the levels of innovativeness, proactivness and risk-taking" in small and medium businesses (Brettel, Chomik, & Flatten, 2015, p.869). This article also includes a great example of the explaining theoretical foundations. This research provides references to seminal works providing the definition of culture. Proactiveness is yet another dimension of entrepreneurial orientation and is a strategic resource.

Organizational culture can have an effect on worker behavior. Empowering leaders and hierarchical culture are two traits exhibited as part of organizational culture (Lee, Idris, & Delfabbro, 2016). However, empowering leaders is generally associated with the development of positive behaviors while hierarchical culture is not. This study intended to review the effects of both traits, combined. The longitudinal study identified that while empowering leadership increased work engagement, but the study did not demonstrate that work engagement was reduced in the presence of a hierarchical culture. This study was interesting, in that the authors were not able to observe what they hypothesized; that a hierarchal culture would have a negative impact on worker behavior. This study is interesting, as other studies have demonstrated the expected results. An interesting follow up, case study would include a review of the culture present in the organization that mediated the effect of the hierarchical culture.

Manager impact on safety at work

With regards to safety culture and the front line employee, the most consistent demonstration of safety culture comes from the relationship with their direct manager (Kozlowski & Doherty, 1989). However, the direct manager of the front line employee oversees safety, quality and production, among other business aspects (Witherill & Kolak, 1996). It is for this reason that the direct manager of the front line employee may not convey the same level of enthusiasm and level of commitment as the executive leader demonstrates. Zohar, D., & Polachek, T. (2014) focused on whether or not safety climate and performance would be impacted by educating managers. The study was comprised of two groups; one that was educated on the importance of integrating safety into their management style and the impact on productivity. The other group received no feedback. "Results of this intervention study indicate that changes in supervisory messages indicative of modified priorities among role facets during routine communications with group members resulted in corresponding changes in safety climate, safety behavior, subjective workload, teamwork, and (externally measured) safety audit levels " (p.120). Since the same effect was not observed in the control group, this indicates that worker climate perceptions and behavior improved as a result of the feedback aimed to improve supervisor discourse regarding the operationalization of safety.

Karim (2016) found that there was little impact on safety climate caused by safety knowledge. This is interesting, as it means that the majority of the influence for safety climate is caused by the influence of supervisors. This study is important because it is carried out in a Pakistani pharmaceutical company as compared to previous research that has been conducted in Western organizations. Despite the difference in the working

population (where most individuals are illiterate in the Pakistani workforce) the leadership characteristics employed by the supervisor in the form of transformational leadership were found to influence the safety climate of employees.

The Role of Leadership and Leaders' Behavioral Characteristics on Employees' Safety Behavior in Plant Turnaround Maintenance of PETRONAS Petrochemical Companies in Malaysia focused on transformational and transactional research and found results similar to other studies. However, additionally, this study showed that safety motivation can be a moderator between management's leadership style and employee's safety behavior. This study is of interest because it took place in a non western country and in a facility that was attempting a turn around. The fact that the facility needed to make drastic changes is important, because these are often times when employee motivation and engagement can be low, due to other operational challenges. Despite this, the study was still able to show a relationship between employee behaviors and leadership styles. Transactional leadership drives compliance while transactional leadership drives participation and worker engagement.

Bandow, Self and Self (2014) found that managers that fail to manage employees subject their organization to losing the high performers and retaining the poor performers or problem employees and their associated liabilities. Poor performance is noticed by other employees and at times, management is the unintended cause. Poor management continues to allow poor performers as managers fail to take responsibility for their role in performance or do not know how to respond at all. In other cases, management feels like they are allowing employees to redeem themselves with another chance when in reality,

they do nothing. For high performers, this do nothing approach can lead to low morale. Previous research has indicated that managers often do not like to deliver bad news of poor performance even when performance appraisals are accurate. One step that organizations can take is to ensure proper training of managers, so that they document performance, feedback and formal coaching. To help facilitate this, one recommendation is for experienced managers to develop a *script* for dealing with underperforming employees so that less experienced employees can learn, and the organization can maintain a standard approach.

Cooper (2015), identified that there is a difference between positional and inspirational leaders. Positional leaders achieve results by telling people what to do; because they have power over them. Inspirational leaders achieve results because they are passionate about the cause and are able to clearly communicate the "why" and the importance of acting in a certain way. Thus, they often inspire others to comply. Safety leaders are most successful when they adopt the servant style of leadership. Using this style, they facilitate the fulfillment of others' needs.

Duhigg (2016) found that working in groups helps to solve problems, come up with creative solutions and recognize errors or mistakes faster. All of these help, but questions remained about what makes a good team. Some believed that putting similar people together worked best, others believed that friends outside of work comprised the best teams. Google undertook a study to determine what qualities fostered the best teams. Google learned that the best managers are good at communicating and avoid micromanaging, but wanted to know what makes the successful teams, successful. They

could not find correlation with groups that were friends, groups that were outgoing, groups that were shy, groups that preferred very structured groups, groups that preferred no hierarchy at all. Then, Google began to look at team culture and norms. They found that norms differed significantly. They turned to past research, which showed that the way people treated each other is what mattered. In this past research, random teams were formed. The tasks required compromise to succeed. Typically, if a group came up with a way to succeed in one task, they succeeded in all. The converse was also true. These team members have mutual respect for each other, tend not to try to embarrass each other and create a safe space for risk taking. One group at Google decided to informally test the results. They found that though their group was all high performers, they were not working together well. The leader believed that having respect for each other and feeling safe together and learning to recognize the feelings of others would be facilitated by his sharing of extremely personal information about his illness. Empathy and sensitivity may go a long way in fostering team collaboration and team success.

Borgogni, Dello, Russo, and Latham (2011) found that an employee's satisfaction and commitment to their organization is based on their perception of the abilities of their team, which is based on leader's influence. Previous studies have identified a relationship between employee's perceptions of the abilities of the team and the actual performance of the team. This study was intended to research the perceptions of the abilities of the team and the perception of the leaders affected satisfaction with the job and commitment to the organization. A leader can affect the effectiveness of the team and perception of effectiveness by helping the group reach their goals, by providing

feedback and facilitating teamwork amongst members of the team. The highest levels of management are also key to an employee's perception of the abilities of the organization, as top leaders can develop procedures and goals that may or may not align groups. This is important as previous studies found that job satisfaction is related to the perception of the immediate leader. Similarly, level of perceived support was found to correlate to commitment to an organization.

> The significance of these findings for the workplace is that they show that employees' positive perceptions of their immediate supervisor are more strongly related to the formulation of their beliefs regarding their group's efficacy than their perceptions of top management. However, since groups are embedded in an organizational setting, group members' positive perceptions of top management are also related to their beliefs of their group's collective efficacy…To strengthen confidence in one's group's efficacy, the novelty of our findings suggests working on self-efficacy and perceptions of leadership. We propose a specific training aimed at managing the relationship with the supervisor. (Borgogni, p.10)

The Kapp (2012) study indicated that the relationship between the front line employee and their direct supervisor drives employee behavior and safety compliance. Supervisors who place greater value on safety experience greater compliance. Those who place lower value on safety experience lower levels of compliance.

When considering fiscal responsibility, O'Toole (2002), identified that employers must implement programs that will provide the greatest return on investment. For that reason, it is important to consider the impact that safety culture has on reducing injures

and whether or not it is worth the investment. In a longitudinal study (conducted over 45 months) at a concrete manufacturing plant, it was determined that employee's positive perceptions impacted reductions in injuries, with management's commitment to safety having the greatest impact on employee's perceptions (O'Toole, 2002).

The study conducted by Michael, Guo, Wiedenbeck, and Ray (2006), was conducted through the completion of nearly 600 questionnaires from employees working in 5, Pennsylvania wood manufacturing companies. The study showed that positive exchanges between employees and supervisors can affect employee's behaviors, impacting safety performance. This is able to occur because those with high quality relationships feel as though they can express concerns with workplace safety, resulting in fewer accidents. Again, this study indicated a limitation in the self reporting of safety behaviors. The proposed research is intended to help fill this gap, by collecting information from the perspective of the safety professional; not the supervisor or shop floor employees measuring themselves. This can help to eliminate bias.

Kouabenan, Ngueutsa, and Mbaye (2015) conducted a study on first line managers and their perceptions of risk in the job, level of involvement in safety and perceived safety climate (Kouabenan, Ngueutsa, & Mbaye, 2015). The research of first line managers (66) in France indicated that the greater the perceived risk, the more involved the manager became (Kouabenan, Ngueutsa, & Mbaye, 2015).

A study was conducted by Fruhen, Mearns, Flin, and Kirwan (2014) because literature reviews indicated that there was research that indicated that senior leaders had significant influence on safety culture but did not explain which characteristics of the

senior leader had the most effect. The study indicated was that policy making of senior leaders was key to influence of safety. This research was conducted utilizing air traffic management companies. This research also indicated the need to review the views of other employees in the organizational hierarchy. Specifically, the study indicated that "inclusion of more junior managers and the workforce can help identify whether senior managers' personal characteristics differ in their influence on safety at different organizational levels" (Fruhen, Mearns, Flin & Kirwan, 2014, p.18). My research aimed to fill the identified gap by identifying which characteristics, at different organizational levels, have been identified as having the greatest impact on safety culture and safety performance.

Yorio and Wachter (2014) conducted a study to focus on employee behaviors, which are often implicated in serious occupational incidents. This research is pertinent to my research as it is necessary to understand how employee behaviors correlate to safety culture and the perceptions of management commitment to safety. In fact, this study indicated a need for future research in assessing the effect of safety and health management on human performance include a review over time. My research will review health and safety management, from the perception of the safety professional, over a period of time.

A study was conducted by Nordlöf, Wiitavaara, Winblad, Wijk, and Westerling, (2015), in Sweeden, in a high risk metalworking facility. In this type of organization, the rate of significant days away from work (> 90) is nearly twice the average of other high risk industries. For that reason, is important to understand the drivers of injuries. Culture

is found to be a significant indicator of injuries; from Chernobyl to the Challenger space shuttle. Management's commitment to safety behavior is part of safety culture, and influences whether or not workers carry out risky behaviors. The results of this study indicated that management expectations, leading to a trade off of safety for productivity, were the main reasons for employee risk taking.

Choudry (2014) identified that behavior based safety is one manner in which to improve safety performance. This is especially pertinent as a behavior-based safety program requires front line leadership engagement. This is an example of how front-line leaders can exhibit such significant influence over shop floor employees, which is the focus of the proposed research. In this article, the researchers follow employees in the construction industry. Safe behaviors (leading indicators of safety performance) are reviewed on a weekly basis. With positive (and negative) reinforcement for observed behaviors, as well as continuous training, the researchers were able to observe an increase in safe behaviors from 80% to 95% after 9 weeks! This is an example of how front line management can drive habits, behaviors and attitudes of employees. The front line managers were successful because they demonstrated their genuine concern for their employees and commitment to successful implementation of the behavior based safety program.

The study conducted by Flin (2003) reviewed the different roles that various management levels play in the development of safety culture, behavior and safety performance. The study indicated that senior management commitment to safety be measured periodically. It also suggests that senior leaders are more likely, when asked,

share what they believe are the safety related responses of a senior leader; rather than their actual beliefs. This observation is the reason why the proposed research includes the study of the attitude and commitment of the senior leader through their interactions with their organization's safety professional.

"Accident analyses and investigations regularly identify a lack of compliance with rules and procedures as a central contributing factor to workplace accidents. This underlines the importance of identifying the organizational factors that affect the level of safety compliant behavior. The purpose of the present study was to examine how workers' perception of leadership involvement in daily work operations affects the level of safety compliant behavior among workers" (Dahl & Olsen, 2013, p.17). Safety behavior is comprised of participation and compliance, where compliance is mandatory and participation is not. In this study, Dahl and Olsen (2013), hypothesized that worker compliance would increase with leadership involvement. Greater than 10,000 Norwegian petroleum employees participated in the longitudinal study, conducted by anonymous questionnaires. The results of the study showed previous research, which identified that leaders who emphasize the importance of safety realize greater safety performance. One of the limitations presented in this study is that the questionnaire did not take into account the different hierarchical levels of leaders in their analysis. Dahl and Olsen's study (2013) has an identified limitation that the proposed research will fill; assessing leadership engagement at various organizational levels. This research also indicated the need for safety management to be researched with general management techniques.

