WHAT IS SAFETY LEADERSHIP? A QUALITATIVE STUDY EXPLORING SENIOR LEADERS' PERSPECTIVES IN HIGH-RISK INDUSTRIES

ISLAM ADRA

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Abstract

With workplace fatalities and injuries on the rise, research on safety leadership has also grown, given the critical role it has been shown to play in enhancing safety performance. Historically, much of this research is grounded in transformational leadership, which has been widely used as a framework for understanding and operationalizing safety leadership. However, to date, no concrete definition of safety leadership has been developed. The present study aimed to explore and formulate a conceptual definition of safety leadership as well as the key characteristics of effective safety leaders.

To investigate this topic, a systematic literature review was conducted to synthesize existing literature on the empirical definition of safety leadership. Despite its frequent use in both academia and industry, the review confirmed earlier claims that no consensus exists on what safety leadership actually means. The review identified seven empirical definitions of safety leadership; six were extrapolated from their corresponding operational definitions (i.e. how to measure safety leadership), while one was derived through qualitative means. While the latter represents the first empirically grounded conceptual definition, its methodology presents limitations, particularly regarding data source triangulation.

The present study aimed to address these limitations by adopting a qualitative exploratory research approach. Twenty-five semi-structured interviews were conducted to address two key questions: how senior leaders in high-risk industries define safety leadership and what qualities or traits characterize safety leaders. Efforts were made to recruit interviewees from different organizations, industries, and geographies to ensure a broad range of perspectives, and inductive thematic analysis was employed to analyze the data and address the research questions.

The thematic analysis identified eight overarching themes within the data: five addressing the definition of safety leadership and three highlighting the key characteristics of effective safety leaders. Safety leadership was found to be a leadership style where authentic care is demonstrated through leaders who embody and drive safety as a core value by strategically prioritizing it in their communications, decisions and actions to improve safety and business performance. Safety leaders were

characterized by their trustworthiness, positive influence on others, and promotion of psychological safety.

Despite having parallels with other leadership styles, safety leadership was found to be conceptually unique and independent from other forms of leadership constructs. This finding challenges the prevailing view in the academic literature, which has long associated safety leadership with transformational leadership. Additionally, while safety leadership has traditionally been linked solely to safety performance, the present study unveils its positive impact on business performance as well.

These findings offer significant contributions to both safety science and practice, with implications discussed alongside recommendations for future research and an analysis of the study's strengths and limitations.

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Declaration

This thesis documents research conducted as part of the Doctorate in Organizational Health and Well-Being program within the Division of Health Research at Lancaster University, from March 2022 to March 2025. The work presented is the author's own and has not been submitted for the award of any higher degree at another institution. Furthermore, this research was conducted independently, and no conflicts of interest are present. The study did not receive any external funding, and all research activities, including data collection, analysis, and reporting, were carried out without any financial or institutional influence that could bias the findings.

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Islam Adra

Signed:

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Chapter 1. Introduction

1.1 Introduction

Safety leadership has been the subject of much research over the last few decades, particularly because of its important role in improving the safety performance of organizations (Alidrisi et al., 2017; Tao et al., 2020). A lack of safety leadership has been identified as a key contributing factor to the prevalence of occupational accidents and injuries (Mullen et al., 2009). With growing evidence in favor of its positive impacts, many organizations, especially those involved in high-risk activities, have turned to safety leadership with the aim of transforming their frontline leaders into safety leaders (Conchie et al., 2013). This interest in safety leadership is also quite timely considering the alarming statistics published by the International Labour Organization (ILO), which reveal that work-related fatalities are estimated to have increased to 2.9 million in 2022 (Papandrea, 2022) from 2.78 million in 2017 (Hämäläinen et al., 2017) and 2.3 million in 2014 (ILO, 2014). Therefore, finding ways to improve workplace safety and reduce the moral, psychological, and economic consequences of unsafe work is high on the agenda for many organizations, governments, and non-profits alike, and evidence suggests that even small improvements in safety leadership can translate into significant amelioration in workplace safety (Mullen et al., 2009).

1.2 Historical Overview of Safety Leadership

Contrary to Pilbeam et al.'s (2016a) suggestion that the earliest reference to the concept of safety leadership took place in 1990, the term has in fact been found to be employed on numerous occasions far prior to that date. The precise expression "safety leader" appears to have first occurred in 1919 in a National Safety Council (NCS) publication in the US wherein De Blois (1919, p.41) highlights the critical role foremen play in accident prevention and argues that they must *"teach – not by telling, but by actually showing"*. De Blois makes a similar plea in his 1926 book *Industrial Safety Organization for Executive and Engineer* by urging foremen to be safety leaders for the workers they oversee (De Blois, 1926). The term began to sporadically appear thereafter. Less than two decades later, the Detroit Board of Education issued their Handbook of Safety Regulations in which they define *Patrol Functions* in an effort to protect children on the way to and from school. Patrols shouldn't be recognized as police or by city ordinance, the handbook argues, and *"minimizing child accidents"* could be achieved *"through safety leadership and example"* (Detroit Public Schools, 1941, p.7). Both the NSC and the Detroit Board of Education seem to be utilizing safety leadership to denote leading by example from a safety context and as a means to improve physical safety performance. These are insightful uses of the term which may provide some evidence about its early semantic origins, particularly in light of the literal definition and use of the word "leadership" at the time.

In 1943, the Director of the US Department of Labor's Labor Standards Division published an article to promote an industrial health and safety campaign to counter the overwhelming increase in the industrial injury rate resulting from the high production demand imposed by the war effort (Zimmer, 1943). The rising rates were also due to the entry of new, inexperienced workers to the workforce as well as the entry of women (Petersen, 1994). To deal with the shortage of safety engineers faced by thousands of war plants, Zimmer echoes the National Committee for the Conservation of Manpower in War Industries' report suggesting that *"these plants were in urgent need of safety leadership"* (Zimmer, 1943, p.615) to curb the high occupational accident toll. It is interesting to note that Zimmer's recommendation, along with the earlier references by De Blois and the Detroit Board of Education, clearly identify safety leadership as a role that should be assumed by non-safety professionals. This implies that the earliest sources had already assigned meaning and context to the concept even though safety leadership was not a well-established construct up until that point.

Unlike earlier accounts, Harry R. Henzi provided details on how to operationalize safety leadership in his paper published in the American Water Works Association Journal in 1966. Henzi recommended seven key management initiatives to help improve the success rate of any safety program, the first of which was the demonstration of *"management safety leadership"* (Henzi, 1966, p.1289). The use of the term became increasingly more common from the 1970s onwards and industry began seeing value in safety leadership as a competitive advantage. In 1974, for example, the Travelers Insurance Companies in the US organized a safety leadership course to cut injuries and attract new customers (Marketing News, 1974). Consultants were using the concept in their practice and some even produced books to market their expertise, such as Findlay and Kuhlman (1980) who wrote *Leadership in Safety* (Simard et al., 1994). Human resources departments also jumped on the safety leadership bandwagon as evidenced by HR Magazine's 1990 publication *Safety Leadership Cuts Costs* (Pater, 1990).

By the 90s, the importance of leadership in improving organizational safety performance had become widely accepted and numerous reputable organizations were adopting this view. A Confederation of British Industry publication, for instance, suggested that leadership plays a pivotal role in developing a safety culture (CBI, 1990). The Health and Safety Executive's Advisory Committee on the Safety of Nuclear Installations (ACSNI: HSC, 1993) produced a subsequent report noting the essential role of leadership as well as the commitment of the CEO in advancing the safety cause in a meaningful way. Both reports interestingly place the onus of safety leadership on non-safety professionals, which indicates that the meaning of safety leadership had not changed since it first came into use 80 years prior.

1.3 Academic Research on Safety Leadership

Despite the evolving reputation of safety leadership up until this point, Tao et al. (2020) suggest, based on their science mapping analysis of the literature, that academic studies exploring the concept only began to really make an appearance in 1999. Though several seminal studies on the subject were indeed published in the first few years of the 21st century, a couple of academics did begin to explore the relationship between leadership and safety outcomes prior to that point. The leadership in question was not termed "safety leadership" per se but the intent of the investigations did pave the way for more focused inquiries. As early as 1955, Fleishman et al. investigated the effects of two leadership styles on four criteria including accidents, which was measured in terms of the number of trips to the clinic for treatment of occupational injuries. A few other empirical studies conducted prior to 1999 also indicated that leadership is associated with safety (Butler et al., 1979; Dunbar, 1975; Eyssen et al., 1980; Shafai-Sahrai, 1971; Simard et al., 1994; Zohar, 1980) and several academic reviews demonstrated that better safety records could be achieved by organizations in which leaders took an active role in promoting workplace safety (Cohen, 1977; Hofmann et al., 1995; Shannon et al., 1997).

The 21st century saw a drastic increase in academic studies on the subject of safety leadership. According to Tao et al. (2020), studies on safety leadership grew from three in 1999 to 126 in 2018. They also found that approximately 50% of the total studies were published in the USA, the UK, and Canada, with Kelloway, Conchie, and Flin being the most active researchers in the field, and the *Safety Science* journal ranking first in terms of the main source of safety leadership publications (Tao et al., 2020).

Among the academic work done on safety leadership to date, no style has received as much attention as safety-specific transformational leadership, which is based on the general leadership style introduced by James MacGregor Burns in his seminal book titled *Leadership* in 1978 and later developed by Bernard M. Bass (1985). Though Burns' book focuses primarily on political leadership, the concept quickly permeated to the field of organizational management and has become supported by a reasonable body of research (Lekka et al., 2012). Transformational leadership, Burns (1978) argues, emanates from a place of deeply held values and principles which cannot be exchanged. It is a style of leadership where a leader aims to move employees beyond immediate self-interest (Bass, 1999) by inspiring and uplifting them (Hater et al., 1988) through four dimensions, including idealized influence (role modeling), inspirational motivation (presenting a vision), intellectual stimulation (encouraging critical thinking), and individualized consideration (providing personalized support).

Seeing that transformational leadership has positive effects on a range of work-related factors such as trust in management (Jung et al., 2000), organizational commitment (Barling et al.,

1996), and work performance (Barling et al., 1996; Judge et al., 2000), Barling et al. (2002) hypothesized that similar impacts would be observed on occupational safety. They argued that each of the four dimensions of transformational leadership could in essence be refocused to revolve around safety and adopted by leaders for improving safety. Thus was born the construct of safety-specific transformational leadership, which has been investigated in numerous studies and shown to have a positive impact on safety performance (de Koster et al., 2011; Conchie, 2013; Mullen et al., 2009). In fact, there is evidence to show that safety-specific transformational leadership is more instrumental in improving safety outcomes than general transformational leadership simply because leaders may be considered transformational in some areas but passive in others (Kelloway et al., 2006), and so a specific leadership style focused on safety is required (Mullen et al., 2009). In her meta-analytic review of the literature, Clarke (2013) not only substantiated the positive impacts of transformational leadership on safety outcomes, but she also highlighted the importance of transactional leadership as well and argued that a combination of both was required by leaders. Burns (1978) argues that transactional leadership, as the name implies, is materialized when a bargaining transaction occurs between a superior and a subordinate, such as a salary increase in exchange for greater productivity. It is a leadership model where employees are motivated by rewards and punishments (Humphreys et al., 2003) and the leader's influence does not bind them to the follower beyond this transaction (Burns, 1978). This augmented the concept of safety leadership with a new set of behaviors and many subsequent academic studies considered both, safety-specific transformational leadership and transactional leadership, when evaluating safety leadership.

Apart from transformational and transactional leadership, leader-member exchange (LMX) is another theory of leadership that has received some attention in the context of safety. LMX, which focuses on the quality of the relationship between leaders and their subordinates, has been found to positively influence various safety outcomes including accidents (Hofmann et al., 1999), safety citizenship behavior (Hofmann et al., 2003), and safety compliance (Yagil et al., 2010). Some of the limitations of studies exploring LMX and safety, however, include the lack of longitudinal investigations and the focus on supervisors and their workers only as opposed to the relationship between other dyads in the organization (Ta et al., 2022), constraints characteristic of the transformational and transactional safety leadership literature as well (Pilbeam et al., 2016a). In their systematic review investigating the relationship between different leadership styles and safety performance in high-risk industries, Ta et al. (2022) identified several other leadership styles that positively influence safety beyond the aforementioned three, including authentic leadership, empowering leadership, ethical leadership, paternalistic leadership, and charismatic leadership. However, Ta et al. (2022) found that these styles have received relatively less attention by researchers, a conclusion which

Pilbeam et al. (2016a) echo as well. In fact, Pilbeam et al. (2016a) further identified opportunities for plural, or shared leadership, to be investigated in the context of safety, however their recommendation still remains relevant to date. Ta et al. (2022) make the same case for servant leadership.