Biggs, Banks, Davey, and Freeman (2013) involved qualitative and quantitative analysis of safety leaders in the Australian construction industry. The leaders, which ranged from executive leaders to front line managers to safety professionals provided insight on safety culture and barriers to implementation of safety culture. The study showed that leaders identified leadership and visibility as the primary, effective means to implementing a positive safety culture. This article provides the definition of safety culture and barriers of safety culture from only one side of the organization; the management side of the organization.

Zohar and Polachek (2014), investigated the effect of communications from the front line manager on the safety culture and resulting safety performance of shop floor employees. In the control group, no feedback was provided to front line managers, but feedback was obtained from direct reports. In the experimental group, two feedback sessions were provided to managers on how to improve safety culture through communication. Ultimately, the experimental group experienced improvements to safety behavior and culture, teamwork and safety performance. This research continues to build on some of Zohar's seminal articles on safety culture from the 1980s.

Kouabenan, Ngueutsa, and Mbaye, (2015) focused on the first line managers and their perceptions of risk in the job, level of involvement in safety and perceived safety climate. The research of first line managers (66) in France indicated that the greater the perceived risk, the more involved the manager became. Additionally, the greater the perception of safety culture, the greater the involvement of the manager is safety. Unlike some seminal research in this area (namely, Zohar), the study did not show significant

effects on safety culture due to the attitude of upper management. This results of this study, therefore, supports the proposed research as it provides a conflict with previous research. This article also showed a similar study across different types of organizations.

The greater the perception of safety culture, the greater the involvement of the manager is safety. This is important to highlight as employee's positive perceptions of safety culture impact reductions in injuries. Management commitment to safety was found to have the greatest impact on employee's perceptions (O'Toole, 2002).

Zohar and Polachek (2014), investigated the effect of communications from the front line manager on the safety culture and resulting safety performance of shop floor employees. When there was communication from the front line manager to the shop floor employees, the results found improvements to safety behavior and culture, teamwork and safety performance (Zohar & Polachek, 2014).

Michael, Guo, Wiedenbeck, and Ray (2006), found that positive exchanges between employees and supervisors can affect employee's behaviors, impacting safety performance. This occurs because those with high quality relationships feel as though they can express concerns with workplace safety, resulting in fewer accidents (Michael, Guo, Wiedenbeck, & Ray, 2006).

Kapp (2012) found that the relationship between the front line employee and their direct supervisor drives employee behavior and safety compliance (Kapp, 2012). Supervisors who place greater value on safety experience greater compliance, while those who place lower value on safety experience lower levels of compliance.

Pilbeam, Doherty, Davidson, and Denyer (2016), found that the relationship between the front line supervisor and his/her direct reports have been studied while other leadership relationships (such as senior managers) that set the tone for safety culture within their organizations are in need of investigation.

Implications of previous research on the proposed research study

With the intent of eliminating bias, as Flin (2003) found that senior leaders are more likely to share what they believe are the safety related responses of a senior leader; rather than their actual beliefs, the proposed study will review the attitude and commitment of the senior leader through their interactions with their organization's safety professional.

My study used the theoretical and practical implications developed through Zohar and Polachek (2014) and the keyword "organizational climate theory" for the research. The research also incorporated the findings of Pilbeam et al. (2016), associated with the relationship between the front line supervisor and his/her direct reports. Pilbeam et al. (2016) found that the relationship between the front line supervisor and direct reports have been studied, while other leadership relationships (such as senior managers) that set the tone for safety culture within their organizations are in need of investigation, which is the intent of the proposed research.

Olle-Espluga et al., (2014), identified that little research has been conducted to analyze the relationship between safety representatives and the shop floor employees. This relationship is an important factor that must be considered as part of the proposed research; could the existence of and influence of a safety representative compensate for a

less than ideal commitment of a manager to a positive safety culture? In this study, nine

out of ten safety representatives believed that management attitudes toward safety failed

to foster a culture of safety by an unwillingness to invest in safety if not regulatory

required (Olle-Espluga et al., 2014). Additionally, this article helps to support my

research and the direction of interviewing safety professionals. The article indicated the

unique perspective of safety professionals (or the slightly different "safety representative"

role, identified in this article). The findings of this research showed that management

attitudes drive safety climate.

     Conchie, Moon, and Duncan (2013) found that the factors leading to the safety

leadership of a supervisor are under researched. When considering leadership styles and

the impact on organizational culture and the reduction of occupational injuries, this

research will address the Conchie et al. (2013) proposal for additional research by

considering the impact of trust, from other members of the organizations, on

organizational culture.

     Fruhen, Mearns, Flin, and Kirwan (2013) identified the need for future studies to

compare the perceptions of safety culture across different industries and within different

levels of organizations as well as safety performance data. Fruhen, Mearns, Flin and

Firwan (2014), suggests analyzing the views of other employees in the organizational

hierarchy to include managers closer to shop floor employees so that "the workforce can

help identify whether senior managers' personal characteristics differ in their influence

on safety at different organizational levels" (Fruhen, Mearns, Flin, & Kirwan, 2014,

p.18). Additionally, the proposed study will address a limitation of the Michael, Guo,

Wiedenbeck, and Ray (2006) study, by collecting information from the perspective of the

safety professional; not the supervisor or shop floor employees measuring themselves.

The research conducted by Lee, Idris, and Delfabbro (2016) did not confirm the

results of Hill et al. (2012). Lee et al (2016), found that while empowering leadership

increased work engagement the research did not indicate that engagement was reduced in

the presence of a strict hierarchical culture. Due to the conflicting results observed in the

Lee et al. (2016) and Hill et al. (2012), studies, the proposed research will evaluate the

effect of hierarchical culture on safety culture and safety performance (and how that

culture is translated to behaviors at various hierarchical levels of the organization).

In alignment with the recommendations of Sheehan, Donohue, Shea, Cooper, and

De Cieri (2016), the data to be used in the proposed research will be collected from

across the United States, representing many different types of organizations (private and

public, high and low hazard) in different sectors (service industry, manufacturing,

healthcare, etc.) and across multiple organizations and those which do not represent only

blue collar jobs.

Research Methods

My research examined the perception of the effect of executives, front line

managers and all middle management on creating a positive safety culture. Qualitative

research is in alignment with Antonsen (2009), which confirms previous research

suggesting that qualitative analysis of a safety culture may be more appropriate than

quantitative analysis. Additionally, this research indicated that organizations struggle

with ensuring that the safety culture of the executive leadership team is conveyed to shop

for employees through their front line supervisor (Antonsen, 2009). To understand the perception of culture at various hierarchical levels of the organization, safety professionals at various organizations will be consulted for interview.

The data was collected in the form of interviews from across the United States, representing many different types of organizations (private and public, high and low hazard) in different sectors (service industry, manufacturing, healthcare, etc.), to fill a research gap indicated by Fruhen, Mearns, Flin and Kirwan (2013).

Nielsen (2014) acknowledges that a theoretical framework for safety culture is not fully developed and there is a lack of studies on cultural change. Globally, literature revealed that the creation of health and safety committees did not indicate a reduction in injuries, but that a reduction was based on the activities completed by, the structuring and size of the health and safety committee (Nielsen, 2014). This study showed the effect of the health and safety committees on improving safety culture. This article supported my research by explaining that the structure and focus of a safety committee (which determines its effect on injury reduction) is set by the management team and their commitment to safety. This study also indicated examples of how to measure safety culture in qualitative research.

World class occupational safety and health (OSH) is typically identified by organizations with:

> 1)OSH on par with business performance; 2) system based approach to OSH; 3) continuous improvement; 4) OSH aligned with organization strategies and values; and 5) promoting safety and health on and off the job. (Saujani, 2016, p.37)

This is in conjunction with five qualities including (1) visible leadership of the management team, (2) employee engagement, (3) operationalization of safety into the business, (4) root cause analysis and data driven decision making, (5) implementing health and safety requirements beyond mere compliance with regulatory requirements. In this case study, lessons learned from working with a large, multi location printing corporation with world class safety culture are shared. This article consisted of significant literature review, to include definitions of world class safety culture and qualities of high performing companies but provided less description of the interviews conducted as part of the case study, to determine that the printing corporation met all of the definitions of a *world class* safety culture. Information on what must be in place to have a *world class* safety culture is very important to the proposed research. This study influenced my research as another resource that defines what it means to have a positive safety culture. This information was utilized as part of the coding process; after completing interviews.

Safety performance

Reader, Noort, Sharrock, and Kirwan (2015) studied the effects of safety culture as it crosses national borders. Specifically, the study indicated how national culture affected safety behaviors such as identifying and reporting safety hazards. As part of the study, Reader, et al., (2015) identified that Danish employees were involved in four times the injuries when compared to their Swedish counterparts. Similarly, the study showed that seafarers in three Asian countries differed in their safety culture, based on their national culture. Rather than focusing on which national culture produces safer

organizations, future studies should focus on how national culture affects safety culture. This information can then be utilized by safety professionals to understand the style of safety program that must be employed to be effective within different national cultures. Similar to all other aspects of international management, safety management is also affected by cultural differences as norms, values and history shape the behaviors of employees. More specifically, in high risk industries, safety management becomes an international concern as the high risk tasks cross national boundaries. Rather than suggesting that some cultures are less safety conscious, the article focused on understanding the importance of safety within a culture and developing programs specifically oriented toward what is most effective at engaging that culture in occupational safety. My research referenced this article to discuss how culture impacts safety performance. Again, while it is not to say that some cultures do not value safety, it is to indicate that it is necessary to understand what motivates or what type of programs are most successful with a given culture.

Han, Saba, Lee, Mohamed, and Pena-Mora (2014) have identified that it is necessary to systematically approach safety. This means that the effect on safety performance must be compared to production pressures (Han, Saba, Lee, Mohamed, & Pena-Mora, 2014). After collecting data, the authors developed a simulated case study. The results identified that scheduling delays and rework had the greatest impact on safety performance (Han et al., 2014). Thus, it is most important that management pay attention to the perceptions of employees that leads them to believe that scheduling delays necessitate rushed performance of tasks (which lead to safety incidents). As part of my

research, it was expected that perceptions of "shop floor" employees and the direct managers of "shop floor" employees were key. My research hypothesized that these perceptions will surround what individuals believe the executive level manager really wants. For example, when shop floor employees hear that safety is key, but we need to make production today, they may develop the perception that it is acceptable to take shortcuts, as long as no one is injured. In reality, the perception may be skewed, as the message because skewed as it traveled from the executive to the shop floor employee. My research needed to be careful to capture and understand the perceptions present at each level of employees within the organization.

Sweden and Denmark have similar cultural similarities. This includes gender equality, collectivism, participatory and team based leadership styles. However, their rates of industry in construction are significantly different, leading to a need to explore the differences in safety culture that contribute to the difference in occupational injury rates. Denmark experiences an occupational fatality rate 33% higher than the rate in Sweden (Grill et al., 2015). The research was conducted as a qualitative case study, with nine participants, a mixture of Swedish and Danish participant, with ranges in age including both sexes a range of professional roles and a range of construction worker rolls. The first theme that emerged was participatory management, where management would seek input and work together to make decisions with all employees (Grill et al., 2015). This allowed for more rapid addressing of safety issues or concerns. This is not the case in Denmark. In addition, participatory management styles are regulated in Sweden, further driving the culture in that direction (Grill et al., 2015). Directive

management also indicated the difference between the two countries. For example, the Danish employees indicated that directive management was utilized to communicate safety. However, the culture was that once the manager who explained the rules had left, the employees were left to do as they see fit (Grill et al., 2015). This style of leadership left no room for input from employees on a better or a safer way to perform work. One example provided by a Danish participant explained that if the manager provided direction to obtain a ladder, the employee would do just that, rather than identifying that the job could be completed safer and faster by using a lift (Grill et al., 2015). This is an important distinction in how management styles foster safety culture, and will be valuable research to add to my study. The proposed study will utilize this research to help develop interview questions. Since the questions in this study related to the culture of the organization, the questions will be useful. Data to support this study was obtained from safety professionals, which further justifies the decisions of proposed research to interview safety professionals to help identify the safety culture at different hierarchical levels of an organization.

The role of national culture in determining safety culture

Power, Klassen, Kull, and Simpson, (2015) evaluated the effects of national culture in management decisions to invest in safety and the environment. The results indicate that larger plants are more likely to invest in safety and the environment. It is also more likely that international firms (with more complex operations) are more likely to invest due to their resources and access to and understanding of industry best practices. A surprising result of the study was that facilities with more engineers did not invest

more in safety and the environment. This is surprising, based on the fact that it may be

expected that more engineers would result in more recognition for safety and

environmental improvement needs. The study showed that the importance that the senior

manager places on safety and the environment impacted the amount of resources spent on

safety and environmental investments. The authors speculate about why it is possible

that facilities with a larger number of engineers invest less in safety and environmental

improvements. There are no supporting citations to backup these alternatives.

Ahmed and Waqas (2017) conducted research in Pakistan, regarding injuries,

safety culture and employee turnover. The quantitative study was conducted by

surveying 111 employees. The intent was to review whether injury rate increased

employee intent to leave a job. Safety culture and employee intent to leave a job were

also evaluated. It was determined that injury rate impacts employee intent to leave a job.

However, safety culture was not found to impact employee intent to leave a job. This is

likely attributed to the poverty, unemployment and lack of job security in factory and

construction work. This research showed reason to question whether job insecurity or

income level will have an impact on the development of safety culture. The article also

cited an instrument of safety culture that was reviewed as part of my research; an

instrument created by Frazier in 2013.

Defining safety culture

Fedorychev and Hammer (2015), indicate that the most important aspect of

improving safety culture is identifying the current state of the safety culture. Thus, the

outcome of the study proposed the use of different types of analysis to qualify an

organization's safety culture. For example, the recommendation is to utilize scale questionnaires to help to "represent identifiable and recognizable characteristics of safety culture" (Fedorychev & Hammer, 2015, p.756).

Fedorycheva and Hammer (2015), indicate that the most important aspect of improving safety culture is identifying the current state of the safety culture. Thus, the results of the study indicated a need for the use of different types of analysis to qualify an organization's safety culture. For example, the recommendation is to utilize scale questionnaires.

Specific incident investigations, related to safety culture

Bing, Zhengdong, Yao, Yan, and Zhenjiang (2014), identified that in China, the fatalities in mining (per million tons) is ten times the United States' rate. This is typically considered to be the result of improper management; a reactive rather than proactive approach to safety, insufficient safety funding and a lack of safety training. A SWOT analysis was utilized to determine how to implement a safety management system. The result is a proposal starts with executive leadership explaining the objective and commitment to safety. Then, roles and responsibilities must be explained for each position in the organization. Identify hazards as well as applicable laws and procedures governing the hazards, train on the hazards and controls as well as the importance of the management system; this will help build the safety culture which the management team must foster. Finally, generate a system to observe, adjust and continuously improve the safety management system.

Change Management

Change is employed in order to give the employer a competitive advantage, but it means stress and worry to an employee (Bordia, Restubog, Jimmieson, & Irmer, 2011). While past research has been focused on instances of change, it has not focused on how historical changes within the organization impact the attitude and behavior of employees. This Bordia et al., research was conducted to fill this gap. One of the hypotheses of the study was that a poor change management history is inversely related organizational trust. A similar hypothesis states that as a poor history of change management increases, so will cynicism. Finally, those likely to be cynical to change a less open to change. In order to test the hypothesis, several different studies were conducted. In the first, 155 employees were surveyed two months after the organization had announced a merger with another company. All employees had previously experienced a history of poor change management. In the second, an educational institution was surveyed, where previous poor change management had occurred. Nearly 125 employees responded at two points; within 3 months of the change implemented and two years post change. These studies failed to disprove the null hypothesis. The authors recommend that the aspects of the study that were self reported are modified to decrease bias. Future studies should also focus on an understanding of poor change management history. This study should be used by leaders to understand that past experience with change management can predict attitude, behavior, engagement, satisfaction and turnover. All of these elements (attitude, behavior, engagement, satisfaction and turnover) are also related to employee perception of the employer; leading to the development of safety culture.

Employee behavior

The study conducted by Kark, Katz-Navon, and Delegach, (2015) described two types of employee safety behavior; voluntary proactive behaviors and mandatory compliance behaviors. The voluntary behaviors are often driven by leadership styles, which result in employees working to improve conditions and practices and a reduced rate of injury. Kark et al. conducted a study based on the recommendations for future studies of the Clark (2013) study; identifying the mechanisms that make transactional and transformational leadership successful. The study showed that "when the leader is perceived as transformational, he or she is able to enhance a variety of behaviors contributing to organizational safety including those of compliance" (p.1343). The results of this study indicated that training at a supervisory level is needed. With this education, supervisors are better able to apply the techniques of transformational and transactional leadership in order to achieve the benefits of safety performance and compliance as well as employees who are proactive in improving the safety environment.

Safety and economics

The Lebeau, Duguay, and Boucher (2014) evaluated the cost of injuries in Quebec between the years of 2005 and 2007. Included in the evaluation was considerations for the suffering of the employee and the lost productivity of the employer. On an annual basis, the study showed that employers lose 1.78 billion and employees suffer 2.84 billion in losses, with the average loss around $40,000 per case. It is difficult and imprecise to calculate doses, as assumptions are made that change across generations, genders and family status. However, despite limitations, studies like this show the costs (likely

underestimated) of occupational juries with the intent of highlighting the appropriate path for research and injury prevention.

Data on the cost of fatalities is available, while the costs of serious injuries and the lifelong impact of disability is under researched. It is for this reason that Marucci-Wellman et al., (2015) studied the occurrence of serious occupational injuries from 1998-2010 in the United States. The study showed that direct costs of these injuries was $600 billion, though while the number of cases reduced year over year, the costs did not. The current study did not indicate if this is due to more severe injuries, an aging workforce or more costly treatment.

As Serrier, Sultan-Taieb, Luce, and Bejean (2014), indicated, occupational safety has "an impact on economic growth by affecting the labor supply, in particular through the number of working days lost because of illness or accident and the reduced productivity of employees at work" (p.661). The focus of the study was on the cost of occupational lung cancer; more specifically, the cost by risk factor. While 2008 results indicate that a case of occupational lung cancer costs approximately 62 million Euros, but the results of this study helped to break down direct (medical bills) and indirect costs (loss of productivity due to decreased morale grieving for co workers) cost by hazard. Approximately 60-70% of occupational lung cancer is associated with asbestos exposure, costing approximately 500,000 to 1.5 million Euros. The purpose of this study is prevention.

Cancer is a disease that is still difficult to treat and that can have physical as well as psychological repercussions. The occupational risk factors are generally

''avoidable'' with technically feasible preventive measures being available, whose implementation, however, depends on decisions made by individuals not directly affected by these risks. In the particular context of occupational cancers, it is ultimately more effective to prevent a cancer than to treat it. (Serrier, Sultan-Taieb, Luce and Bejean, 2014, p.671)

Research has showed that it makes good financial sense to invest in injury prevention (Fabius, Thayer, Konicki, Yarborough, Peterson, Isaac, & Dreger, 2013). Previous research has shown that for every dollar spent when an employee used healthcare, an additional $2.13 was lost by the company. Thus, the authors hypothesized that promoting a safe, healthy and wellness conscious working population would result in improved productivity, increased profit and better stock performance. To test the hypothesis, data from more than 10 years of CHAA award winners was reviewed. The results showed that there is a correlation between organizations that promote wellness and reduce health and safety risks outperform the market.

Summary and Conclusions

Each year United States' occupational accidents result in the death of more than 4,600 individuals and the serious injury of nearly 5 million more (Hofmann et al., 2017). These injuries result in hardships to the family of the employee and to the economy as nearly $50 billion dollars is spent on direct medical costs alone (Marucci-Wellman et al., 2015). The general problem is that a contributing cause in nearly 88% of occupational incidents is unsafe behavior (Goh et al., 2018) affected by the attitudes and beliefs toward safety due to a lack of management commitment to maintaining a positive safety culture

(Zhang et al., 2018). In the example of the Deepwater Horizon incident, an oil rig fire killed 11, injured 16 and cost $34 billion in medical claims and legal settlements (Reader & O'Connor, 2014). This event demonstrates the association between leadership acceptance of unsafe behaviors, unrealistic production expectations and the occurrence of serious occupational incidents (Oudhuis & Tengblad, 2018). If safety is perceived as a value by management and upheld, employees will perform work with safety in mind, reducing injuries (Zacharatos et al., 2005). This is especially important when considering that management is responsible for addressing conflicts between strategic goals such as safety and production (Engemann & Scott, 2018).

The specific management problem is that executives use dynamic or on the fly leadership methods (Gravina et al., 2017), which raises concerns about leaders' interventions on safety culture and the implications of those interventions on safety behaviors and work related accidents (Engemann & Scott, 2018). In the example of the Deepwater Horizon catastrophe, employees were rewarded for cost cutting measures and on time production delivery, not for safety performance (Smith, 2011). Bronkhorst et al. (2018) identified the need for a study of interventions employed by management to improve safety culture.

The purpose of this descriptive phenomenological research study was to describe the effectiveness of the influence of executive interventions on the safety culture within their organizations, as perceived by safety professionals. A greater understanding of how safety professionals perceive interventions, the words and actions or voice, of executives may allow for the development of training. The training could encourage executives to

practice interventions that foster a positive safety culture that reduces occupational death and injury. Safety professionals were asked to describe the interventions that have been employed by executives in their organization and their perception of the effectiveness of such interventions on the safety culture and voice of the organization.

Chapter 3: Research Method

The purpose of this descriptive phenomenological research study was to describe the effectiveness of the influence of executive interventions on the safety culture within their organizations, as perceived by safety professionals. A greater understanding of how safety professionals perceive interventions; the words and actions or voice, of executives may allow for the development of training. The training could encourage executives to practice interventions that foster a positive safety culture that reduces occupational death and injury. Safety professionals were asked to describe the interventions that have been employed by executives in their organization and their perception of the effectiveness of such interventions on the safety culture and voice of the organization. The intent was to capture the lived experience of the safety professionals, as suggested by Giorgi (2009).

This chapter will include a description of research design and rationale, the role of the researcher, methodology, participant selection, and instrumentation. This chapter will then introduce procedures for participant selection, data analysis plan, issues of trustworthiness, ethical procedures, possible types of data sources and possible analytical strategies.

Research Design and Rationale

The purpose of this qualitative, descriptive phenomenological research study was to describe the effectiveness of the influence of executive interventions on the safety culture within their organizations, as perceived by safety professionals. The central research question was:

RQ: What are the lived experience of safety professionals observing the development of safety culture in their organization as impacted by the interventions of executives?

The purpose of this descriptive phenomenological study was to describe how executives effectively influence the safety culture within their organizations, as perceived by safety professionals. Qualitative research is in alignment with Antonsen (2009), who confirmed previous research suggesting that qualitative analysis of a safety culture may be more appropriate than quantitative analysis. To understand the perception of cultural interventions at executive levels of organizations, I interviewed safety professionals at various organizations. I included Safety professionals as part of the research to address recommendations highlighted by previous research indicating that executives may, when questioned, respond in a manner which indicates that they exhibit the expected level of safety engagement, as indicated by Flin (2003). The safety professional has unique access to executive level employees, shop floor employees and all management levels in between and has training, experience, and education to understand safety culture and implications. Based on their experiences, the safety professional is uniquely positioned to describe their perception of effectiveness of leader interventions on the safety culture of the organization. This is also in alignment with Schein (1990) who expressed the struggle to decipher artifacts of culture without an insider's perspective. In my study, the safety professional was the insider.