Though safety-specific transformational and transactional leadership have generally become established constituents of safety leadership in the academic literature, their prominence has not gone unchallenged. In fact, in their meta-analysis of leadership and workplace safety, Lyubykh et al. (2022) found that transformational leadership did not emerge as the largest contributor to occupational safety. They build on Willis et al.'s (2021) argument that adopting multiple leadership practices rather than one leadership style may be the most optimal way of leading in the context of safety. The safety leadership landscape is therefore still evolving and transforming even after several decades' work on the topic.

Beyond investigating the styles and traits of safety leaders and the resulting effects on performance, the antecedents of safety leadership have also been explored by several researchers. Conchie et al. (2013) found that the provision of social support and training are factors that help promote supervisor engagement in safety leadership. Similarly, Cheung et al. (2021) found that psychological capital, social support, and work autonomy significantly contribute to safety-specific transformational leadership. Though understanding the antecedents of safety leadership is an important topic, it has not received as much focus as the behavioral aspects and characteristics of safety leaders (Cheung et al., 2021).

1.4 Purpose of this Research

Despite the explosive interest in safety leadership and the importance attributed to it in both the academic literature and industry, a systematic review of the roles and characteristics of safety leaders published by the Institution of Occupational Safety and Health (IOSH) in partnership with Cranfield University in 2016 found *"no unequivocal or unambiguous definition of safety leadership"* (Pilbeam et al., 2016a, p.1). This finding is both surprising and interesting, especially against the backdrop of how widespread the use of the term is in both academia and beyond (Pilbeam et al., 2016b).

Contemporary conceptualizations of safety encompass much more than physical safety (Boustras, 2020). Safety in the context of this PhD will refer to both physical and psychosocial safety, in line with the comprehensive workplace safety model proposed by Yaris et al. (2020). Contrary to the traditional understanding of workplace safety, which has focused primarily on physical safety (Beus et al., 2016; European Agency for Safety and Health at Work, 2023), the effects of psychosocial hazards, such as job strain, workplace bullying, and lack of organizational support, on both fatal and non-fatal workplace harm are well documented (Jain et

al., 2022; Leka et al., 2010; Niedhammer et al., 2021; Taouk et al., 2020). This growing recognition has led to a stronger emphasis on this aspect of safety, including the introduction of tools like ISO 45003, which offers guidance on psychological health and safety and managing psychosocial risks through a management system approach. Furthermore, leadership plays a pivotal role in this context, with evidence suggesting that leadership can be leveraged to improve both aspects of safety (Laloo et al., 2023). This research therefore embraces a holistic approach to workplace safety, emphasizing the interplay between physical and psychosocial factors.

The purpose of this research is to first understand the current state of knowledge of safety leadership in the academic literature. Almost a decade has passed since Pilbeam et al.'s (2016a) secondary findings on the definition of safety leadership and so it will be necessary to investigate advancements in the body of empirical research since then. Additionally, Pilbeam et al.'s (2016a) systematic review did not focus on the definition of safety leadership per se. Therefore, a systematic review dedicated to exploring the conceptual definition of the term – describing the concept itself rather than how to measure it (operational definition) (Dunn, 2021; Hibberd, 2019) – would be both valuable and strategic. The systematic review will also help identify gaps in the literature, which will then provide justification for the empirical work that follows. The review question that will be explored will therefore be presented following the findings of the systematic literature review in Chapter 2.

Chapter 3 will outline the philosophical approach adopted for the present study, followed by a discussion of the methods and methodology used to address the research questions. Chapter 4 will present the results, while Chapter 5 will include a discussion of the findings, along with a summary of the study's contributions, strengths, limitations, and recommendations for future research. Finally, Chapter 6 will conclude this thesis.

1.5 Personal Reflection

In 2014, the author had been working in the field of occupational health and safety for approximately seven years. Having gathered quite a bit of knowledge and hands-on experience from well-known organizations in high-risk industries, the author became involved in mentoring young professionals. One of these mentees requested the author to provide them with a sample presentation on safety leadership so that they could adapt it to their own context and train their leadership team. This was the first time the author had heard of "safety leadership" and that request initiated a journey of exploration on the subject. In 2016, the author decided to formalize this interest by registering for a PhD program. Initially, the author's intent was to explore the positive effects of safety leadership on organizational culture. But as more was read on the topic in the academic literature, it became increasingly clear that the foundational

elements of the concept of safety leadership (i.e. the conceptual definition of the term) required strengthening and this provided clarity for the focus of this PhD.

Chapter 2. Literature Review

2.1 Review Justification

Despite the extensive research undertaken on safety leadership to date, there is a general perception that the definition of safety leadership is either implied or connected to broader studies on leadership (Daniel, 2015). Pilbeam et al.'s (2016a) systematic review attempted to look at who safety leaders were and their characteristics and in so doing, their review was the first and potentially the last to touch on the definition of safety leadership, albeit indirectly. Beyond the academic literature, they also searched policy reports and practitioner articles in February and March of 2013. Despite finding no agreed upon definition of safety leadership, they did identify three broad categories of practices common to safety leaders including safety coaching, safety caring, and safety controlling. However, they express uncertainty around how such practices differ from those associated with conventional leadership practices in general and argue that safety leadership can simply be defined by those outcomes that are the focus of the leader's attention, which was safety in this case.

Considering the importance of safety leadership and the lack of clarity around its definition in the academic literature, an obvious gap exists that could possibly present a roadblock when comparing studies and in turn reduce the applicability of research findings (Kreshpaj et al., 2020). Furthermore, the existence of varying and potentially inconsistent definitions may contribute to diverted efforts by practitioners, thereby undermining the full breadth of impact that safety leaders can have on preventing occupational accidents and injuries. An evidence-based understanding of the conceptual elements of safety leadership can help leaders focus their finite resources in an environment where safety is often competing for attention amongst other priorities. The magnitude of this problem becomes increasingly more pronounced in light of the ILO work-related fatality statistics that have worsened over the last decade.

With no consensus existing with regards to how leadership itself is defined and assessed however (Reed et al., 2019), it should not be entirely surprising that a sub-facet of leadership is characterized by at least the same level of ambiguity. As Stogdill (1974) points out in his review of leadership research, there are as many definitions of leadership as there are people who have attempted to define the term. In fact, most constructs, including popular ones, share the same controversial fate in the academic literature such as engagement (Schaufeli et al., 2010) and safety culture (Bollmann et al., 2020; Cox et al., 1998). Despite this, the ambiguity associated with safety leadership has not limited its use by both scholars and practitioners over the years and it is only by exploring the concept that we will be able to understand its empirical underpinnings that informs our knowledge and practice. Thus, a systematic review was conducted to directly answer the question of what safety leadership is by investigating how the

term has been defined in empirical, peer-reviewed research and thematic synthesis was employed thereafter to identify conceptual insights from the data. The following section provides an overview of the proposed approach that was taken to conduct the systematic review.

2.2 Review Question

Developing a suitable review question is an iterative process that is informed not only by the preliminary scoping search, but by subsequent steps of the systematic review as well, which could result in the question being changed or refined (Boland et al., 2014). An early scoping search of the literature identified a reasonable volume of data on the subject and confirmed that there were no systematic reviews conducted on the topic. This was also confirmed by a quick search on PROSPERO and the Cochrane Database of Systematic Reviews. The review question that was therefore chosen to be the focus of this systematic review is: *How is safety leadership defined in academic, peer-reviewed journals?* The research question aims to explore the definition of safety leadership across the academic, peer-reviewed, literature, and to understand its theoretical underpinnings. The purpose of this systematic review is to provide a summary of the current state of knowledge rather than to generate theory, and to identify conceptual and actionable insights from the data set using thematic synthesis. By providing a coherent account of the existing body of research and identifying themes, this review will set the baseline on the subject in question as well as identify gaps, with the view to informing future direction of work in this area.

2.3 Methods

The guidance document produced by Denyer et al. (2009) for management and organizational studies was used to guide the approach adopted to carry out this systematic review. Furthermore, PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines were followed to the extent possible to ensure complete and transparent reporting. The following section provides a comprehensive overview of the methodology that was followed to conduct the review.

2.3.1 Eligibility of Studies

A strategic way to develop inclusion and exclusion criteria and to simultaneously operationalize the review question (Boland et al., 2014) is to make use of a review framework. Because the objective of this review is to explore the concept of safety leadership, more specifically its definition, an appropriate model to use is the PCC model, or Population, Concept, Context (Peters et al., 2015). The PCC framework not only provided the boundaries for the review (Stern et al., 2014), but it also helped mitigate the reviewer's personal bias by ensuring that studies were chosen based on a pre-defined criterion (Aromataris et al., 2014). The study

designs to be included along with any language or date restrictions supplemented the PCC model to further focus the question under consideration. Table 1 summarizes the inclusion and exclusion criteria with a justification for each choice, which is considered best practice by Butler et al. (2016).

Table 1

Inclusion and Exclusion Criteria

PCC	Inclusion Criteria	Exclusion Criteria	Justification
Population	Employees at any level		Professionals examined for safety leadership at any level of the organization
Concept	Safety leadership (definition)	Lack of an explicit definition of safety leadership	Safety leadership as a concept is the subject of this review
Context	Organizational settings, global	Patient safety leadership	Focusing on a specific region would narrow the search results. This study is concerned with safety leadership in organizational settings
Additional Components			
Literature type and source	Quantitative, qualitative, and mixed methods academic studies and reviews published in scholarly peer-reviewed journals	Grey literature Trade publications Magazines Dissertations	Though it is recognized that grey literature could unearth valuable information, it was excluded to limit resource use and because it is at the bottom of the hierarchy of academically acceptable resources (Jesson et al., 2011). Contrary to Pilbeam et al.'s (2016a) approach, articles from practitioner literature were not included because of debatable quality control concerns (Adams et al., 2017)
Language	English	Non-English	Only English evidence was considered due to the limited resources available that would otherwise be required for translation. It is recognized that excluding research based on language may introduce language bias, limiting transferability (Butler et al., 2016)
Date	All		As mentioned at the outset, the earliest reference to the concept of safety leadership appears to be in a 1919 NSC publication. A date limit was therefore not applied in this review to ensure no results were excluded

2.3.2 Search Strategy

A preliminary scoping search was conducted to assess the volume of literature available and the study designs used, as recommended by Brettle et al. (2001). The scoping search identified studies of a wide range of research designs, including quantitative and qualitative studies. The studies were heterogeneous in terms of questions asked and the relative context of each study. A clear and comprehensive search strategy was designed and documented to ensure the most relevant literature was identified and to maintain the review's reproducibility (Petticrew et al., 2005). The Lancaster University faculty librarian was consulted to develop the search strategy.

The databases that were searched included ABI-Proquest, Business Source Complete, SCOPUS, APA PsychInfo, and Medline. Business Source Complete, Medline, and PsychInfo were searched through the EBSCOhost platform. These specific databases were chosen because they were used by other recent systematic reviews on relevant topics (e.g., Kalteh et al., 2019; Shea et al., 2021), including the IOSH systematic review undertaken on the characteristics of safety leaders (Pilbeam et al., 2016a). In addition to the use of these five databases, reference lists of included papers were checked manually. Though it is recognized that grey literature from Google Scholar and government websites could add potentially valuable information and reduce publication bias (Butler et al., 2016), they were not referred to in this review due to resource constraints and because they are considered to be at the bottom of the hierarchy of academically acceptable resources (Jesson et al., 2011). Articles that did not define safety leadership explicitly were excluded from the review, in line with other systematic reviews examining definitions of concepts (e.g., Hauer et al., 2006; Kreshpaj et al., 2020; Papa et al., 2005; Singh et al., 2019).