The participants in my study were asked to participate in interviews. The interviews consisted of open-ended questions designed to elicit the safety professional's

perception of the effectiveness of interventions employed by executive levels of management on improving the safety culture throughout the organization that they represent. The names of the organizations that the safety professional participants represent remained anonymous; as this information was not collected and was redacted from the transcript if unintentionally provided by the participant.

The use of the phenomenological research method in my study is similar to other phenomenological research conducted to understand the feelings and experiences of others, within the realm of occupational health and safety. Høivik et al. (2009) conducted a phenomenological study on the phenomenon of safety culture to produce a description of safety culture at one facility. Chikudate (2009) conducted a phenomenological study to describe the experiences of Japanese train companies and post incident learnings. Burgoyne and Hodgson (1983) conducted phenomenological research on learnings of management based on their experiences in the workplace. Catlette (2005) conducted a phenomenological study on the lived experience of workplace violence survivors, including their fears, actions within the workplace and recommended safety improvements.

Role of the Researcher

As the researcher, I was an observer of the research.   I have a relationship with the professional organization that I utilized to recruit research participants. While I had met professionally with some individuals who ultimately participated in the study, these meetings have strictly been regarding discussions on how to improve the management of

our safety programs. I do not hold an elected position within the organization and therefore do not believe that the perception of influence existed.

Throughout the research, I made conscious efforts to eliminate my own, personal bias. I have served as a safety professional for more than 12 years. Throughout my professional career, I have seen leaders and executives who exhibited high levels of safety commitment and low levels of safety commitment. I have seen the results of leaders actions develop into positive and negative safety cultures. I have seen serious injuries occur because of unsafe behaviors that were accepted or even praised when they facilitated on-time project delivery. Due to my experience, I exercised caution and understood my potential for bias, ensuring that it did not interfere with the collection of data and completion of research. One of the ways in which I worked to eliminate bias was through the data collection process. For example, I structured interview questions so that all interviewees were asked the same questions. I asked additional questions to get to the appropriate level of detailed response from participants. I recorded every interview and transcribed every interview so that no words were lost in interpretation. I had also completed a course on interviewing techniques and how to interpret and respond to body language exhibited by interviewees.

Methodology

Several researchers have suggested that qualitative research is the most appropriate method to evaluate safety culture. Antonsen (2009) confirmed previous research suggesting that qualitative analysis of a safety culture may be more appropriate than quantitative analysis. A limitation of the Bronkhorst et al. (2018) study indicated

that there was no qualitative data collected on the interventions to understand the why and the how of the effectiveness of the leaders' intervention. Qualitative methods were incorporated into my research in order to identify the interventions employed by organizational executives and the impact on safety culture.

I combined purposeful sampling with the snowball method for identifying study participants. I selected purposeful sampling in order to ensure the most efficient collection of rich data for analysis, by selecting participants who are most familiar with the phenomenon of the study. Purposeful sampling was also most appropriate because this method helped to ensure the:

> availability and willingness to participate, and the ability to communicate experiences and opinions in an articulate, expressive, and reflective manner. In contrast, probabilistic or random sampling is used to ensure the generalizability of findings by minimizing the potential for bias in selection and to control for the potential influence of known and unknown confounders. (Palinkas, et al., 2015, p.2),

as indicated by Palinkas et al. (2015). To align with the purpose of this research, purposeful sampling had been selected.

I utilized purposeful sampling to identify individuals who had education in the field of occupational safety/engineering with at least 5 years of experience (2 of which must be with current employer). As needed, I utilized the snowballing technique to gather additional participants meeting these criteria.

Participant Selection Logic

I recruited participants from a local chapter of a professional safety organization. These individuals had roles and responsibilities for their employer that supported occupational safety in the workplace. This ensured that they had current experience in the safety profession. Additionally, participants had a bachelor's (or higher) degree in safety science or an engineering field. This ensured that there was a standard for formal education among respondents. Participants had 5 years of experience in a safety role and at least 2 years with their current employer. This requirement was to ensure that the safety professional had the experience to evaluate the safety culture as it exists within their organization and has had time to observe executives within the organization and the actions that they take in order to impact the safety culture of their organization. As part of the study, a participant could not discuss the safety culture of a previous employer, as it is possible that their employment status could impact their perception of the safety culture of that organization. A review of the resume, LinkedIn profile, or confirmation of the participant was required in order to confirm degree achievement and length of employment.

Approximately 20 participants were identified to participate in my study. I identified these participants by first contacting the entire distribution of a Lehigh Valley professional safety organization through their email distribution list. Members who responded to the initial email I sent were contacted by email with additional information on the nature and purpose of the study as expected time commitment, confidentiality, and their ability to stop their participation at any time. As I was not able to identify a

sufficient number of participants, the process was to be additionally conducted with the Philadelphia Chapter of the same professional safety organization.

Saturation is an important part of the methodology of research. Without saturation, it is not likely to meet quality standards for qualitative research (Saunders, et al., 2018). Saturation occurs when no additional data is being obtained that is contributing to the expansion of the theory (Saunders, et al., 2018). This is the point where data collection ends and data analysis begins. The management program at Walden states that sample size for phenomenological research is 20. Thus, the intended sample size for my research was to be 20; unless saturation was reached first. Selecting a sample size of 20 is aligned with past research. Research conducted by Mason (2010) reviewed approximately 25 phenomenological studies. Of those studies, while the highest recorded number of participants was 89, and the lowest was seven, the mean and mode were 20 (Mason, 2010).

In order to ensure that a sample size of 20 was appropriate, I reviewed phenomenological studies associated with culture and safety. In general, these studies demonstrated that 20 participants were an appropriate minimum to establish (unless saturation has been met, first).

I reviewed the following studies:

- Currie and Richens (2009) conducted a phenomenological study utilizing 33 individuals associated with culture of safety in midwifery

- Høivik, Moen, Mearns, & Haukelid (2009) conducted a phenomenological study utilizing 31 individuals performing work in Norwegian

> manufacturing facilities in an assessment of environmental, health and
> safety culture

- Siemsen, Madsen, Pedersen, Michaelsen, Pedersen, Andersen, and Østergaard (2012) conducted a phenomenological study utilizing 47 individuals focusing on the culture of patient safety

- Brown, Middleton, Fereday, and Pincombe (2016) conducted a phenomenological study utilizing 13 individuals to study cultural safety for aboriginal women

- Crowther and Smythe (2016) conducted a phenomenological study utilizing 13 individuals to study safety for maternity in rural areas

- Glenn, Stocker-Schnieder, McCune, McClelland and King (2014) conducted a phenomenological study utilizing 13 individuals to study patient safety

While not all of the research reviewed focused specifically on a phenomenological study associated with occupational safety culture development, each focused on aspects of culture and safety in the workplace or community and I determined the sample size to be comparable to the minimum number of participants required in a safety culture phenomenological research in order to reach data saturation.

Instrumentation

For my qualitative research, interviews were conducted in order to generate an understanding of the lived experience of the participants. The interviews were semistructured, in order to ensure consistency between the interviews. The interview was

semistructured in order to allow me to delve into the responses of the participants and ask clarifying questions. I derived the semistructured interview questions from the tool developed by Frazier, Ludwig, Whitaker, and Roberts (2013). Frazier et al. (2013) conducted research on the assessment of safety culture of more than 25,000 individuals. The results of the study were the identification of four primary impacts to safety culture: the concern of management, personal responsibility, peer interactions with regards to safety, and the management system associated with safety. I modified the questions developed by Frazier et al. (2013) in order to identify not that these areas impact safety culture but how executives can effectively influence safety culture in these categories.

Additionally, I incorporated questions to assess the safety culture of an organization (those focused specifically on management actions) from the Nuclear Regulatory Commission (NRC) in order to identify the actions of management that contributed most to improved safety culture. These questions are used by the NRC at facilities following a serious safety or environmental incident to investigate the incident (Reiman, 2004). A subset of the investigation of the incident is an investigation of the occupational safety and environmental culture of the organization.

I incorporated these questions by comparing the response of participants to determine which is the action that is successful most often in practice. In addition to general questions about the organization, the questions included the following questions, derived from previously developed questionnaires:

- o How would you describe your interactions with executives and the interactions of shop floor employees as it relates to the safety culture?

- o How would you describe the safety culture of the shop floor employees?

- o Does management's decisions regarding operational issues (such as changes to the scope of work or response to operational events) reflect the appropriate focus on safety? If so, please give examples. Does management's decisions regarding operational issues (such as changes to the scope of work or response to operational events) reflect the appropriate focus on safety? If so, please give examples.

- o Provide examples of situations in which there was a perception of management's trade off/conflict between safety and production (e.g., there was pressure to meet a schedule goal, but you or someone you know identified a problem which would delay the work)? Have you ever run into a situation like this? If so, what did you do? How did it work out?

- o How would you describe the safety culture of the highest ranking officials on the jobsite?

- o How would you describe the leadership style of the highest ranking official?

- o What actions have been taken by the highest ranking officials to effectively influence the safety culture at the jobsite and what where the effects of those actions?

Procedures for Recruitment, Participation, and Data Collection

First, Institutional Review Board (IRB) approval was obtained. This process began during the URR review process, when Form A (Description of Data Sources and

Partner Sites) was submitted to IRB. This form submission resulted in guidance provided with regards to specific IRB submissions. Working with the IRB, the intent was to have IRB approval shortly after proposal approval by URR. Recruitment occurred after approval from IRB.

Following IRB approval, the informed consent process was followed. This ensured that participants were fully educated on the process of the study before participating. For my research, potential participants received initial communication on the research via email. Participants then had the ability to call, text or email any questions that they had regarding the study and their potential participation. After the participants had been fully informed of the details of the study and their ability to remove themselves from the study at any time, the informed consent of the participant was obtained via signature or other electronic confirmation and retained.

The document utilized to document informed consent originated from Walden's sample consent form for adults. I modified this form to reflect the details of my research and any relevant data. For example, information was included on the description of the study, inclusion criteria for participants, the purpose of the study, study procedures (including the potential time commitment of the participants), sample of interview questions, reminder of the voluntary nature of the study, privacy, risks, contact information of the researcher for question and obtaining consent.

After that time, recruitment began through a local safety professional organization. I am a member of the national organization, as well as the Philadelphia and Lehigh Valley, Pennsylvania chapters. Approximately 20 participants were identified.

These participants were identified by first contacting the entire distribution of the Lehigh Valley Chapter of a professional safety organization through their email distribution list. Members who respond to the initial email were contacted by email with additional information on the nature and purpose of the study as expected time commitment, confidentiality and their ability to stop their participation at any time. As enough participants were not identified, I attempted to continue the process with the Philadelphia Chapter of the same professional safety organization. Each chapter had a large number of members. In the city of Philadelphia alone, there were at least 70 members who would have qualified to participate in the study.

Again, when the participants were identified, I obtained consent of the participants, ensuring that they understood that they could withdraw their participation at any time. Additionally, participants were informed that their participation is for research only, all information that could point to a person or an organization would be kept strictly confidential and the records will be kept only for the minimum length of time required by the University; five years following completion of the dissertation.

Sampling would be completed after data saturation was reached, which was expected to be ~20 participants. The first volunteers meeting the criteria were interviewed; either in person or via a video chat application. I preferred face-to-face or video chat as it allowed me to see the body language and facial expression of the interviewee in order to gather the full response of the interviewee. For that reason, audio only or email responses (for initial discussion) were not intended to be accepted. In order to complete a thorough discussion, it was expected that each interview would last 60-90

minutes. Subsequent interviews and/or follow up phone or email communications would be requested to elaborate on response, if necessary.

The participants were intended to be requested to meet in a community location that is convenient for them. The intent was that the participant would meet the researcher at this time. The data was collected by the researcher. Each participant was intended to be asked to meet in person on one occasion. It was expected that the series of questions would take approximately 60-90 minutes. Participants were informed of the expected timeframe, in advance.   If any additional follow up was necessary, participants were asked if they may be contacted via phone or email, rather than face to face. The participant was asked to confirm that it is acceptable to collect a digital recording of the interview. When the participant accepted, the interview progressed. Recording were completed digitally through an application. The results of the interview were then transcribed. At the conclusion of the study, a debrief was conducted with any interested participants. They would be able to be provided with a copy of their transcript and will be able to learn of the results of the study once finalized.

Data Analysis Plan

The responses from the interviewees to the open ended interview questions were recorded, then transcribed, then reviewed for accuracy with the interviewee, if desired. Any misstatements or misrepresentations were corrected. Specifically, the researcher utilized the transcription feature built in to Webex to record most interviews. This transcription was reviewed by the researcher, and compared to the digital recording of the interview. Any errors in transcription by the transcription service were documented.

Upon final review of the transcription, the participant was offered a copy of the transcribed interview.

Once the data was confirmed to have been properly transcribed, it was analyzed. To do so, a chart was established, as has been the case by several other descriptive phenomenological research studies. In this chart, the researcher placed the words utilized by the participant in one column and transformed in the second column to what the participant meant; as interpreted by the researcher both in words, actions and responses. The ultimate goal of the chart was to identify the meaning of the experience of the interviewee as it relates to the phenomena.

The meaning of the experience of each participant was reviewed to determine trends in the information to ensure the research question was addressed, associated with the lived experience of safety professionals observing the development of safety culture in their organization, as impacted by the interventions of executives. There was no software utilized to code the data; only hand coding was employed. This allowed the experience of the researcher, who is also a safety professional, to understand and interpret the potential jargon utilized, similarities in the jargon used and interpret the meaning behind the examples provided by each participant.

Coding was employed in order to describe trends in the data. The transcript of the participant conversations was reviewed. The spoken word, transcribed, was then compared to the emotions, non verbal cues and body language of the participant, as observed by the researcher. Outlying trends in data were captured and expressed as outlying data.

Issues of Trustworthiness

Credibility

In order to ensure reliability of data, all interviews were digitally recorded, with the permission of the interviewee. The interview was then be fully transcribed by an transcription service. The results of the transcription services were reviewed by the researcher for accuracy; as compared to the digitally recorded interview. The interviewee was offered a copy of the transcript, if interested. The purpose of the member checking of the transcript was to ensure that the statements from the participant were not misinterpreted.

Additionally, interviews continued until data saturation was reached. At a minimum, 20 interviews were intended to be conducted in alignment with the Walden management expectation for phenomenological research. As stated previously, the mean number of interviews to reach data saturation has been observed to be approximately 20. Therefore, the intent was to conduct approximately 20 interviews until no new data was being presented, but only trends in data are being observed; as data saturation had been reached.

Transferability

A limitation to the study is the transferability of the study outside of the research population. There will be generalities that apply; however, the study describes what was determined to be most effective safety interventions implemented by the leaders of the organizations represented by the research participants. In order to determine applicability outside of the research participants, the context of the research is provided, in detail. This

will allow readers to determine applicability outside of the research population and will also assist in ensuring dependability of the study.

Dependability

To ensure that the study can be replicated in the future, there will be good documentation of the semistructured interview questions, of participant selection and qualifications.

Confirmability

The researcher built trust with the participants in order to ensure the most open and honest responses to interview questions. This trust was built first by explaining the interview process. This includes that consent of the participants will be obtained, ensuring that they understand that they may withdraw their participation at any time. Additionally, participants were informed that their participation is for research only, all information that could point to a person or an organization will be kept strictly confidential and the records will be kept only as long as required by the University; a minimum of 5 years following the completion of the dissertation. All interviews were recorded, with the permission of the interviewee. The interview was then fully transcribed. The interviewee were offered a copy of the transcript, if interested. This ensured that the statements from the participant are not misinterpreted. This additional step in the process was to ensure data reliability, but also to gain the trust of the participant; so that they understand the research is not attempting to manipulate their words, feelings or expressions in order to ensure that the results of the study align with the purpose of the study.

Ethical Procedures

This research followed all requirements of Walden's IRB. Research did not begin and participants were not recruited until IRB approval was provided for the research. First, Form A was submitted to IRB as the URR reviewed the proposal for the research. Once feedback on next steps were provided by IRB, the appropriate ethical concerns were fully addressed. With approval of the proposal followed by IRB approval, Walden's consent form, a copy included below, was modified for the proposed research and was used as part of the volunteer recruiting process. This process ensured that participants were fully educated on the process of the study before participating. For the research, participants received initial communication on the research via email. Participants then had the ability to call, text or email any questions that they had regarding the study and their participation. After the participants had been fully informed of the details of the study and their ability to remove themselves from the study at any time, the informed consent of the participant was obtained via signature or by electronic means and retained. With regards to risk to participants, the risk was not expected to be greater than any other normal life activity. The research did not collect information intentionally from any sensitive populations and only collected information from those over the age of 21. Data collected will remain secure and will only be maintained for the minimum time required by the University; 5 years beyond the completion of the dissertation. Data security during that time will be ensured via a password protected document repository. Participant names are not associated with data collected. Any inadvertent mention of names of employees or organizations themselves were redacted

from the notes and transcripts from the interviews. The data will only be accessible to myself and my dissertation committee. Data will not be made available outside of the Walden University community.

Summary

The research was initiated by conducting interviews with individuals from the United States, representing many different types of organizations (private and public, high and low hazard) in different sectors (service industry, manufacturing, healthcare, etc.), to fill a research gap indicated by Fruhen et al. (2013).

The data was collected in the form of individual interviews, which allowed the participant to describe the interventions employed by executive managers within the organization and their perceptions of those interventions. The interviews were conducted with safety professionals supporting the organization, as to provide a perspective from an individual who understands the importance of safety, how to identify concerns and how to correct hazards. These safety professionals have worked with a facility for at least 2 years, to ensure that they have had the ability to understand the safety culture of the organization. To analyze the data, a system of coding needed to be developed. The coding helped to identify trends and make general discoveries on the phenomena, which is safety culture. I identified themes and deviations from themes. The themes addressed the research questions and are intended to add to the body of knowledge associated with safety culture.

Chapter 4: Results

The purpose of this qualitative descriptive phenomenological research study was to describe the effectiveness of executive interventions on the safety culture within their organizations, as perceived by safety professionals. A greater understanding of how safety professionals perceive executive interventions; such as words, actions, or voice, may allow for improved development of training. The training could encourage executives to practice interventions that foster a positive safety culture that reduces occupational death and injury. I asked safety professionals to describe the interventions that have been employed by executives in their organization and their perception of the effectiveness of such interventions on the safety culture and voice of the organization. The intent was to capture the lived experience of the safety professionals, as identified by Giorgi (2009).

The central research question was: What are the lived experiences of safety professionals observing the development of safety culture in their organization as impacted by the interventions of executives?

In this chapter, I will address the research setting and demographics for the research. I will also address data collection, data analysis, evidence of trustworthiness and the study results.

Research Setting

The IRB approval to complete this study as originally designed, was received in the first quarter of 2020. This is approximately the time that COVID-19 began to impact the world. Initially, the greatest impact remained in Asia before migrating to Europe. In

the February timeframe, I was able to attend a single, local meeting of the safety professional organization and request participants from the approximately 12 attendees. Turnout was exceptionally low, likely due to winter weather, and the participants that attended the meeting and met the criteria outlined in the study were even lower.

In mid-March 2020, the COVID-19 impact to the United States became so significant that schools began to shut down. Workplaces mandated that nonessential employees to work from home. Restaurants and public locations were shut down. Additionally, biosafety officers (those that run biological safety programs for companies) were on the forefront of protecting workplaces from COVID-19 outbreaks. Typically, the biosafety officer is a role held by a safety professional, the key participant in this study. The availability of participants, the closure of workplaces and public locations (such as restaurants, where the study interviews were intended to be collected), necessitated that I request changes to the study, that had previously been approved by the IRB.

Therefore, the new proposal that was reviewed and approved included the ability to conduct electronic-based rather than face-to-face interviews with participants. Due to the limited availability of safety professionals to participate in this study, the request also included the ability to request participants via electronic means, such as LinkedIn.

Electronic recruiting via LinkedIn began in April and continued through July 2020. A post requesting participants was made on the American Society of Safety Professionals page as well as the Board of Certified Safety Professionals. At the time of

the posting, I provided prospective participants with high-level details of the study as well as the informed consent document, containing my contact information.

Demographics

I proposed to use purposeful sampling as part of this research, to identify individuals who had education in the field of occupational safety/engineering with at least 5 years of experience (2 of which must have been with the current employer), and the snowballing technique, if needed. I intended to select the participants from members of a local safety professional organization but ultimately extended the invitation to qualifying participants through Board of Certified Safety Professionals (BCSP) membership, as well. This change was exclusively due to the lack of availability of a sufficient number of local safety professionals, due to the COVID-19 pandemic. All individuals participating in the study were actively engaged in or had roles and responsibilities for their employer that support occupational safety in the workplace. Participants had a bachelor's (or higher) degree in safety science or an engineering field, as well as 5 years of experience in a safety role and at least 2 years with their current employer. All participants worked within the United States, and primarily supported manufacturing operations. Confirmation of meeting the conditions of the study were obtained by LinkedIn postings or verbal/written confirmation by the participant and all participant information remained confidential. The participants were both male and female, with various levels of experience as a safety professional.

Data Collection

In total, I conducted the study with 15 participants; a number identified as saturation was reached. More than 20 participants had expressed interest to participate, however, those that did not attend the interview at the agreed upon time or even respond to a proposed interview time were not involved in the study.

The study was initially approved by the IRB to conduct in-person interviews by recruiting safety professionals from the Allentown and Philadelphia chapters of a local safety professional organization. However, due to availability of local safety professionals associated with their involvement in fighting the COVID-19 pandemic, recruiting of safety professionals occurred not only through the Allentown chapter, but nationally via LinkedIn. In order to recruit via LinkedIn., the request for participants was posted to the national ASSP page on LinkedIn as well as the page for the Board of Certified Safety Professionals. I provided all prospective participants with the informed consent form at the time of the posting, as well as personally via LinkedIn messaging services or via email.

I intended for the study to be conducted through in-person interviews. However, due to the COVID-19 pandemic, public meeting locations, including the intended interview location, had been closed. Therefore, I employed an electronic means of conducting and recording interviews. I conducted the majority of interviews using WebEx and associated video. However, due to the quality of some participant's home internet (as many professionals were working from home), video was not always an option. Additionally, some participants could only participate via the phone. A few

individuals who were on the front-line of fighting the COVID-19 pandemic were involved in brief conversations followed by lengthy email responses; based on their availability.

For interviews conducted via Webex, I recorded the Webex and generated a transcript. For interviews conducted by phone, I recorded the interview and a transcript was typed based on the recordings. For email conversations, I have retained the emails. Regardless of method of communication, all data were stored on a password protected laptop. No print materials were collected.

I intended for interview to take 30-60 minutes. However, there was a significant range in the length of interviews, which was generally based on the level of detail provided by the interviewee as well as additional questions asked by the interviewee regarding the study and follow-up. One interview lasted approximately 20 minutes, and several exceeded 1 hour (with the interviewee's permission).

I utilized open-ended questions in order to fully allow the participants to share their experiences and added additional, follow-up questions when checking for understanding was necessary or to expand upon the participants initial thought. In some cases, participants answered multiple questions as they provided their response to the first question. Therefore, I did not ask those subsequent questions again in the course of the interview.