Keywords and phrases, which included "safety leadership" and "definition", and their associated synonyms/ alternative terms were used for searching the databases. The search strategy was based on the PCC framework, which has been resorted to in order to facilitate the searching process. Table 2 presents the PCC framework in the context of the searching strategy. Wild cards and truncation symbols were used to streamline the search. Search syntaxes using Boolean operators (AND & OR) were used. The OR operator was used to separate free text belonging to the same concept and the AND operator was used to combine the different concepts.

Table 2

Development of Keywords and Associated Synonyms/ Alterative Terms using the PCC Model

PCC	Keyword	Synonyms & Alternative Terms
Population		
Concept	Safety Leadership	"safety leader*" "safety-specific" “safety specific”
	Definition	Defin* Mean* Descri*
Context		

The synonyms and alternative terms for each keyword were determined by harvesting the keywords of pertinent studies identified during the initial scoping search. Safety leadership was not divided into two keywords as Pilbeam et al. (2016a) have done because unlike their review, this systematic review is specifically exploring the definition of the term “safety leadership” per se. This decision is in line with the approach Tao et al. (2020) adopted to conduct a bibliometric analysis of “safety leadership” in the academic literature and also concurs with other systematic reviews that explore the definitions of specific concepts (e.g., Kreshpaj et al., 2020 Singh et al., 2019). Additionally, it was anticipated that safety leadership would be the primary focus of relevant studies and so mention of the keyword and its alternatives should be made in the title or abstract. The risks associated with a single screener are appreciated, such as inconsistent application of the inclusion criteria and the missed opportunity to identify and correct random errors and careless mistakes (Gartlehner et al., 2020; Waffenschmidt et al., 2019; Wang et al., 2020), and so each record was screened by the author and the decisions were agreed upon with the supervisor. The full search strategies for each of the databases is presented in Appendix 1.

2.3.3 Relevance

The titles and abstracts of the resulting search output were scrutinized against the inclusion criteria to identify relevance. To perform this consistently and systematically and to prevent bias (Higgins et al., 2011), a screening and selection tool was developed and used as recommended by Sargeant et al. (2014). The tool was based on the PCC framework and the review question (Appendix 2). The form was piloted against four studies to ensure it was fit for purpose. The form not only provided a historical record of the data used in the review, but it also captured decisions made throughout the review process, such as the rationale for excluding specific studies.

2.3.4 Data Extraction

A data extraction tool tailored for the review question under consideration was used to collect relevant information including details about publication (article title, date, authors), whether or not the study defines safety leadership, the definition of safety leadership that is proposed or used by the study, the theory or framework underpinning the definition, and the method the author(s) use(s) to derive the definition. The method refers to the study design and the sample population, as well as the industry used in the study. It also clarifies whether a definition was derived from its operational definition (i.e. how it was measured). If the method was not applicable to a study's proposed definition (i.e. no details were provided on how the definition was established), this was indicated. The method was an important characteristic to identify in order to assess how each definition was arrived at so as to understand the existing state of empirical knowledge when it comes to safety leadership, in line with the review objectives.

If there were any clarifications required about information contained in any of the articles, an attempt was made to contact the author by email. A follow-up was sent two weeks later if no response was received and a further two weeks were provided before no further attempt was made, after which the article in question was excluded on the basis of insufficient information, as recommended by Butler et al. (2016).

2.3.5 Quality Appraisal

Once the data was extracted, the quality of included articles was appraised to ensure the methodological reliability of individual studies (Bettany-Saltikov, 2012). Though the PRISMA 2020 guidelines as well as the 2021 Cochrane Handbook for Systematic Reviews of Interventions recommend focusing on risk of bias over quality, the latter was analyzed in this review. This is because the initial scoping search revealed that interventions and randomized controlled trials were not expected as study designs adopted to arrive at safety leadership definitions and hence a quality appraisal would be more appropriate. It is also appreciated that though it may have been more efficient to conduct the quality assessment and data extraction exercises in tandem (Akers et al., 2009), the two were conducted independently to ensure the appropriate focus is given to each process (Booth et al., 2012).

The validated scoring system developed by Hawker et al. (2002) was the quality assessment tool used because it allows for studies to be appraised from across different paradigms (Hawker et al., 2002). This makes it an ideal choice in this context considering the various study designs that were accepted as part of the review. Though the debates around the quality of qualitative studies is acknowledged (Dixon-Woods et al., 2001), the value of explanatory forms of evidence and the importance of resorting to a range of study designs to answer complex questions is recognized (Hawker et al., 2002). Thus, the Hawker et al. (2002) tool was

instrumental due to the flexibility it offers (Appendix 3). The tool assesses nine aspects of a study and scores each aspect from one (very poor) to four (good), for a maximum score of 36. Butler et al. (2016) recommend a cut-off point for study inclusion. A score of 20 was adopted for this review. Several authors recommend a relatively flexible cut-off point so as not to eliminate potential insights and evidence (Jesson et al., 2011; Ogilvie et al., 2005).

2.3.6 Synthesis

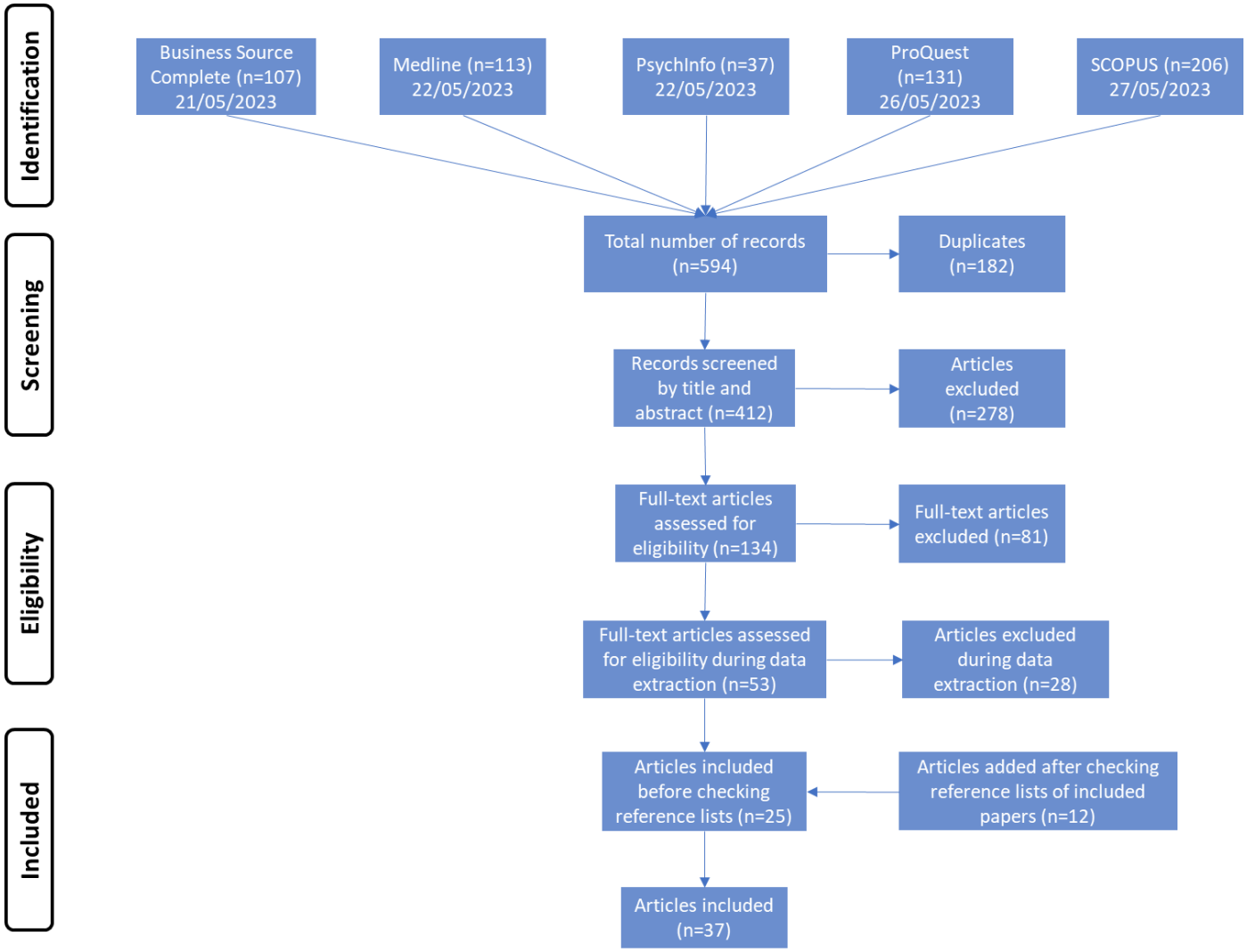
The final stage of the systematic review process was to assemble the findings extracted from the previous step to develop a preliminary understanding of the concept of safety leadership in the literature and to explore potential relationships and contradictions across the findings. The findings were tabulated to facilitate this process. Thematic synthesis was also conducted to integrate findings from multiple studies. Thomas et al.'s (2008) 3-stage method for synthesis was adopted for this task. Since the intent of the review is to look explicitly at definitions, descriptive themes were identified within surface meanings of the data and prevalence was based on the number of instances a particular theme was supported across the data set (Braun et al., 2006). Prior to coding, the definitions were read once in detail to gain familiarity with and understanding of the data. The second reading was performed more rigorously, going through each line methodically. Initial codes, or chunks of meaningful text that tell the reader something interesting about the data (Maguire et al., 2017), were generated through the course of the second reading. A third reading was performed to ensure all codes were captured before collating this categorized data in a separate file (see Appendix 4). The codes were then analyzed to identify descriptive themes (Thomas et al., 2008). Due to the iterative nature of the process, themes were constantly refined as the list of codes were reviewed, and fine-tuning was stopped when refinement was not adding anything substantial (Braun et al., 2006). The titles, or labels, of the themes also went through a refinement process. Finally, analytical themes were generated from the descriptive themes to provide conceptual and actionable insights about safety leadership.

2.4 Results

Five hundred and ninety-four articles were identified in the initial search, which was originally conducted between August and September 2021 and then again between July and August 2022 and a final time in May 2023 to ensure currency. Figure 1 illustrates an overview of the selection process.

Figure 1

PRISMA Flowchart of the Studies Included in the Systematic Review



Of the 594 identified articles, 182 duplicates were removed, leaving 412 articles for screening. The titles and abstracts were then screened for relevance and 278 studies were excluded because they did not match the inclusion criteria. It is interesting to note that there were a number of studies dealing with patient safety leadership, but these were excluded during the screening phase because the subject of this systematic review is the safety leadership of leaders vis-à-vis their employees, such as the relationship between nurses and their leaders. Additionally, there were numerous articles from the journal *Professional Safety* that were also excluded because though they spoke of safety leadership, they were all non-empirical in nature. One hundred and thirty-four articles remained for full-text eligibility assessment. Eighty-one articles were further excluded because they did not define safety leadership, leaving 53 studies for data extraction. A further 28 articles were excluded during the data extraction process leaving 25 included studies. The reason for exclusion at this stage was because the articles defined safety leadership by using a definition from one of the 25 included studies, which made them non-unique. The reference lists of these articles were then scrutinized resulting in a further 12 articles for inclusion. The total number of included studies was 37. No studies were excluded due to insufficient information.

A quality appraisal was then performed and the scores for the 37 studies ranged from 22 to 33. None of the 37 articles were therefore eliminated from this review. The 37 primary definitions are presented in Table 3 coupled with the author, date, article name, the theory or framework underpinning the definition of safety leadership, and the method the author(s) use(s) to derive the definition (type of study, sample size, country, industry). If the article did not investigate the definition of safety leadership, this was indicated in the method column.