Data Analysis

I collected data from the interviews, which were then transcribed and hand-coding was employed. I completed this task by compiling all transcripts into Microsoft Word and searching for common words and phrases among the participant responses. I employed the theming of data, as indicated by Saldina (2015). When common words and phrases were identified, I highlighted those words in a specific color. The common words and phrases that I identified became associated with common themes and then the recommendations of Saldina (2015) were utilized to categorize the data "according to commonality and ordered in superordinate and subordinate outline format to reflect on their possible groupings and relationships" (Saldina, 2015, p. 178).

Interview questions to safety professionals regarding their lived experience with executives and the development of safety culture resulted in data saturation and the emergence of the common themes (see Figure 1). These themes addressed the research question: What are the lived experiences of safety professionals observing the development of safety culture in their organization as impacted by the interventions of executives (see Figure 2).
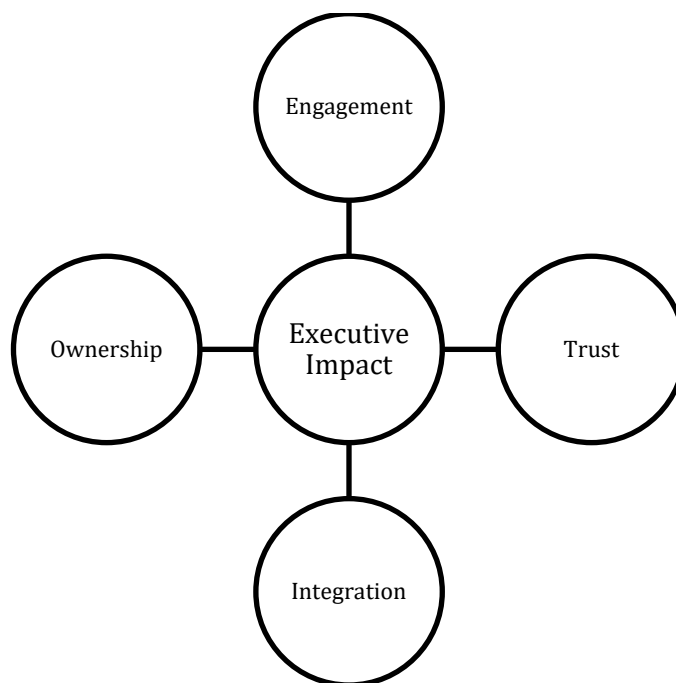
Figure 1. Common themes associated with executive impact

Theme	Subthemes	Participant Statement
Engagement	Executives engaging with employees	An example statement from a participant regarding executive leadership: "He always does safety first in his presentation."
	Executives providing money to support safety initiative	An example statement from a participant regarding executive leadership: "Everybody's going home when it was too hot to work… everybody was ..grateful and happy…that they weren't losing any pay."
	Executives conducting physical site walkthroughs	An example statement from a participant regarding executive leadership: "They definitely made more trips out to the plant, and they were based in Chicago so that was a big deal for the hourly employees to see, like oh, so, and so's coming out to visit us you know, we gotta clean up."
	Executives care	An example statement from a participant regarding executive leadership: "They really do care and about my safety so I'm gonna be on the look out."

	Obvious lack of engagement when safety isn't a priority to executives	An example statement from a participant regarding executive leadership: "Like, we need production is more important. We need to get [product] out the door. That's what's making us money kind of thing."
Integration	Executive integrated safety into business operations	An example statement from a participant regarding executive leadership: "…safety being part of every conversation with leadership and integrating safety into the overall business."
Trust	Not blaming employees	An example statement from a participant regarding executive leadership: "We want to improve this process, so this doesn't happen someone in the future and that resonated with this young person strongly. They were very forthcoming. They said, Here's some things I can see that I did wrong…"
	Trusting recommendations of safety professional	An example statement from a participant regarding executive leadership: "Because he's supported safety, I was able to bring on a health physicist. I was able to bring on a bio safety, human subject, testing expert. I was able to bring in a couple additional engineers. I probably tripled the staff."
Ownership	Shop floor ownership of safety	An example statement from a participant regarding executive leadership: "And then if it worked, right, then there's a bottom up effect, and you, you start to develop culture and you have the basis for a good program."

Figure 2. Themes surrounding development of safety culture

There were outliers reported by participants that were not aligned with the common words, phrases and themes highlighted by the other participants. These outliers originated from a participant who worked for a federal employer. Federal employers are not required to comply with federal workplace regulations, such as OSHA. Therefore, there is a significant difference between a federal employer choosing not to follow an

OSHA regulation and a private industry employer willfully outside of OSHA compliance. The implications to the safety culture would be significantly different. For that reason, statements surrounding a choice not to follow regulations was omitted from the results of the study. For this reason, further investigation into the culture of Federal employers and the development of culture would be interesting. The following quotes support these statements:

- They, they can choose to follow OSHA when convenient.
- When employees are required to do or participate (or not do or participate) according to specific verbiage in a contract, this may require a different approach to the development of safety culture.

Evidence of Trustworthiness

Credibility

In order to ensure reliability of data, I digitally recorded all interviews, with the permission of the interviewee. I then ensured that the interviews were fully transcribed by a transcription service. I reviewed the results of the transcription services for accuracy as compared to the digitally recorded interview. There were no changes to the proposed process with the execution of the study, with one exception. In one case, the recordings were nearly inaudible. Therefore, the notes that I had taken electronically were utilized for trending in this study.

Additionally, I intended to continue interviews until data saturation was reached. Walden University expects a minimum of 20 interviews will be conducted in for phenomenological research. However, I reached data saturation was before 20 interviews

were conducted. Therefore, the with no new data is being presented, but only a

continuation of trends in data being observed, data saturation was identified, and I

stopped the interviews at 15.

Transferability

A limitation to the study is the transferability of the study outside of the research

population. There will be generalities that apply; however, the study described what was

determined to be most effective safety interventions implemented by the leaders of the

organizations represented by the research participants. In order to determine applicability

outside of the research participants, the context of the research will be provided, in detail.

This will allow readers to determine applicability outside of the research population and

will also assist in ensuring dependability of the study.

Transferability is enhanced by ensuring data saturation was reached.

Dependability

To ensure that the study can be replicated in the future, there is good

documentation of the semistructured interview questions, of participant selection and

qualifications.

Confirmability

I established trust with the participants in order to ensure the most open and

honest responses to interview questions. This trust was first built by explaining the

interview process. This includes that consent of the participants will be obtained,

ensuring that they understand that they may withdraw their participation at any time.

Additionally, participants were informed that their participation is for research only, all

information that could point to a person or an organization will be kept strictly

confidential and the records will be kept only as long as required by the University; a

minimum of 5 years following the completion of the dissertation. All interviews were

recorded, with the permission of the interviewee. The interview was then fully

transcribed. The interviewee was offered a copy of the transcript, if interested. This

ensured that the statements from the participant are not misinterpreted. This additional

step in the process was to ensure data reliability, but also to gain the trust of the

participant; so that they understand the research is not attempting to manipulate their

words, feelings or expressions in order to ensure that the results of the study align with

the purpose of the study.

Study Results

The purpose of this qualitative descriptive phenomenological research study was

to describe the effectiveness of executive interventions on the safety culture within their

organizations, as perceived by safety professionals. A greater understanding of how

safety professionals perceive executive interventions, such as words, actions, or voice,

may allow for improved development of training. The training could encourage

executives to practice interventions that foster a positive safety culture that reduces

occupational death and injury. Safety professionals were asked to describe the

interventions that have been employed by executives in their organization and their

perception of the effectiveness of such interventions on the safety culture and voice of the

organization in order to address the central research question of "What are the lived

experiences of safety professionals observing the development of safety culture in their organization as impacted by the interventions of executives?"

The result of completing the interviews, transcribing the interviews, hand coding and identifying trends resulted in the ability to answer the research question. Safety professionals indicate that executives impact safety culture through their engagement, trust, integration and ownership of safety.

Themes and word or phrase patterns are listed in tables in order to identify the repeated and collective terms utilized by participants in their interview responses. The themes of engagement, trust, integration and ownership of safety are present in the tables as well as specific quotes from participants. The table below is formatted in this manner in order to allow for a clear interpretation and understanding of the thematic alignment based on the exact statements from participants (see Table 1).

Table 1
Participant Statements Surrounding Development of Safety Culture

Theme	Subtheme	Participant Quotes
Engagement	Executives engaging with employees	• he always does safety first in his presentation. • So, it's always at the front of the mindset of everyone that safety comes first. • and the partner drove the safety culture at that firm and he was a hands on person he got involved in discussions with folks that they had concerns down to the entry level folks. • So, he was fully engaged on a personal level. I'm not sure if that's an artifact of the size of the company or that. It's based in a kind of a, it's based in Seattle, which is a little bit more. I don't know if you want to call it. • If I want a positive example, it's, they're engaged.

- And have the ability to you're talking at that executive level, you're talking at that shop for level. It's just a unique perspective. But but again, pretty much everybody's everyone is saying, the same thing can be like, yeah, they're out there. They're engaged. They're having the conversations.
- So, from a numbers perspective, the first year, we went from a thirty to a ten, second year. We went from a ten to a four and the second year is when we implemented those, those more engagement type programs.
- He individually went out and made sure that he had done an individual audit on every single worker there and spoke to every single one there…
- He was modeling the right behavior in more than one person out there in the plant
- With a real focus on working directly with the shop floor folks themselves.
- Safety is emphasized very highly to the employees and it is how they start every day.
- Because at the time their VP or executive director attended safety committee meetings,
- And by, by all means, you know, he, he she doesn't have to take all the safety trainings, but it's it demonstrate the importance to the bench level person.
- So, he would really be engaged and then the word gets out. Oh, [he's] coming to my lab.
- so he would engage all levels.
- And he was very engaged, right? So, I flew over there, worked with the team. We did the incident evaluation. We looked for corrective actions so so he was involved.
- Can I say engage? Yeah. Yeah, sure. Engage, engage.
- he would engage in a quite with passionate way. I'll say he wouldn't be afraid to do it.
- Therefore, I also think there is a direct correlation between leadership being engaged in safety in the workplace and holding it as a value at the top of the organization and

having a good safety culture on the shop floor.

	Executives providing money to support safety initiative	• Everybody's going home when it was too hot to work… everybody was ..grateful and happy about…that they weren't losing any pay. • I was on site and they did one thing, I would say that I thought it was pretty remarkable when there was no or mass available they did secure masks for people to wear one • And for the hours worked and everything, it was a ridiculous number. So they implemented the safe start program. I'm not sure if you've heard of or not, but it's a behavioral safety program • it really is remarkable because it's obviously costs money to implement a system like that. • They also gave us money to get T shirts with [our safey] saying on them and our safety logo with the [company reference] and they always talk about it. • we've paid half a million dollars for masks and other supplies, • So that if people didn't feel safe going home, where they felt like, they were gonna take something home to their families, they could stay in the hotel for few weeks. That's very generous. That, that I certainly appreciate. • They're putting their money where their mouth mouth is, you know, and then it's on the other side. It's like, is that they're all about numbers just get the job done. • Anchored the programs onto an existing run rate routine. • they'll put their money where their mouth is, and they treat their HS person. Like, they're the most valuable person on the staff. • I got approval to get an expat assignment over in China, which was so much costs the company, a ton of money. So he approved it. He's like, if you say, that's the right person

		that should go, we're gonna put this person over there, right?
		• The executive put money into fixing what the team identified as needs, allowed the team time to accomplish the actions and tracked progress.
	Executives conducting physical site walkthroughs	• They definitely made more trips out to the plant, and they were based in Chicago so that was a big deal for the hourly employees to see, like oh, so, and so's coming out to visit us you know, we gotta clean up.
		• So one of the things that he did that, I thought was was impactful, was that, you know, he started a gemba walk routine even though the leadership team really didn't have a whole lot of concept about what gamble was and what it was again.
		• And he also talk to the people on the floor while he was, he was going through that walk.
		• and talk to people as he walked through with no plant manager with him no managers with him. No. Engineers with them.
		• So we started doing weekly walk about in the labs.
		• So but we called we call these leader leadership, walk about, right? And so one thing we would do is we would focus on observable conditions. Right? So you can get that from a checklist.
		• We have developed an audit schedule for our leadership to walk the shop floors and discuss safety with our front-line employees and ensure they are visible to the workforce
	Executives care	• that's really important to people that are working for a living. Right? I mean, you know, we can send you home and not tell you then your family doesn't need. So yeah, so that's big big thing there…. it

- said a lot to me about his commitment to the safety
- Yeah, so them putting the ownership back on them and then saying, you know, we do value your safety. What are you going to do to work safely every day?
- And it showed them more that they cared by coming out to visit and talking to them and actually going out on the floor and just instead of just staying up in the office area.
- the temperature checks in the lobby,
- They do care about our health and safety and even though we have to stay open and we have to keep running while everyone's quarantined at home,
- he made a point to show that he's personally invested in folks safety.
- and then everyone felt that he cared about them.
- He got to know them by name
- They really do care and about my safety so I'm gonna be on the look out
- someone who cared who care about people care about safety
- So, when you have someone who is pure in their motives, they're doing it because they care, because they, they understand the risk and they don't want people to get hurt and compliance means something to them.
- but they're going to emulate if he cares about it or she cares about it.
- The conversation is more of "let me tell you why this is important, because we care about you".