Table 3

Summary of Extracted Data

No.	Author	Year	Article Title	Conceptual Definition of Safety Leadership	Definition Underpinning Theory/ Framework	Method
1.	Adi et al.	2021	An empirical analysis of safety behaviour: A study in MRO business in Indonesia	*"Safety leadership is a leadership style that affects and encourages subordinates to carry out activities that emphasize safety values both for themselves and for the organization that ultimately aims to reduce the occurrence of accidents at work"* (p.2)	Authors reference Cooper (2015), Lu et al. (2010), and Oah et al. (2018) to derive their definition: Cooper (2015) - Unspecified Lu et al. (2010) reference Wu et al. (2008) who reference Wu (2005) - social system theory Oah et al. (2018) reference Wu (2005) - social system theory	Study does not specifically look at investigating operational or conceptual definition of safety leadership (SL)
2.	Barling et al.	2002	Development and Test of a Model Linking Safety-Specific Transformational Leadership and Occupational Safety	*"a transformational leadership style that emphasizes occupational safety"* (p.489)	Transformational leadership theory (Bass, 1985)	2 cross-sectional quantitative survey-based studies from the food industry (n=174) and the service sector (n=164) to validate the operational definition of SSTL thereby endorsing the conceptual definition
3.	Berumen-Flucker et al.	2019	Evaluation of Safety Management and Leadership Training Using Mobile Technologies among Logging Supervisors	*"safety leadership is the process of interaction between business leaders and workers, through which leaders can influence workers to achieve business safety objectives and promote a positive safety culture"* (p.198)	Unspecified, however this definition has common elements with Wu's (2005) definition	Study does not specifically look at investigating operational or conceptual definition of SL
4.	Cheung et al.	2021	The antecedents of safety leadership: The job demands-resources model	*"Safety leadership is generally defined as leadership behaviors that have positive impact on employees' safety behaviors"* (p.2)	Transformational leadership theory (Bass, 1985)	Study does not specifically look at investigating operational or conceptual definition of SL
5.	Conchie et al.	2013	Supervisors' engagement in safety leadership: Factors that help and hinder	*"We use the term 'safety leadership' throughout our discussion to capture actions that have a positive impact on employees' safety behaviors"* (p.109)	Job Demands-Resources model (Demerouti et al., 2001)	Study does not specifically look at investigating operational or

						conceptual definition of SL
6.	Conchie	2013	Transformational Leadership, Intrinsic Motivation, and Trust: A Moderated-Mediated Model of Workplace Safety	*"Safety-specific transformational leadership is defined by behaviors that provide employees with a shared vision for safety and the necessary motivation, skills, and self-efficacy to achieve this vision. In essence, it defines an individual who provides employees with an inspiring vision for safety and works with them to achieve this vision rather than relying on formal contingencies (e.g., procedures)"* (p.198)	Transformational leadership theory (Bass, 1985)	Study does not specifically look at investigating operational or conceptual definition of SL
7.	Cooper et al.	2023	The use of Bayesian Belief Networks (BBNs) to probe deeper into railway safety management systems - Two studies from Great Britain and Italy	Safety leadership includes *"leaders setting a clear approach to health and safety, consistent action to reinforce safety values and governance arrangements to ensure accountability for health and safety"* (p.7)	Unspecified	Study does not specifically look at investigating operational or conceptual definition of SL
8.	Daniel	2015	Safety Leadership Defined within the Australian Construction Industry	*"the demonstration of safety values through the creation of a vision and the promotion of wellbeing through the art of engagement, honesty and discipline"* (p.11)	None	Conceptual definition derived through qualitative exploratory research encompassing 20 interviews rooted in the Australian construction industry.
9.	de Koster et al.	2011	Accidents happen: The influence of safety-specific transformational leadership, safety consciousness, and hazard reducing systems on warehouse accidents	*"Safety-specific transformational leadership refers to transformational leadership in which leaders focus their inspirational and motivational efforts towards safety"* (p.756)	Transformational leadership theory (Bass, 1985)	Study does not specifically look at investigating operational or conceptual definition of SL
10.	Delegach, M. et al.	2017	A focus on commitment: the roles of transformational and transactional leadership and self-regulatory focus in fostering organizational and safety commitment	*"Transformational leaders who demonstrate real concern for followers' safety show a value-driven aspirational orientation towards safety and allow employees to use their discretion and take an active part in shaping a safe work environment"* (p.726)	Transformational leadership theory (Bass, 1985)	Study does not specifically look at investigating operational or conceptual definition of SL

11.	de Vries et al.	2016	Safety Does Not Happen by Accident: Antecedents To A Safer Warehouse	Safety-Specific Transformational Leadership *"can be defined as a form of transformational leadership focused on achieving safety outcomes"* (p.1379)	Transformational leadership theory (Bass, 1985)	Study does not specifically look at investigating operational or conceptual definition of SL
12.	Donovan et al.	2017	Safety leadership and systems thinking: application and evaluation of a Risk Management Framework in the mining industry	Safety leadership is defined by *"a leaders' ability to inspire and motivate followers to achieve common goals"* (p.1336)	Authors reference Burns (1978) & Chemers (1997) to derive their definition: Burns (1978) - Transformational leadership theory Chemers (1997) - Unspecified	Study does not specifically look at investigating operational or conceptual definition of SL
13.	Draghici, A., et al.	2022	The Mediating Role of Safety Climate in the Relationship between Transformational Safety Leadership and Safe Behavior—The Case of Two Companies in Turkey and Romania	*"Safety leadership is a concept encompassing clear definition of safety goals, integration of safety as a key value in organizational culture, and creation of a successful occupational safety team."* (p.5)	Authors reference Cooper (2015) who reference a consulting website: Cooper (2015) - Unspecified	Study does not specifically look at investigating operational or conceptual definition of SL
14.	Eatough et al.	2012	Understanding the link between psychosocial work stressors and work-related musculoskeletal complaints	*"Safety-specific leadership involves leaders' emphasizing the value of safe performance, setting goals for injury prevention, and rewarding safety related Compliance"* (p.555)	Transformational leadership theory (Bass, 1985)	Study does not specifically look at investigating operational or conceptual definition of SL
15.	Fang et al.	2020	LCB approach for construction safety	*"Safety leadership refers to the ability and skills of leaders to exert influence on subordinates' behavior to achieving safety goal"* (p.2)	Authors reference Wu et al. (2008) who reference Wu (2005) to derive their definition: Wu (2005) - social system theory	Study does not specifically look at investigating operational or conceptual definition of SL
16.	Griffin et al.	2013	How leaders differentially motivate safety compliance and safety participation: The role of monitoring, inspiring, and learning	*"specific leader behaviours that motivate employees to achieve safety goals"* (p.200)	Self-regulation framework (Lord et al., 2010)	Cross-sectional quantitative study sampled from a range of industries to validate the operational definition of SL thereby endorsing the conceptual definition (n=254)
17.	Irshad et al.	2021	The Combined Effect of Safety Specific Transformational	safety specific transformational leaders *"encourage employees to look for more effective ways of ensuring safety (intellectual stimulation), inspire*	Transformational leadership theory (Bass, 1985)	Study does not specifically look at investigating

			Leadership and Safety Consciousness on Psychological Well-Being of Healthcare Workers	*them to achieve safety standards with were considered unattainable in the past (inspirational motivation), promote occupational safety as a core value (idealized influence), and take a keen interest in the physical and mental well-being of every single employee (individual consideration)"* (p.2)		operational or conceptual definition of SL
18.	Kark, R. et al.	2015	The Dual Effects of Leading for Safety: The Mediating Role of Employee Regulatory Focus	*"refer to leaders' behaviors specifically targeted toward promoting followers' safety-related behaviors in the workplace"* (p.2)	Transformational leadership theory (Bass, 1985)	Study does not specifically look at investigating operational or conceptual definition of SL
19.	Kelloway et al.	2006	Divergent effects of transformational and passive leadership on employee safety	*"safety-specific transformational leadership means that leaders take an active and inspirational approach to safety issues, serving as good models of safety behavior and encouraging others to work in a safe manner"* (p.78)	Transformational leadership theory (Bass, 1985)	Study does not specifically look at investigating operational or conceptual definition of SL
20.	Li et al.	2020	Research on the Relationship Between Safety Leadership, Safety Attitude and Safety Citizenship Behavior of Railway Employees	*"safety leadership refers to a process in which a person guides and influences other individuals or groups to achieve safety objectives when completing organizational tasks"* (p.2)	Authors reference Fernández-Muñiz, B. et al. (2017) who reference Wu (2005) to derive their definition: Wu (2005) - social system theory	Study does not specifically look at investigating operational or conceptual definition of SL
21.	Lu et al.	2019	Safety-Specific Leadership, Goal Orientation, and Near-Miss Recognition: The Cross-Level Moderating Effects of Safety Climate	*"Safety-specific transformational leadership is a leadership style that delivers a shared vision of safety to employees and encourages them to exercise their energy, skills, and self-efficacy to realize this vision".* (p.2) *"Safety-specific active transactional leadership improve employees' safety performance by clearly conveying contingent incentives and penalties and providing active supervision".* (p.3)	Transactional theory Transformational leadership theory (Bass, 1985)	Study does not specifically look at investigating operational or conceptual definition of SL
22.	Makki, A. et al.	2022	Critical Systems-Thinking-Based Leadership Competencies as Enablers to Better Construction Safety Performance	*"a system of influence processing where safety leaders lead this process to influence their followers in a specific environment to achieve their ultimate safety goal."* (p.2)	Authors reference Alidrisi et al. (2022): Alidrisi et al. - Systems thinking	Study does not specifically look at investigating operational or conceptual definition of SL

23.	May et al.	2019	Assessment of leadership behavior in occupational health and safety	*"Leadership in occupational health and safety is aimed at protecting the health, safety, and well-being of workers in the workplace, reducing risks, and preventing damage or illnesses arising from work-based activities"* (p.406)	Authors reference Mullen et al. (2011) to derive their definition: Mullen et al. (2011) - Transformational leadership theory (Bass, 1985)	Study does not specifically look at investigating operational or conceptual definition of SL
24.	Molnar et al.	2019	Leading for Safety: A Question of Leadership Focus	*"leadership that is not necessarily characterized by either transformational or transactional leadership behaviors but rather indicates the degree to which the leader gives focus and priority to safety over other aspects such as speed and schedules, reacts to subordinates' safe/unsafe conduct (i.e., positive and negative feedback), and takes initiatives to actions concerning safety issues"* (p.181)	Authors reference Shannon et al. (1997) and Zohar (2000) to derive their definition: Shannon et al. (1997) – Unspecified Zohar (2000) - Unspecified	Cross-sectional quantitative study in a Swedish paper mill company to validate the operational definition of SL thereby endorsing the conceptual definition (n=269)
25.	Mullen et al.	2009	Safety leadership: A longitudinal study of the effects of transformational leadership on safety outcomes	*"a safety-specific transformational leader engages in behaviour that is characteristic of the components of transformational leadership, yet specifically focused on inspiring and promoting positive safety-related practices"* (p.255)	Transformational leadership theory (Bass, 1985)	Longitudinal quantitative intervention-based study in Canadian health care setting to validate operational definition, thereby endorsing conceptual definition (n=54)
26.	Mullen et al.	2011	Inconsistent style of leadership as a predictor of safety behaviour	*"a safety-specific transformational leader engages in behaviour that is characteristic of the components of transformational leadership, yet specifically focused on inspiring and promoting positive safety-related attitudes and behaviours in the workplace"* (p.43)	Transformational leadership theory (Bass, 1985)	Study does not specifically look at investigating operational or conceptual definition of SL
27.	Neag et al.	2020	Characterizing Safety Leadership Based on the Seven Skills of Effective People Model	*"Anybody who has positive social influence over their peers and an interest in improving safety across the organization could be considered a safety leader"* (p.208)	Operational definition underpinned by the seven habits of highly effective people framework (Covey, 1989)	Mixed method study carried out in Romania across several companies (industries unspecified) to validate the operational definition of SL (n=419)
28.	Rafique et al.	2021	Impact of Safety Climate on Safety Behaviour in	*"Safety leadership delivers a shared vision of safety to subordinates and inspires them to exercise their*	Transformational leadership theory (Bass, 1985)	Study does not specifically look at

			Construction Projects: Mediating Mechanism and Interacting Effect	*self-efficacy, skills and energy to achieve their vision"* (p.167)		investigating operational or conceptual definition of SL
29.	Shi et al.	2022	The Influence of Safety-Specific Transformational Leadership and Safety Management Practices on Mindful Safety Practices through Safety Motivation: A Study in the Chinese Petroleum Industry	*"commitment and attitude of leaders on the safety related issues at the workplace"* (p.353)	Transformational leadership theory (Bass, 1985)	Study does not specifically look at investigating operational or conceptual definition of SL
30.	Stiles et al.	2018	Evaluating attitudes to safety leadership within rail construction projects	*"safety leadership is associated with visible and active commitment from the management team. Safety responsibilities are taken seriously and leading by example to establish and reinforce expectations for peers and colleagues through effective downward communication systems, and integration of safety in company-wide decision making"* (p.137)	Authors reference Gadd et al. (2002) and Zohar (2002) to derive their definition: Gadd et al. (2002) - Unspecified Zohar (2002) - Full range leadership model (Bass et al., 1997)	Study does not specifically look at investigating operational or conceptual definition of SL
31.	Unur, M. et al.	2022	Can Safety Leadership Be an Antidote in the COVID-19 Fear of Job Insecurity and the Work Engagement Relationship in the Norwegian Service Industry? A Moderated-Mediation Model	*"Safety leadership is a safety-goal-oriented leadership style, which is the ability to achieve the optimum safety benefits by effectively arranging organizational resources, as well as having a significant positive effect on employee safety behavior and workplace safety."* (p.2)	Authors reference Clarke (2013). Clarke (2013) - Transformational leadership theory (Bass, 1985)	Study does not specifically look at investigating operational or conceptual definition of SL
32.	Vignoli	2018	The Role of Safety Training and Safety Leadership in Determining Safety Organisational Citizenship Behaviours	*"Safety transformational leaders can be defined as leaders who inspire, intellectually stimulate and consider workers as individuals"* (p.332)	Transformational leadership theory (Bass, 1985)	Study does not specifically look at investigating operational or conceptual definition of SL
33.	Wang et al.	2015	Leadership and turnover intentions of Taiwan TV reporters: the moderating role of safety climate	*"A leader with safety-specific transformational leadership is one who tries to become a role model by doing what is right (i.e., focusing on safety), rather than what is profitable (i.e., focusing on performance pressures)"* (p.257)	Transformational leadership theory (Bass, 1985)	Study does not specifically look at investigating operational or conceptual definition of SL
34.	Wu	2005	The Validity and Reliability of Safety	*"the process of interaction between leaders and followers, through which leaders could exert their*	Operational definition is based on social system theory (Getzels et al.,	Cross-sectional quantitative

			Leadership Scale in Universities of Taiwan	*influence on followers to achieve organizational safety goals under the circumstances of organizational and individual factors"* (p.2)	1957) which is used to endorse the conceptual definition	survey-based study in Taiwanese Universities to validate the operational definition of SL thereby endorsing the conceptual definition (n=322)
35.	Wu	2008	Safety leadership in the teaching laboratories of electrical and electronic engineering departments at Taiwanese Universities	*"the process of interaction between leader and followers through which a leader can exert influence on followers to achieve group safety goals within the context of organizational and individual factors"* (p.600)	Author references Wu (2005) to derive their definition. Wu (2005) - social system theory (Getzels et al., 1957)	Cross-sectional quantitative survey-based study in Taiwanese Universities to validate the operational definition of SL thereby endorsing the conceptual definition (n=373)
36.	Zhang et al.	2018	Perceiving interactions and dynamics of safety leadership in construction projects	*"Safety leadership is the process of interaction between leaders and followers in order to achieve organizational safety goals"* (p.68)	Unspecified, however this definition has common elements with Wu's (2005) definition	Study does not specifically look at investigating operational or conceptual definition of SL
37.	Zhao, L. et al.	2022	The Effect of Safety Leadership on Safety Participation of Employee: A Meta-Analysis	*"an influence process in which the safety leader improves the work safety environment of the enterprise, guides, or requires employees to regulate their own safety behaviors, and helps them obtain the support of the organization to achieve the overall safety goal of the enterprise"* (p.2)	Authors reference Wu et al. (2008) and Wu et al. (2011) who both reference Wu (2005) to derive their definition: Wu (2005) - social system theory (Getzels et al., 1957)	Study does not specifically look at investigating operational or conceptual definition of SL

The thematic synthesis resulted in three themes that focused on the why, how, and who of safety leadership including:

1) Safety leadership improves safety performance (why safety leadership?)
2) Safety leaders lead by influence and example, not authority (how do safety leaders lead?)
3) Safety leadership can be practiced by leaders at all levels of the organization (who are safety leaders?)

2.4.1 Theme 1 – The why of safety leadership

The first theme that resulted from the analysis was the positive effects of safety leadership on safety performance. This theme was the most frequent one in the data, appearing 27 times across the 37 definitions (see Table 4), highlighting its prominence.

Table 4

Summary of Themes and References

No.	Theme	Theme Definition	References
1.	Safety leadership improves safety performance	Codes that link safety leadership with improved safety performance	Berumen-Flucker et al. (2019), Cooper et al. (2023), Donovan et al. (2017), Conchie et al. (2013), Daniel (2015), Griffin et al. (2013), Kark, R. et al. (2015), Wu (2005), Wu (2008), de Vries et al. (2016), Mullen et al. (2009), Makki, A. et al. (2022), May et al. (2019), Mullen et al. (2011), Kelloway et al. (2006), Li et al. (2020), Irshad et al. (2021), Eatough et al. (2012), Neag et al. (2020), Adi et al. (2021), Zhang et al. (2018), Cheung et al. (2021), Fang et al. (2020), Lu et al. (2019), Rafique et al. (2021), Unur, M. et al. (2022), Zhao, L. et al. (2022)
2.	Safety leaders lead by influence and example, not authority	Safety leaders influence others to achieve safety outcomes	Berumen-Flucker et al. (2019), Donovan et al. (2017), Daniel (2015), Stiles et al. (2018), Griffin et al. (2013), Wu (2005), Wu (2008), Makki, A. et al. (2022), Mullen et al. (2009), Mullen et al. (2011), Kelloway et al. (2006), Conchie (2013), Li et al. (2020), Irshad et al. (2021), de Koster et al. (2011), Neag et al. (2020), Adi et al. (2021), Fang et al. (2020), Lu et al. (2019), Vignoli (2018), Wang et al. (2015), Rafique et al. (2021), Zhao, L. et al. (2022)
3.	Safety leadership can be practiced by leaders at all levels of the organization	Codes that describe safety leadership as a leader-follower relationship	Delegach, M. et al. (2017), Donovan et al. (2017), Conchie et al. (2013), Griffin et al. (2013), Makki, A. et al. (2022), Molnar et al. (2019), Wu (2005), Wu (2008), May et al. (2019), Kark, R. et al. (2015), Kelloway et al. (2006), Conchie (2013), Li et al. (2020), Irshad et al. (2021), Adi et al. (2021), Zhang et al. (2018), Cheung et al. (2021), Fang et al. (2020), Lu et al. (2019), Vignoli (2018), Rafique et al. (2021), Zhao, L. et al. (2022)

The most common way this theme was expressed in the data was by use of the words *goals* and *objectives*. Examples from the data include statements like *"to achieve group safety goals"* (Wu, 2008, p.600), *"to achieve safety objectives"* (Li et al., 2020, p.2), *"to achieve organizational safety goals"* (Wu, 2005, p.2) and *"to achieve business safety objectives"* (Berumen-Flucker et al., 2019, p.198). In addition to safety goals and objectives, other performance-related words that were used to describe the positive effects of safety leadership included *safety culture* (e.g., *"promote a positive safety culture"* (Berumen-Flucker et al., 2019, p.198)), s*afety behaviors, attitudes, and practices* (e.g., *"promoting positive safety-related attitudes and behaviours"* (Mullen et al., 2011, p.43)), *wellbeing* (e.g., *"promotion of wellbeing"* (Daniel, 2015, p.11)), and *outcomes* (e.g., *"on achieving safety outcomes"* (de Vries et al., 2016, p.1379)). Conceptually, this theme can be interpreted as the "why" of safety leadership, or the reason for and benefits of adopting it, which reflects the analytical theme of the synthesis.

2.4.2 Theme 2 – The how of safety leadership

The second theme addresses the "how" of safety leadership, an actionable insight resulting from the synthesis. Safety leaders motivate and inspire their followers to achieve desired outcomes. They lead by example and do not use force as part of their toolkit. This was a prevalent theme that came up in 23 of the 37 definitions (see Table 4). Words that were used to underpin this theme include *inspire*, *motivate*, *influence*, *encourage* and *leading by example*. Some examples from the data that support this theme include *"leaders who inspire"* (Vignoli, 2018, p.332), *"leaders' ability to inspire and motivate"* (Donovan et al., 2017, p.1336), *"behaviours that motivate employees"* (Griffin et al., 2013, p.200), and *"leading by example"* (Stiles et al., 2018, p.137).

2.4.3 Theme 3 – The who of safety leadership

The final theme that was identified was around the practice of safety leadership. The theme suggests that safety leadership is a form of leadership that can be embodied by leaders at any level of the organization rather than just those at the upper echelons of the organizational structure. This theme was expressed in 22 of the 37 definitions (see Table 4) and the most common way it was articulated was by use of the word *leader* vis-à-vis *followers* and *employees*. Examples from the data include statements like *"interaction between leader and followers"* (Wu, 2008, p.600) and *"behaviors that provide employees with"* (Conchie, 2013, p.198). There were two definitions that restricted this form of leadership to management *("visible and active commitment from the management team"* (Stiles et al., 2018, p.137)) and the business leaders (*"process of interaction between business leaders and workers"* (Berumen-Flucker et al., 2019, p.198)) although there is strong support from

the literature that supervisors do play a critical role in shaping the safety behaviors of their employees (e.g., Zohar, 2000 & 2002). It should also be noted that Neag et al. (2020) were the only authors that explicitly stated that anyone can be a safety leader rather than just managers and supervisors. In other words, they described leadership as an act instead of an organizationally defined function whereby a safety leader is anybody that steps up and takes the initiative regardless of whether or not they hold a formal leadership role or title. Nonetheless, the participants they used in their study all held managerial positions. This theme answers the "who" of safety leadership.

2.4.4 Thematic synthesis results in light of historical context

Of the 37 definitions, 13 made mention of all three themes and 12 included two of the themes. It is also worth noting that all three themes that resulted from the analysis are in line with the earliest uses of the term safety leadership, as discussed in the historical overview section (section 1.2) (De Blois, 1919; De Blois, 1926; Detroit Public Schools, 1941; Zimmer, 1943).

2.5 Discussion

The review sought to explore how safety leadership is defined in academic, peer-reviewed journals. Of the 37 definitions presented in Table 3, seven studies investigated the operational definition (i.e. how to measure it) of safety leadership directly (Barling et al., 2002; Griffin et al., 2013; Molnar et al., 2019; Mullen et al., 2009; Neag et al., 2020; Wu, 2005; Wu, 2008) and only one derived a conceptual definition of the construct empirically (Daniel, 2015). The remaining 29 studies did not directly examine the conceptual or operational definition of the term but rather largely investigated its antecedents or effects. These 29 studies either derive a definition of safety leadership based on existing theory (e.g., transformational leadership) or other definitions (e.g., Donovan et al., 2017). Of the seven studies that investigated the operational definition of safety leadership, six use their findings to endorse their conceptual definition of the term. The operational definition proposed by Neag et al. (2020) is the only one that does not seem to find its way across to its conceptual counterpart. Thus, seven conceptual definitions (6+1) were considered to be evidence-based. It is interesting to note that two of these seven definitions are underpinned by Wu's (2005) work and two by transformational leadership theory. This is important because when analyzing the 37 definitions, it is found that 20 are theoretically underpinned entirely (18 of 20) or in part (2 of 20) by transformational leadership theory, and eight are based on Wu's (2005) definition or have very common elements with it, although they do not specifically reference Wu (2005) (Berumen-Flucker et al., 2019; Zhang et al., 2018). Though Wu (2005) proposed a conceptual definition based on empirical findings, he ties his safety leadership scale composed of safety coaching, safety caring,

and safety controlling, to transformational leadership (coaching & caring) and transactional leadership (controlling) (Wu, 2008). Wu (2008) is among many researchers who consider transformational and transactional leadership to be the cornerstones of the safety leadership construct in the academic literature (Lu et al., 2010; Molnar et al., 2019; Wu et al., 2015). But as already mentioned, despite how central transactional, and more specifically transformational, leadership are on safety leadership, Burns' leadership styles are not without criticism. Investigating the effects of broad leadership styles that have a wide range of behavioral elements or traits, such as the four-dimensional transformational leadership style, presents challenges (Molnar et al., 2019). As an example, there is no causal model to explain the distinction between the influence on the mediating processes and outcomes that idealized influence has when compared to intellectual stimulation. Adopting a style/trait approach thus makes it difficult to know what specific behavior one must take on to inspire different outcomes. Additionally, the interaction of different leadership behaviors may interact with each other to produce an augmentation effect, which may be overlooked when using a trait approach to leadership (Griffin et al., 2013). Casey et al. (2019) further criticize transformational leadership's almost personality-like characterizations of leadership (e.g., charisma).