	Lack of engagement is obvious when safety isn't a priority to executives	- So, even if it's not actual pressure, they may perceive that they have to get a job done. - I mean, I literally got left out of the trailer and I got told this whole well, these are

men work here and all this kinda kids most stuff. And I'm going like.

- that's what they want is they want stuff to get done at any cost.
- You know, if they think that they're, you don't care, there's just a number, and you're just trying to get another, you know, pill out or another viable vaccine. You know, that that's where some of the the bad stuff happens.
- Due to geogrphic proximity to the facility… "so he was kind of removed from it and the executives didn't really have a huge emphasis on safety"
- Like, we need production is more important. We need to get [product] out the door. That's what's making us money kind of thing.
- it was more punitive. It was more stick and carrot.
- The leader the leader before was very, you know, and it's, it's very cliche, but the blame and punish culture.
- The things kept getting deferred and postponed, and then they had an employee get hurt. Pretty significantly.
- Deadlines were over-riding safety
- And in the the rush to address, and on the medical need, I have senior leaders who are saying, we're not gonna do that.
- We'll just drum waste. It's too expensive. It's gonna take too long.
- Safety top priority until, until we're late on project deliverables. And then it takes a back seat and so we would try to run them down every year.
- So again it's production and timeline to some senior leaders out weigh the safety component.
- leadership looked at safety as a roadblock to their production quota's but in turn preached safety at various meetings in the workplace

		• if you have a work force who continually raises risks/safety issues and they are not followed up on you will quickly lose buy in from the ground floor workers because they will view safety as a lost cause being that if leadership or management don't view it as a value/priority then why should they.
Integration	Executive integrated safety into business operations	• <<After identifying successes and improvements in incidents>> And, and I would go to try to make changes or tweaks to the program. They'd be like no, no, no this is what we want. We want to keep doing this this is working for us and when we go out to do it, because workers don't run away from us. • And then if it worked, right, then there's a bottom up effect, and you, you start to develop culture and you have the basis for a good program. • safety being part of every conversation with leadership and integrating safety into the overall business
Trust	Not blaming employees (testing the system)	• Heart safety culture in general is, when people are over supervised, people don't trust their professionalism a stand over top of them. • I'm so sorry this happened to you we want to get you the care. You need, let's make sure that you are fine first, and then we'll figure out what we can do better down down the road. You know, it's it's a collaborative effort. • We want to improve this process, so this doesn't happen someone in the future and that resonated with this young person strongly. They were very forthcoming. They said, Here's some things I can see that I did wrong. • The question was always, why did you have to do the hot work to begin with?

		• We were not going to blame that person for the event. • It was, it was always found to be something that could have been or should have been improved and the design or the maintenance of the equipment, or the type of activity. • So but we called we call these leader leadership, walk about, right? And so one thing we would do is we would focus on observable conditions. Right? So you can get that from a checklist.
	Trusting recommendations of safety professional	• I told him what was happening that if you wanted a fake Dowdy heat, exhaustion or heat stroke, that, that that was gonna happen on these series of days. And basically, what happened was the, he called whoever he had a call when they base the word down. And next thing I know they're come out and they're telling everybody okay. • So, we're not doing that anymore if we're gonna renovate the area and purchase a new system, we're gonna purchase it to the new standards. We're not gonna do it the way we used to because you didn't have an answer. So it's just another example. • He trusted me implicitly, and he would back me up the confidence that gave me • Because he's supported safety, I was able to bring on a health physicist. I was able to bring on a bio safety, human subject, testing expert. I was able to bring in a couple additional engineers. I probably tripled the staff.
Ownership	Shop floor ownership of safety	• Like, what are you gonna do to work safely every day and make sure that you go home safely? So, I thought that was kinda of a cool program, and it definitely changed the mindset. • So that gave the power back to the folks, the hourly folks

- on the shop floor, they see that it's a different message and they're gonna, they're not gonna they're not gonna follow the safety professionals message. They're gonna follow the big person's message.
- And then if it worked, right, then there's a bottom up effect, and you, you start to develop culture and you have the basis for a good program
- And when you have people who are wearing them, and people who aren't wearing them, and you say, well, why aren't you wear your safety glasses? And they say, well, nobody cares, you know, it's a gauge. It's a gauge where you're at.

There were outliers reported by participants that were not aligned with the common words, phrases and themes highlighted by the other participants. These outliers originated from a participant who worked for a federal employer. Federal employers are not required to comply with federal workplace regulations, such as OSHA. Therefore, there is a significant difference between a federal employer choosing not to follow an OSHA regulation and a private industry employer willfully outside of OSHA compliance. The implications to the safety culture would be significantly different. For that reason, statements surrounding a choice not to follow regulations was omitted from the results of the study. For this reason, further investigation into the culture of Federal employers and the development of culture would be interesting. The following quotes support these statements:

- They, they can choose to follow OSHA when convenient.

- When employees are required to do or participate (or not do or participate) according to specific verbiage in a contract, this may require a different approach to the development of safety culture.

Summary

Safety professionals were asked to describe the interventions that have been employed by executives in their organization and their perception of the effectiveness of such interventions on the safety culture and voice of the organization in order to address the central research question of "What are the lived experiences of safety professionals observing the development of safety culture in their organization as impacted by the interventions of executives?" The intent of this research question was to describe the effectiveness of executive interventions on the safety culture within their organizations, as perceived by safety professionals. The result of completing the interviews, transcribing the interviews, hand coding and identifying trends resulted in the ability to answer the research question. Safety professionals indicate that executives impact safety culture through their engagement, trust, integration and ownership of safety.

Chapter 5 will review then interpret the findings, discuss limitations of the study, implications for future research and finally, the social implications of the study.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this qualitative descriptive phenomenological study was to describe executive effectiveness in influencing the safety culture within their organizations, as perceived by safety professionals. To understand the perception of cultural interventions at executive levels of organizations, I interviewed safety professionals at various organizations. The safety professional has unique access to executive level employees, shop floor employees, and all management levels in between and has training, experience, and education to understand safety culture and implications. Based on experiences, safety professionals are uniquely positioned to describe their perceptions of effectiveness of leader interventions on the safety culture of the organization.

I included open-ended questions in the interviews, designed to elicit the safety professional's perception of the effectiveness of interventions employed by executive levels of management on improving the safety culture. The data were then analyzed by creating a written transcript, conducting coding to identify themes in the responses of participants. Safety professionals indicated that executives impacted safety culture through their engagement, trust, integration and ownership of safety.

Interpretation of Findings

Nearly 5,000 employees die each year in the United States as the result of occupational injury. A contributing cause in nearly 88% occupational incidents is unsafe behavior (Goh et al., 2018) affected by the attitudes and beliefs toward safety due to a lack of management commitment to maintaining a positive safety culture (Zhang et al.,

2018). However, executives use dynamic or on the fly leadership methods (Gravina et al., 2017) which raises concerns about leaders' interventions on safety culture and the implications of those interventions on safety behaviors and work-related accidents (Engemann & Scott, 2018). Therefore, Bronkhorst et al. (2018) identified the need for a study of interventions employed by management to improve safety culture. Additionally, the studies below proposed future research be conducted in the area of safety leadership:

- The results of Mullen, Kelloway, and Teed (2017), a study utilizing social exchange theory framework, indicate that future research is needed to assess the impact of the interventions that can improve safety leadership and encourage employee safety behaviors to prevent incidents.

- Pilbeam et al. (2016) found that the relationship between the front-line supervisor and their direct reports have been studied, while other leadership relationships (such as senior managers) that set the tone for safety culture within their organizations are in need of investigation.

- Fruhen et al. (2014) suggested that senior leaders had significant influence on safety culture but did not explain which characteristics of the senior leader had the greatest effect.

- A limitation of the Michael et al. (2006) study was associated with not collecting information from the perspective of the safety professional, but rather senior leaders, the supervisor or shop floor employees; measuring themselves.

The purpose of this descriptive phenomenological research study was to describe the effectiveness of the influence of executive interventions on the safety culture within their organizations, as perceived by safety professionals. A greater understanding of how safety professionals perceive interventions; the words and actions or voice, of executives may allow for the development of training. The training could encourage executives to practice interventions that foster a positive safety culture that reduces occupational death and injury. I conducted this research with the intent of filling gaps in previous research or recommendations for future research from several recent studies.

In order to address the needs identified in previous studies, the framework for this study drew upon the theory of planned behavior and social exchange theory. Ajzen's (1991) theory of planned behavior suggests that employee behavior is based on the norms accepted by significant individuals in the organization. Montano and Kasprzyk (2015) proposed the use of the theory of planned behavior in conjunction with the theory of planned action in order to consider accepted norms as well as attitudes, behaviors and feelings of control. These theories are applicable to safety culture as employee safety attitude and behavior have been found to be influenced by an organization's safety culture, which is based on the organization's beliefs and attitude toward safety (Choudhry et al., 2007).

Social exchange theory indicates that if employees perceive that the company is concerned with their well being, employees will work to benefit the company (Blau, 1964). When applying social exchange theory to occupational safety, the theory suggests that if safety is seen as a concern, employees will comply with safety requirements, with

exchanges influencing safety culture as described by Reader, Mearns, Lopes and Kuha (2017). This is echoed by Zacharatos et al. (2005) who found that if safety is perceived as a value by management and upheld, employees will perform work with safety in mind. The perception of management commitment to safety predicts behavior (Zohar & Polachek, 2014).

I conducted this research in order to focus on the perception of the effectiveness of executive interventions on the safety culture of the organization. This study addressed a limitation of the Michael et al. (2006) study, by collecting information from the perspective of the safety professional; not senior leaders, the supervisor or shop floor employees measuring themselves. This study focused on the attitude and commitment of the senior leader through their interactions with their organization's safety professional. This research was conducted is in alignment with Fruhen et al. (2014) who suggested researching the views of other employees in the organizational hierarchy. The research intended to fill an additional gap by identifying which characteristics, at the senior manager organizational levels, have been identified as having the greatest impact on safety culture and safety performance, as identified by Fruhen et al. (2014).

Finally, this study is intended to begin to fill the gap identified by Bronkhorst et al. (2018), Mullen, Kelloway, and Teed (2017), Pilbeam et al. (2016), Fruhen et al. (2014 and Michael et al. (2006), by identifying the observed interventions of leaders and the impact of those interventions, as observed by the safety professional supporting the organization.