As briefly noted, unlike the six conceptual definitions that have been endorsed by empirical work investigating the different dimensions of safety leadership, Daniel (2015) is the only researcher to have explored the conceptual definition of safety leadership directly using qualitative means. Daniel (2015) identified that safety leadership was not well defined in the academic literature and that much of the work on the topic had been borrowed from other schools of leadership. He therefore adopted an exploratory research methodology and conducted 20 interviews with participants holding various leadership positions in an Australian construction company. An empirical definition of safety leadership was therefore established after saturation of the data had been achieved (refer to Table 3). Though Daniel (2015) makes a substantial contribution to the safety literature by introducing the first empirically grounded *"universal"* (p.1) conceptual definition of safety leadership, there are certain limitations with the methodology he adopts. Firstly, the study was carried out in the construction industry and was limited geographically to Australia. Furthermore, the 20 interviews were conducted on leaders from one company only, which may introduce a bias with regards to how they all define the term. Because the sample size is restricted to a single organization and because of the geographic and industry constraints, caution should be observed when generalizing the findings, which raises questions about the universal nature of the definition. These drawbacks may help explain why Daniel's (2015) study has only been cited thirty times over the last ten years according to Google Scholar and why none of the other studies that made it

through the eligibility phase (i.e. studies that define safety leadership) in this systematic review referenced it once.

It is worth noting however, that Daniel's (2015) definition does echo two of the three themes that resulted from the thematic synthesis. In fact, a deeper assessment of the three themes reveals that they share many similarities with elements of safety-specific transformational leadership including promoting better safety performance (Smith et al., 2020) and inspirational motivation. This is rather expected considering that more than half (20 of the 37) of the definitions presented in Table 3 are underpinned by transformational leadership theory in whole or in part, and eight are based on Wu's (2005) construct, who associates his definitions with transformational and transactional leadership. Nonetheless, the prominence that safety-specific transformational leadership holds prompts some important questions about the current state of safety leadership in the academic literature. Though safety-specific transformational leadership has found empirical support as a leadership style that can improve safety performance, how and why it has been adopted by a good portion of the academic community as the de facto safety leadership construct (Wu et al., 2015) is unclear, especially since it is originally based on non-empirical foundations.

Beyond the limitations discussed earlier associated with safety-specific transformational leadership's broad scope, the four dimensions that make up the construct are not the only dimensions that have been identified to positively influence safety performance. A perceived high-quality relationship with one's leader has been found to improve safety citizenship behavior (Hofmann et al., 2003) and safety performance in general (Hofmann et al., 1999). Adopting good safety communication behaviors as part of one's leadership style has also been recognized to improve safety climate (Alsamadani et al., 2013; DeJoy et al., 2004; Lingard et al., 2019; Newaz et al., 2023; Zhang et al., 2020). It is therefore worth examining whether safety-specific transformational leadership needs to be supplemented with additional dimensions beyond the traditional four to capture further traits that can influence safety performance. The fact that Burns proposed four dimensions in his book rather than three, six, or even eight provokes challenging questions for safety-specific transformational leadership that need to be examined. This point also reenforces Pilbeam et al. (2016a) and Molnar et al.'s (2019) suggested definition that safety leadership refers to the extent to which the leader gives focus and priority to safety. In other words, a leader can exhibit transformational, transactional, or leader-member exchange characteristics for example but their attention should be on safety if they are to be considered safety leaders. This definition is becoming increasingly more relevant ever since academic interest in transformational leadership began to decline following Van Knippenberg et al.'s (2013) seminal study critiquing the

conceptual and measurement-based foundations of transformational leadership (Fischer et al., 2022).

The argument that leadership behaviors are not mutually exclusive and that it may be best for safety leaders to embrace multiple forms of leadership practices has found strong empirical support in recent years (Lyubykh et al., 2022; Willis et al., 2021). Thus, conceptual definitions which are not tied to any particular leadership style are becoming more appropriate in the current research environment and the three themes, as well as five of the seven empirically backed conceptual definitions, are in line with this development. However further research to validate the focus on safety as an integral part of the conceptual definition is required, as not all of the six definitions stress this point. Furthermore, Lyubykh et al. (2022) found in their meta-analysis that the effectiveness of safety leadership behaviors also vary across national cultures, industries, and workforce demographics, particularly age. This finding brings into question the definition of safety leadership that Daniel (2015) proposed, which is based on a construction company in Australia, and stresses the need to account for these variables in future safety leadership research. Researchers are also encouraged to consider longitudinal designs moving forward. Both Willis et al. (2021) and Lyubykh et al. (2022) note that most studies in the safety leadership space are cross-sectional in nature, which limits establishment of causality. This is further substantiated by the results of this systematic review, which show that only one of the seven empirically backed conceptual definitions is longitudinal in nature (Mullen et al., 2009). Furthermore, all of the definitions identified by this review take a relational approach between workers and their frontline leaders. As Pilbeam et al. (2016a) pointed out, not only are there different organizational relationships worth considering beyond supervisors and workers, there are also other conceptualizations that require attention by future researchers such as plural leadership.

Analyzing the seven evidence-based conceptual definitions in light of the themes identified by the thematic synthesis reveals that five of the seven definitions make mention of two of the three themes (safety leadership improves safety performance and safety leaders lead by influence), and the third theme (safety leadership can be practiced by leaders at all levels) is mentioned by four definitions. These results are generally in line with the prominence exhibited by the entire group of 37 definitions with the three themes. This also demonstrates good alignment and consistency among the seven definitions, which not only provides researchers with a foundation for future research, but also highlights to practitioners and leaders at all levels of any organization the importance of safety leadership and leading with influence.

The evidence base of safety leadership research indicates that safety leadership has been considered, up until this point, a sub-facet of other styles of leadership (Wu et al., 2016). Daniel (2015) and Molnar et al. (2019) have taken a different position and suggested that safety leadership should be considered a leadership style in and of itself. This point is quite pertinent, specifically in light of recent trends in safety science. There is some research, albeit very little to date, that safety climate, or the perceived value placed on safety in an organization (Zohar, 1980), can positively impact non-safety outcomes such as job satisfaction, employee engagement, turnover, and organizational citizenship behavior (Huang et al., 2016; Maryam et al., 2021). Given the established link between safety climate and safety leadership as well (Du et al., 2012; Wu et al., 2008), looking at the relationship between safety leadership and non-safety outcomes is a naturally ensuing inquiry. Establishing such an overarching relationship would undoubtedly have implications on the definition of safety leadership, which has so far been limited to affecting safety performance only, as revealed by the first theme that resulted from this review's thematic synthesis. All these questions support the need for further exploration around the foundational aspects of the safety leadership construct. Nonetheless, it is interesting to note that this view on safety leadership further supports the finding that the definition of safety leadership should not be confined to a particular leadership style, an implication of practical relevance for leader development programs.

Recent trends in the leadership-safety space reveal that safety leadership is not as simplistic as was once thought and that previously established concepts are being entirely reconsidered. In fact, Fischer et al. (2022) call into question the entire knowledge base of leadership style research due to a key issue called "valence-based conflation", which refers to the way leadership behaviors are often categorized as either good or bad. This simplistic labeling can blur important distinctions between leadership styles, making it harder to clearly understand their true impact. This has serious implications on the safety leadership literature and future research involving safety leadership styles should explore a de-conflated and configurational approach.

Although nine years have passed since Pilbeam et al.'s (2016a) conclusion that no unequivocal and unambiguous definition of safety leadership exists, the results from this systematic review indicate that their findings largely remain true. Though much work remains in this area, gaining a clearer understanding of the existing literature can help guide the ongoing effort to establish a conceptual definition of safety leadership. Furthermore, the themes closely shared by the seven evidence-based definitions provide sound direction for researchers and practitioners alike.

2.6 Strengths and Limitations

PRISMA guidelines were followed to the extent possible to ensure complete and transparent reporting. Studies employing different methods were included in the review despite the limited guidance available when combining qualitative, quantitative, and mixed methods studies. Ensuring that quality studies were included in the systematic review via a quality appraisal process was therefore important. On the other hand, academic studies in languages other than English were excluded which may have resulted in some definitions of safety leadership being missed. This may provide an opportunity for future consideration.

Though the search strategy employed is in line with the approach undertaken by other systematic reviews, it is recognized that there could be a potential for studies to have been missed because they may not have specifically used the terms searched in this review. Reference lists of included papers were checked manually to help minimize this potential. Nonetheless, searching the terms "safety" and "leadership" separately can provide scope for future investigation. Furthermore, the last search was conducted in May 2023. While new studies may have emerged since then, a brief search in January 2025, though not exhaustive, did not identify any significant contributions that would alter the findings. Additionally, given the timeframe of the PhD, the dataset collected by May 2023 was deemed sufficient to meet the study's objectives and provide a robust foundation for analysis and conclusions.

Despite employing a structured approach to thematic synthesis, the active role the author plays in shaping how themes are identified and articulated is recognized, which introduces a potential drawback, particularly since the results could have differed had other reviewers been involved (Newington et al., 2021). Several rounds of analysis were therefore conducted to minimize the subjective influence, ensuring consistency in theme identification. Nonetheless, the possibility of alternative interpretations remains, highlighting the need for further validation through such means as reviewer triangulation and interdisciplinary collaboration.

2.7 Conclusion and Research Gaps

Safety leadership has emerged as an important factor in improving safety performance in organizations (Donovan et al., 2018). Against the backdrop of how widespread the term is used in both academic and practitioner circles, a systematic review was conducted to explore the definition of safety leadership in the academic literature, which represents the first systematic review on the topic. Thematic synthesis was also employed to identify conceptual insights from the data. PRISMA guidelines were followed to the extent possible to facilitate complete and transparent

reporting. Thirty-seven primary definitions resulted from the systematic review exercise. Transformational leadership theory formed the foundation for 20 of these definitions and eight definitions were based wholly or in part on Wu's (2005) work, who closely associates his definition with transformational and transactional leadership (Wu, 2008). In total, seven conceptual definitions were found to be evidence-based, six of which were endorsed by their operational counterparts and one derived using an exploratory research approach. These seven definitions showed good alignment with the three themes identified by the thematic synthesis, providing a foundation for future researchers and some direction for practitioners. Though transformational and transactional leadership have traditionally been central to the study of safety leadership, recent studies are challenging this authority and suggesting that adopting multiple forms of leadership styles would be more effective for improving workplace safety. These findings support definitions of safety leadership that are independent from any specific style of leadership, thereby providing focus for future work on the subject. Considering the positive impact safety leadership can have on preventing injuries and the fact that the term has been around for more than a century, the gaps in the literature introduce ample and necessary opportunities for further exploration.

Future directions for research include empirically exploring the definition of safety leadership from a wider context that is not limited by geography, industry, and the confines of a single organization. Furthermore, much of the existing safety leadership research has focused on the relationship between workers and frontline leaders (supervisors), and whether or not the definition changes for different organizational levels, as Wu (2008) maintains, is one worth considering (Donovan S.L. et al., 2017). In addition, safety leadership has traditionally been conceptualized as a component of other forms of leadership styles and so there is opportunity to examine whether safety leadership can be regarded as a construct in and of itself. This is particularly relevant in light of recent findings in safety leadership research that are pointing towards embracing a range of practices for optimal leadership performance rather than restricting safety leadership to a limited range of leadership traits. Because most of the studies in this field are cross-sectional in nature, longitudinal research is required to further substantiate these findings. Though there is no consensus on any particular safety leadership definition to date, these trends in safety science would bring us closer to a definition, one which would not be restricted to any particular leadership style per se.

Finally, because there is growing evidence that safety climate has impacts on outcomes beyond safety performance and since safety leadership has been shown to affect safety climate (Wu et al., 2008; Du et al., 2012), it would be interesting to determine whether or not the far-reaching effects

of safety leadership beyond safety performance would be reflected in the definition of safety leadership, which has not traditionally been the case.

2.8 Present Thesis Research Question

With ample opportunities uncovered by this systematic review to advance the science of safety leadership, it was felt that exploring the foundational elements of the term "safety leadership" was the most appropriate starting point to add strategic value to this important field. The lack of a robust conceptual definition of "safety leadership" can undermine both academic and practitioner efforts and so addressing this gap was seen as the best path forward.

This PhD builds on Daniel's (2015) research by improving the methodology used to arrive at a conceptual definition of safety leadership. Senior leaders in high-risk industries from across the world were interviewed to gauge their understanding of safety leadership and thematic analysis was employed to arrive at a definition. High-risk industries include those whose work processes present considerable risk for people, with the potential for both major accidents (e.g., aviation, oil & gas) and smaller scale incidents (e.g., construction, agriculture) (Grote, 2012). Thus, the research topic of the current study is to explore the conceptual definition of the term "safety leadership" from the perspective of senior leaders in high-risk industries using qualitative means.

The question that this PhD research will seek to answer is: *How do senior leaders in high-risk industries define safety leadership?* A sub question that will also be explored in this PhD research is: *What characteristics/qualities do safety leaders possess?* Addressing the primary question by improving the methodology Daniel (2015) adopted aims to explore the credibility, practical relevance, and potential limitations of Daniel's findings. This would not only help establish a robust conceptual definition of safety leadership, but it would also provide organizations with evidence-based guidance in developing and implementing effective training programs, thereby helping enhance workplace safety and reduce incidents. Exploring the secondary question, on the other hand, would offer valuable insights into the traits and qualities that distinguish effective safety leaders, which can serve as a benchmark by leaders for personal development and for coaching other leaders. Rooted in pragmatic realism, the two research questions emphasize the experience-dependent, socially influenced, and action-oriented nature of knowledge, while also advancing both the theoretical foundation and practical application of safety leadership in high-risk industries.

Chapter 3. Methods and Methodology

3.1 Introduction

Though the systematic review uncovered one empirical definition of safety leadership that was derived qualitatively using a grounded theory approach, several potential gaps were identified with the methodology Daniel (2015) used to arrive at his definition. As discussed in more detail in Chapter 2, Daniel's (2015) study was restricted to one industry (construction) and geography (Australia), and participants were recruited from a single company only. These limitations could possibly challenge the universal nature of the definition and may help explain why it hasn't been adopted by other academics since it was introduced. The objective of the empirical study within this thesis was to improve on Daniel's (2015) methodology so as to assess the relevance and applicability of his findings and, if necessary, propose an updated and more contextually grounded definition of safety leadership to the academic literature. Furthermore, a secondary objective of this study was to identify the characteristics and qualities that safety leaders possess.

Chapter 3 details the approaches and rationales associated with the method and methodology adopted in this thesis to answer the research questions. It begins with an introduction to the philosophical approach that underpins the research followed by a presentation of the research design that has been adopted. The study protocol describes the participant selection, recruitment strategies, data collection methods, and the analytical approach used to interpret the findings. Finally, ethical considerations are addressed to ensure the study adheres to ethical research principles.

3.2 Philosophical Approach

Although Auguste Comte popularized the term "positivism" and is generally regarded as the father of the philosophy associated with the term (Crotty, 1989), it is the Galilean-Newtonian tradition that inspired the deterministic model of science based wholly on the logical relationship between observable phenomena, with independence from metaphysical influences (Eidlin, 2015). Comte attempted to apply the same model to the study of the social sciences (Rolfe, 2013) with advocates of positivism arguing that *"the phenomena of human thought, feeling and action are subject to fixed laws"* (Mill, 2001/1843, p.572). The use of this approach to studying the social world, where researcher and subject exist independently from one another and where relationships can be measured and established through observation, was dominant from the 1930s through to the 1960s (Gray, 2014). Although there were not any criticisms for studying atoms, molecules, or the natural world in general by adopting this empirical approach, the question of whether or not people can be

studied effectively this way as well was increasingly becoming relevant (Crossan, 2003; Smith et al., 1986). Ayer (1990) suggested that it must be something about the nature of men that prevents us from establishing laws about human behavior and making generalizations. Parahoo (1997) makes the point by drawing on an example of a person losing his job, *"when a man loses his job and becomes depressed, it does not mean that he will be depressed each time he loses his job, nor can we say that everyone who loses his job becomes depressed"* (Parahoo, 1997, p.37). Critics were arguing that humans are unlike inanimate materials or objects and cannot therefore be subject to the same methods of study if we wanted to properly understand them. They were challenging positivism's assumption about how we come to know (epistemology) as well as its position on reality (ontology) because of the human element associated with the "nature of men".

To explore the human element associated with the study within this thesis without resorting to the extreme objective and subjective characteristics of positivism and interpretivism respectively (Calori, 2000), a pragmatic realist approach was adopted. Originating in the United States in the late 19th century, pragmatism emerged from the writings of C.S. Peirce, W. James, and J. Dewey (Hothersall, 2019). The original proponents of this philosophical tradition rejected the idea that reality can be accessed solely by use of a single scientific method (Maxcy, 2003). Rather, meaningful research centers around experience and the desire for a better world (Wolfe, 1999) and researchers should adopt whichever methods are required to yield the best results (Tashakkori et al., 1998; Johnson et al., 2004). On that note, pragmatic realism acknowledges that reality exists independently of human perception (ontology), but our understanding of that reality is shaped through experience, inquiry, and action (epistemology) (Martela, 2015). Rather than assuming absolute, unchanging truths, pragmatic realism focuses on warranted assertions (Morgan, 2014a) – claims that are tested through action and remain open to revision when better evidence arises. This implies that though reality is static in its existence, our understanding of reality is dynamic and shaped through our engagement with the world.

Based on pragmatism's worldview, pragmatists embrace the plurality of methods because the focus is on the consequence of research and solving problems that help the human condition (useful and actionable knowledge (Kelly et al., 2020)), rather than metaphysical debates (Johnson et al., 2004). This means that pragmatists have quantitative, qualitative and the mix of the two methods as tools at their disposal to address research questions. This puts pragmatism at the center of the paradigm continuum between positivism and interpretivism, offering researchers more flexibility to research design (Feilzer et al., 2010). Naturally, this afforded flexibility does not come with the absence of criticism. Critics of pragmatic thought argue that the flexibility the paradigm offers highlights a

deeper problem with regards to the turn away from the epistemological question (Manicas, 1988). Additionally, the lack of clear guidelines to determine what works best and what knowledge is useful has been met with some disapproval (Hesse-Biber, 2015). Thus, it is important to clearly articulate the underlying principles of a study at the outset to ensure clarity and authenticity, and to demonstrate robust philosophical foundations that justify adoption beyond simply flexibility (Morgan, 2007).

The research in this thesis adopts a pragmatic realist philosophical approach to explore the conceptual definition of the term safety leadership. Pragmatism is instrumental in this context, particularly because the outcome will help inform safety science, which in turn can potentially lead to improved leadership practices that can reduce harm to human life. Furthermore, the pragmatist school of thought has been considered suitable for applied fields such as organizational research (Elkjaer et al., 2011) because the emphasis in such contexts is on understanding reality through experience and inquiry, which is what is being sought in this thesis. The objective of the study in this thesis is to improve on the methodology Daniel (2015) used to derive a definition for safety leadership because from a pragmatic lens, arriving at a shared "truth" using the experiences of leaders from a single company can be problematic, especially if the sample has received prior input on the topic through company training or other programs. Thus, this study will either confirm the assertions that were shared at the company Daniel (2015) interviewed or build on the definition he proposed based on a more global data pool.

Unlike other paradigms, pragmatism permits one to comfortably maintain a unified philosophy to explain both the natural and social worlds, without having the need to inconveniently jump from one paradigm to another when switching between the sciences. Despite the critiques available in the literature, and these will always exist, pragmatism offers a convincing explanation of how the world is that is both coherent and well thought through. Thus, pragmatic realism is the paradigmatic philosophy underpinning this research.

3.3 Research Strategy

In order to address the research questions appropriately, this thesis utilized qualitative data collection and analysis techniques. A qualitative approach was more suitable than a quantitative one to facilitate the exploration of this study's research questions primarily because of the current state of the academic literature on the subject and the conceptual work required to fill the gap (Babchuk et al., 2010). In fact, Jiang et al. (2024) recently advocated for additional qualitative research to further explore the conceptual foundations of safety leadership. While a quantitative approach is

more suited for testing hypotheses, measuring variables numerically, and establishing statistical relationships, a qualitative study is best suited to assist with the definition of concepts (Morse et al., 1996; Sofaer, 1999) and has therefore been resorted to in this study.

Interviews were chosen as the medium for data collection in order to capture the experiences of senior leaders. Though questionnaires have been the tool of choice to study leadership behavior constructs (Heimann et al., 2020), these can be biased (Fleenor et al., 2010; Hansbrough et al., 2015) and generic thereby failing to capture the contextual information and nuanced insights (Yukl, 1999) that interviews can. However, interviews also present challenges, such as interviewer bias and variability in responses. To mitigate these, a structured yet flexible interview guide was used to ensure consistency, and reflexivity was practiced throughout data collection and analysis.

Descriptive thematic analysis using Braun et al.'s (2006) six-step method was applied to identify themes across the data, or assertions that are socially shared, and prevalence was based on the frequency a particular theme was supported across the data set. Thematic analysis was chosen for the study within this thesis over Delphi or grounded theory due to its suitability for identifying and organizing explicit patterns and meaning within qualitative data. While grounded theory is designed to generate new theoretical frameworks (Glaser et al., 2017), thematic analysis allows for a focused examination of the data without requiring the development of a new theory, making it particularly well-suited for refining existing conceptual understandings of safety leadership. On a similar note, while Delphi is effective for achieving consensus among experts through structured rounds of consultation (Hasson et al., 2000), it is less suited for capturing the nuanced, individual perspectives of senior leaders that is sought after in this research study. Furthermore, the objective of this thesis is not to speak with experts on safety leadership, especially since the systematic review discussed in Chapter 2 identified very little empirical definitions of the concept. Rather, the objective is to explore the meaning of safety leadership to everyday leaders in high-risk industries.

Originally rooted in a positivist tradition (White et al., 2006), qualitative content analysis (QCA) was also considered, particularly due to its emphasis on using prevalence to justify the importance of a category (Vaismoradi et al., 2016), which reflected the analytical approach originally intended for this study. While QCA shares several similarities with descriptive thematic analysis (Vaismoradi et al., 2013), the latter was ultimately selected as its purpose aligned more closely with the objectives of this research. QCA aims to describe and systematically categorize content (Forman et al., 2007) (e.g. mentions of leadership), whereas this research seeks to identify patterned meanings across the data (e.g. leadership as care) to synthesize a conceptual definition of safety leadership – a subtle but important distinction that aligns more directly with thematic analysis

(Braun et al., 2006). Accordingly, QCA typically requires the researcher to predefine units or categories of analysis prior to coding (Burla et al., 2008), whereas thematic analysis permits more inductive engagement with the data (Braun et al., 2021a) while also allowing the use of prevalence to support theme development (Braun et al., 2006).

Hence, descriptive thematic analysis provides a clear and systematic approach to identifying recurring themes, making it well-suited to address the research questions central to this thesis. This method not only facilitates the development of insights and meaning directly relevant to practice but also aligns with the pragmatic realist philosophy, which emphasizes the practical utility and real-world outcomes of research. By identifying patterned meanings across shared experiences, thematic analysis helps reveal warranted assertions, understandings shaped by common interpretations of consequences. It is acknowledged, however, that the relevance of the results from this research will depend on their ability to withstand scrutiny and maintain beneficial use over time, especially in the context of an evolving world of work and leadership approaches, where the experiences of the actors are subject to change.