I identified that executives impact safety culture through their engagement, trust, integration and ownership of safety. More specifically, executives can influence safety culture by the following means:

- Executives engaging with employees

- Executives providing money to support safety initiative

- Executives conducting physical site walkthroughs

- Executives demonstrating care

- Obvious lack of engagement when safety isn't a priority to executives

- Executive integrated safety into business operations

- Not blaming employees

- Trusting recommendations of safety professional

- Shop floor ownership of safety

Limitations of the Study

In the initial development of this study, I identified a limitation associated with the transferability of the study outside of the research population. This limitation still holds true, after the completion of the study. While there are certainly generalities that apply, the study will show what was determined to be the most effective safety interventions implemented by the leaders of the organizations represented by the research participants. In order to determine applicability outside of the research participants, I have provided the context of the research, in detail. This will allow readers to determine applicability outside of the research population and will also assist in ensuring

dependability of the study. No additional limitations to trustworthiness are expected to have arisen from the execution of the study.

Recommendations

In alignment with the recommendations of Sheehan et al. (2016), the data collected for this study was collected from across the United States, representing many different types of organizations (private and public, high and low hazard) in different sectors (service industry, manufacturing, healthcare, etc.) and across multiple organizations and those which do not represent only blue collar jobs. Additionally, the data was collected in the form of interviews from across the United States, representing many different types of organizations (private and public, high and low hazard) in different sectors (service industry, manufacturing, healthcare, etc.), to fill a research gap indicated by Fruhen et al.(2013).

However, the data associated with my research is not correlated with type or sector of the job in question. Therefore, I propose that future research completely address the recommendation of Sheehan et. al (2016) and Fruhen et. al (2013), as it relates to correlating the interactions of executive leaders (as observed by safety professionals) with the type of industry or sector of industry. The results of this type of survey could result in more direct guidance to executives, based on their industry.

Finally, future research should try to address the limitations associated with transferability of this study. A limitation to the study is the transferability of the study outside of the research population. There will be generalities that apply; however, the study will show what was determined to be most effective safety interventions

implemented by the leaders of the organizations represented by the research participants.

Therefore, I suggest that future research be conducted with a quantitative approach via a

method that can be distributed widely to a significant number of safety professionals.

Future researchers should utilize the trends identified in this survey as the basis for the

quantitative survey. Safety professionals should then identify their industry, size,

geographic location, level of "executive leadership" at the site and which types of

interventions are employed by executive leaders in order to impact safety culture.

Conducting future studies in this manner would allow for broader transferability as well

as the ability to see additional trends based on geography or industry.

Implications

Nearly 5,000 employees die each year in the United States as the result of

occupational injury. Approximately 88% of occupational injuries are associated with

unsafe behaviors which are a result of the safety culture that has developed within the

organization through the interactions, messages, and expectations of the organization.

The most consistent demonstration of safety culture and management role in

development of safety culture comes from the relationship with their direct manager

(Kozlowski & Doherty, 1989). However, organizations struggle with ensuring that the

safety culture of the executive leadership team is conveyed to shop-floor employees

(Antonsen, 2009). This is vital, as senior managers set the tone for safety culture within

their organizations (Pilbeam et al., 2016). Therefore, research was conducted into the

interventions employed by executives to improve safety culture, as recommended by

Bronkhorst, Tummers, and Steijn (2018).

My research found interventions observed by safety professionals within the organization that have been employed by executives in order to build a positive safety culture for their organization. In many cases, these interactions were, in the perception of the safety professionals, able to reduce unsafe behaviors and reduce occupational injury. Reductions in occupational injury and death would result in improvements for employees and the general economy as positive safety culture has been found to reduce death and injury within an organization (Neal & Griffin, 2006) and influences positive social change through reductions in the loss of life and loss of financial resources (Marucci-Wellman et al., 2015).

The social change that this research can drive is an improvement in safety culture, leading to improved safety behaviors and a reduction in occupational deaths and injuries. This improvement can be brought about by developing education for executive leaders with regards to interventions and the impact on safety culture. This education would incorporate the interventions identified by participating safety professionals based on the interventions they found most effective at fostering a positive safety culture. An example of information that could be communicated to executive, including focus areas, types of interventions and specific actions is included in Figure 3, based on the feedback of interview participants.

Theme	Focus Area	Specific Actions to Support
Engagement	Executives engaging with employees	• Start every meeting with a safety message. • Engage with employees on a personal level. • Model the behaviors your want your team to demonstrate.

		• Attend safety committee meetings, participate in trainings. • Participate in incident investigations.
	Executives providing money to support safety initiative	• Ensure availability of proper tools to do the job. • Invest in internal or external hazard recognition techniques (example: behavior-based-safety programs, communication tools, etc.). • Hire (and retain) the right resources. • Allow teams the resources to fix identified and agreed upon issues, but follow-up to ensure completion.
	Executives conducting physical site walkthroughs	• Conduct routine physical site walk-throughs of the site/production area/lab. Engage the shop-floor. Take only a small group. • Be visible. • Don't hesitate to talk safety.
	Executives care	• Communicate that employee safety is valued. • Demonstrate, via actions, that employee safety is valued. • Engage personally with employees (show true care/concern for employee safety, learn names, etc.).
	Lack of engagement is obvious when safety isn't a priority to executives	• Identify and eliminate even the perception that job completion or cost is valued over safety. • Be cautious with a punitive approach to safety. • Be aware of deferments. • Ensure your actions match your words. • Address issues timely to ensure employees report and continue to report their concerns.
Integration	Executive integrated safety into business operations	• Integrate safety requirements into production schedules • Support top-down and bottom-up safety culture development • Embed safety in every conversation
Trust	Not blaming employees (testing the system)	• Following an event, ensure all personnel are ok and understand investigations are

		focused on preventing future events (rather than finding fault). • Investigate events to true root cause, for example, why was an employee even asked to perform that hazardous task? • Then, identify design or maintenance issues.
	Trusting recommendations of safety professional	• Support the purpose of design standards despite cost and productivity impacts. • Stand-by and support your safety professional. • Fund safety.
Ownership	Shop floor ownership of safety	• Establish limits for shop-floor personnel power over addressing safety concerns. • Ensure consistency on your safety message. • Hold employees accountable for safety performance.

Figure 3. Actions to support safety culture development

Education presented to executives on this topic can help to develop a positive

safety culture in an organization, resulting in fewer occupational injuries or deaths, thus

positively impacting society.

Conclusions

Nearly 5,000 employees die each year in the United States as the result of

occupational injury. Approximately 88% of occupational injuries are associated with

unsafe behaviors which are a result of the safety culture that has developed within the

organization through the interactions, messages and expectations of the organization. It

has long been identified that management plays a role in the development of safety

culture, yet studies such as Bronkhorst et al. (2018), Mullen, Kelloway, & Teed (2017),

Pilbeam et al. (2016), Fruhen et al. (2014 and Michael et al. (2006), identified a gap in

identifying exactly which interventions assisted in the development of a positive safety

culture. The purpose of this qualitative descriptive phenomenological research study was

to describe the effectiveness of executive interventions on the safety culture within their

organizations, as perceived by safety professionals. A greater understanding of how

safety professionals perceive executive interventions, such as words, actions, or voice,

may allow for improved development of training. The training could encourage

executives to practice interventions that foster a positive safety culture that reduces

occupational death and injury; a significant loss to a family, a workplace and a

community.

The results of this study indicate that more specifically, executives can influence

safety culture by the following means:

- Executives engaging with employees

- Executives providing money to support safety initiative

- Executives conducting physical site walkthroughs

- Executives demonstrating care

- Obvious lack of engagement when safety isn't a priority to executives

- Executive integrated safety into business operations

- Not blaming employees

- Trusting recommendations of safety professional

- Shop floor ownership of safety

Through the development of education for executives on the interventions that they could employ to improve safety culture and reduce injuries and fatalities, a percentage of the nearly 5,000 employees lost each year to occupational injuries can be saved. Leadership behaviors can influence safety culture development and decrease death.

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Appendix A: Participant Invite

Dear Safety Professional;

You are invited to take part in a research study associated with the lived experience of safety professionals observing the development of safety culture in their organization, as impacted by the interventions of executives. The purpose of this study is to describe the effectiveness of the influence of executive interventions on organizational safety culture, as perceived by safety professionals

This study is being conducted by a researcher named Tami Walters, who is a doctoral student at Walden University.

The researcher is inviting practicing safety professionals who have obtained a 4-year degree, have worked in their organization for more than 2 years and who have at least 5 years of experience as a safety professional to participate in the study. The inclusion criteria was established to ensure that only experienced safety professionals, who understand and can identify the attributes of safety culture, participate in the study.

This study is voluntary. You are free to accept or turn down the invitation. No one will treat you differently if you decide not to be in the study. If you decide to be in the study now, you can still change your mind later. You may stop at any time. If you agree to be in this study, you will be asked to:

- Review and acknowledge your rights under the informed consent process.
- Participate in an ~60 minute, Skype **(or other non-contact interview style)** meeting to answer questions about how executives with whom you interact impact the safety culture of the organization which you support. As a thank you for your time, understanding the stress of your daily life, I'd like to treat you to a cup of coffee (**via an electronic gift card**), as we conduct our interview. This will ensure that you start or end your day on a positive note and will show my gratitude for your participation.
- Participate in follow up questions via phone or email (if necessary).

No personal or personally identifiable information will be collected about yourself, your employer or other employees of your employer. The questions that will be asked during the interview include the following:

  o How would you describe your interactions with executives and the interactions of shop floor employees as it relates to the safety culture?
  o How would you describe the safety culture of the shop floor employees?
  o Do executive decisions regarding operational issues (such as changes to the scope of work or response to operational events) reflect the appropriate focus on safety? If so, please give examples. Do executive decisions

regarding operational issues (such as changes to the scope of work or response to operational events) reflect the appropriate focus on safety? If so, please give examples.

o Provide examples of situations in which there was a perception of executive trade off/conflict between safety and production (e.g., there was pressure to meet a schedule goal, but you or someone you know identified a problem which would delay the work)? Have you ever run into a situation like this? If so, what did you do? How did it work out?

o How would you describe the safety culture of the executives on the jobsite?

o How would you describe the leadership style of executives?

o What actions have been taken by executives to influence the safety culture at the jobsite and what where the effects of those actions?

The benefit of participating in this study is that the outcome of the study could benefit the safety community as a whole in the form of a greater understanding of how safety professionals perceive executive interventions, such as words, actions, or voice of executives. This may allow for the development of training and educational materials to encourage executives to practice interventions that foster a positive safety culture that reduces occupational death and injury!

You may ask any questions you have now. Or if you have questions later, you may contact the researcher.

Sincerest thanks for considering volunteering your valuable time!

Respectfully,

Tami Walters

Appendix B: Interview Protocol

Participants: The researcher is inviting practicing safety professionals who have

obtained a 4-year degree, have worked in their organization for more than 2 years and

who have at least 5 years of experience as a safety professional to participate in the study.

The inclusion criteria was established to ensure that only experienced safety

professionals, who understand and can identify the attributes of safety culture, participate

in the study.

Method of Interview: An ~60 minute, Skype (or other non-contact interview style)

meeting to answer questions about how executives interact to impact the safety culture of

the organization in which the safety professional supports. If follow-up is required, it

may be complete by phone, email or a continued interview.

Structure of Interview: The interviews will be semi-structured around 7 key questions.

Depending upon participant responses to the question, additional, clarifying questions

may be asked. Similarly, if a participant addresses more than one question in a response,

that question will not be asked again.

Primary Interview Questions:

- How would you describe your interactions with executives and the interactions of shop floor employees as it relates to the safety culture?
- How would you describe the safety culture of the shop floor employees?

- o Do executive decisions regarding operational issues (such as changes to the scope of work or response to operational events) reflect the appropriate focus on safety? If so, please give examples. Do executive decisions regarding operational issues (such as changes to the scope of work or response to operational events) reflect the appropriate focus on safety? If so, please give examples.
- o Provide examples of situations in which there was a perception of executive trade off/conflict between safety and production (e.g., there was pressure to meet a schedule goal, but you or someone you know identified a problem which would delay the work)? Have you ever run into a situation like this? If so, what did you do? How did it work out?
- o How would you describe the safety culture of the executives on the jobsite?
- o How would you describe the leadership style of executives?
- o What actions have been taken by executives to influence the safety culture at the jobsite and what where the effects of those actions?