3.4 Participants

Although safety leadership has traditionally been studied at the front-line leadership level (Ta et al., 2022), a finding substantiated by the systematic review (Chapter 2), the study associated with this thesis sought to interview leaders at more senior levels of organizations. In this context, "leaders" refers specifically to individuals who hold formal managerial roles with direct responsibility for overseeing teams, as opposed to those recognized as leaders solely by virtue of their behaviors or influence. The former has been the focus of safety leadership research, according to the findings of the systematic review (Chapter 2), and will be the focus of this thesis as well, even though investigating the safety leadership of individuals who do not necessarily hold a title is an area of future research worth exploring. In addition, there are various definitions in the academic literature for what constitutes senior leadership. Some studies refer to senior leaders as those who hold the top-most positions of an organization (Cawthorne, 2010) such as executives or the presidential team (Kezar et al., 2020), while others include leaders who work in the middle to top levels of management as part of their definition (Reynolds et al., 2018). The present study embraces the latter definition. Experienced senior leaders, particularly those with core business function roles and who have worked in high-risk industries, would have been exposed to leadership in relation to safety at different stages of the corporate ladder throughout their careers and would be able to provide not only insights about these experiences, but a more holistic understanding of the concept. Like the term senior leadership, there have also been numerous definitions for what constitutes high-risk

industries. Derdowski et al. (2023) have collated several definitions from the literature and proposed that any industry that is complex, interdependent, continuously changing, operating with proximity to hazards and has the potential for catastrophic breakdowns can be considered high-risk such as construction, mining, and oil and gas (Grote, 2012). The present study is interested in leaders from such industries because it is high-risk work environments where leadership in relation to safety can be expected to be exhibited and leveraged to make an impact. Unlike Daniel (2015), who conducted interviews on senior leaders from one construction company in Australia, the present study sought to interview senior leaders from multiple companies to help capture a more encompassing viewpoint. Actively employed participants were sampled from organizations that were not bound by any specific geography but were rather located anywhere in the world. Given the differences in safety climate measures observed between unionized and non-unionized workers (Gillen et al., 2002), no restrictions were placed on participants based on their experience in either or both environments. This approach was adopted to ensure the global perspective sought in this PhD study.

The initial aim was to interview between 20 and 30 participants, which is slightly higher than the number of participants Daniel (2015) found to be sufficient to achieve saturation (20 participants), or when no new narratives and interpretations were forthcoming (Rubin et al., 1995). This estimate was considered appropriate, given the diverse sample population in this thesis, which includes participants from different industries, seniority levels, and geographic regions. However, it should be noted that saturation could be achieved by interviewing less than 20 or more than 30 interviewees and it is saturation that is the determining factor for number of participants sampled. Nonetheless, Guest et al. (2006) and Mason (2010) maintain that a minimum of 15 interviews could be required to achieve saturation and so it was not anticipated that less than 15 interviews would be conducted.

Interviewees were required to currently hold management positions (managers, directors, VPs, and C-suite members) with responsibilities for the organization's core functional workforce (operators, maintainers, construction workers, tradespeople). Consequently, leaders from support functions such as HR and finance, who do not have direct oversight of or accountability for the workforce engaged in high-risk activities, were not included in the interviews. Health and safety professionals were also excluded from the participant list, even though Daniel (2015) did choose to include them as interviewees. This is because not only are they not responsible for core function employees, but also because the systematic review found safety leadership as a role that is assumed by non-safety professionals. It is appreciated that some safety professionals may have started their careers in

technical roles and may meet the inclusion criteria but to avoid the complication of scrutinizing CVs, only leaders with current core business function roles were chosen. There were no restrictions on age or gender however female membership groups were approached to advertise the invitation to encourage a more representative sample.

It is worth mentioning that "senior leaders" can hold different meanings by different organizations. For example, a manager in one company can refer to an individual who looks after particular duties without having any direct reports whereas in other organizations the title would only be designated to those with supervisory responsibilities. As mentioned previously, senior leaders in the present study referred to those with supervisory responsibilities, and who held a minimum of 15 years of experience to ensure they had sufficiently grown in their careers. The Harvard Business School (Harvard Business School, n.d.) suggests that senior executives and executive team members should have a minimum of 20 years of experience and so this study will set 15 years as the minimum threshold for eligibility since the pool of participants that is desired is managers and above. Only one participant per company was chosen to ensure a diverse sample and to limit potential bias. To help attract further participants, snowball sampling was also resorted to by asking interviewees at the end of their interviews to encourage their acquaintances who meet the sampling criteria to participate. Furthermore, it should be noted that the invitation poster did specify that the research was about safety leadership rather than general leadership to inform potential interviewees and to ensure a meaningful discussion.

3.5 Recruitment

Voluntary sampling was used to recruit participants via social media advertisements and professional networks, with additional interviewees identified through snowball sampling. Purposive sampling was also resorted to, when necessary, to ensure relevant sectoral representation. The professional social media platform LinkedIn was utilized to advertise an invitation poster (see Appendix 5) by using the author's personal account as well as through groups that revolved around operational leadership, construction, and project management. Safety membership organizations such as IOSH were also approached to advertise the invitation to their networks so as to encourage safety professionals to request their fellow leader colleagues to participate. Though the invitation poster made mention of the minimum interviewee requirements, potential participants who showed interest were sent a detailed participant information sheet (Appendix 6) along with a consent form (Appendix 7). The participant information sheet clarified the sampling criteria to ensure they were met. If a potential participant did not meet the sampling criteria, they were thanked for their interest and encouraged to request their colleagues who they believed did meet the criteria to participate. A

participant was disqualified from the interview process if they were found to be an acquaintance of the researcher.

Although LinkedIn and internet recruitment in general can provide easier access economically to a global pool of potential participants compared to other means (Khatri et al., 2015), there are nonetheless some disadvantages. Like traditional recruitment strategies where cooperation from a "gatekeeper" is necessary to access certain populations associated with groups, the level of cooperation from LinkedIn groups as well as membership organizations like IOSH needs to be worked through, which can significantly affect the outcome of recruitment (Hamilton et al., 2006). A demographic selection bias may also be introduced by recruiting a younger, more internet-active population (Frandsen et al., 2014). Not all professionals have a LinkedIn account and not all those that do actually use it regularly or at all (Khatri et al., 2015). Additionally, this method may also present a bias against countries with restricted access to social media as well as those individuals who are not on the internet altogether because of choice or due to limited technological proficiency.

3.6 Data Collection

Semi-structured interviews were conducted by the researcher between August 2023 and May 2024 via MS Teams and these were recorded for transcription. Informed consent for participation was obtained from all participants once they had read and signed a copy of the consent form prior to their interview. The interview guide questions were used to steer the interview (Appendix 8). The questions were guided by the research questions and some of the gaps identified in the systematic review (Chapter 2). Interviewees were asked nine questions, which revolved around three main topics including:

1. Safety and its importance in the interviewee's line of work – 2 questions (this question aimed to explore the building blocks of safety leadership, i.e. safety and leadership)
2. The interviewee's perspective on safety leadership – 3 questions (this question explored safety leadership directly)
3. The interviewee's perspective on the characteristics of safety leaders – 2 questions (this question explored the characteristics and qualities of safety leaders)

The remaining two questions focused on exploring interviewees' experiences (first question) and provided an opportunity for them to share any additional insights or details before concluding the interview (final question). In line with the pragmatist paradigm, open-ended questions were used to explore and capture the experiences and views of the participants, allowing for a rich understanding of their perspectives. To minimize potential bias, leading questions were avoided as much as

possible, and care was taken to phrase questions in a neutral way. However, it is acknowledged that bias can emerge in various forms, including through the researcher's own positionality, participant self-selection, and the interpretive nature of qualitative research (Berger, 2015). To mitigate potential biases, researcher reflexivity was maintained throughout the process. Reflexivity refers to the continuous examination of the researcher's role in shaping the research process (Lincoln et al., 1985). In this study, reflexivity was practiced by maintaining awareness of personal preconceptions and critically reflecting on their potential impact on data interpretation (Smith et al., 2018) by documenting the researcher's thoughts, feelings, and rationales behind key decisions made during the research. In addition, data source triangulation, or gathering data from difference sources (Thurmond, 2001), was employed by including leaders at varying seniority levels from different companies, industries, and geographies. Furthermore, the researcher's academic supervisors were regularly engaged to review and discuss the research process and interpretations, and to provide critical feedback to challenge potential biases and validate conclusions. This approach helped improve the credibility and overall trustworthiness of the research process (Denzin, 2017).

Once recording was initiated, each interviewee was asked to introduce themselves by discussing their background, including the number of years of experience they had, the industries and countries they have worked in, whether they have worked in unionized or non-unionized settings, and their current role. Beyond attempting to make interviewees feel at ease, this informal introduction also provided an opportunity to gather contextual information on the characteristics of the sample, which could be relevant for data analysis and help avoid sampling bias. Recognizing that a leader may not have heard of the term "safety leadership" or may not view safety as part of a leader's responsibility, each interview began with exploratory probing questions. Furthermore, the final question in the interview guide offered each interviewee the opportunity to share any final comments or thoughts that were not discussed during the interview, thus providing additional space for participants to express their views and ensuring that all relevant data was captured.

Despite the presence of a set of pre-defined interview questions (Appendix 8), the researcher did not take on a structured approach to the interview process. Structured interviews can be considered verbal questionnaires (Fylan, 2005), and as previously discussed, questionnaires were not considered the ideal data capturing tool in this context. Furthermore, an unstructured approach where questions are not pre-determined (Zhang et al., 2009) but rather spontaneously generated (Patton, 2002) was not seen as strategic to answer the research questions. Rather, a semi-structured approach was adopted whereby the questions were there to guide the conversation while still giving the interviewer the flexibility to digress if required to explore pertinent ideas that may have come up

during the interview (Blee et al., 2002). This approach was considered best suited to discover the participant's perspectives and interpretation of reality without compromising the general direction of the interview and the resources available for the exercise (Bihu, 2020). Critical incident technique (Flanagan, 1954) was considered as an alternative means of data collection, however arriving at a conceptual definition of safety leadership was not deemed to be enabled by focusing participant attention on specific scenarios or incidents.

In line with Raworth et al.'s (2012) guide to conducting semi-structured interviews, each interview began by the researcher introducing themselves and providing an overview of the purpose of the study and objectives of the interview. Consent and confidentiality were then addressed, and the formal interview began by pressing on the record button and asking the first question listed in the interview guide (Appendix 8). The interviewee was given full attention by the interviewer in order to understand their perspectives and beliefs on the topic. Though the subject of the interview was not controversial in nature, a neutral expression was nevertheless maintained throughout the interview with a concerted effort not to show any visible judgment so as not to affect the responses. Paraphrasing the participant's response was done whenever the interviewer wanted to ensure understanding. After the interviewee was asked if they had any questions at the end of the interview, the next steps in the process were discussed including the debrief form (Appendix 9), anonymizing of data, transcription, pooling of data, and storage. Consent and confidentiality were also reiterated. If the interviewee did not show up to the interview, they were contacted for reassurance and to set up a subsequent meeting. The interviewer ensured the availability of an alternate internet connection (neighbor's Wi-Fi connection) in the event of technical difficulties.

Data collection ceased upon reaching information redundancy (Lincoln et al., 1985), or when it became evident that no new narratives or insights were emerging. (Rubin et al., 1995). Low (2019) argues that new insights can always be generated with continued data collection. This position, though not incorrect in absolute terms, must be balanced against practical and methodological considerations, and the decision to stop was made when the author felt that they were hearing the same information over and over again (Grady, 1998). This decision was also guided by the observation that the core research questions were being adequately addressed and made sense (Low, 2019). Braun et al. (2021b) argue that such a position on saturation is justified when data collection is underpinned by a realist ontology, involves relatively structured interviews, and employs descriptive thematic analysis where surface-level meanings are sought, as was the case in this research.

3.7 Data Analysis

Verbatim transcription of the resulting interviews was performed using the transcription feature of MS Teams, and descriptive thematic analysis was employed to identify themes, or patterns of meaning within the data (Braun et al., 2006). NVivo was the qualitative data analysis software package used. From a pragmatic realist viewpoint, these themes are described as assertions that are socially shared by the participants and serve as warranted understandings of reality (Morgan, 2014b), subject to revision as new evidence emerges. Although thematic analysis is a widely used method in qualitative research (Boyatzis, 1998), there is no clear agreement in the academic literature on what it is and how to carry it out (Nowell et al., 2017). Nonetheless, among the most popular approaches to thematic analysis today is Braun and Clarke's (2006) 6-step method (Maguire et al., 2017). Produced for the realms of psychology and beyond, the highly cited paper written by Braun and Clarke (2006) presents a useful and systematic guide to thematic analysis, the steps of which have been applied in the present study, which include familiarizing oneself with the data, generating initial codes, searching for themes and then reviewing them, defining and naming the themes, and finally producing the report.

Several assumptions and decisions have been made to inform the analysis. Firstly, an inductive approach to the thematic analysis was employed to identify themes directly from the data, rather than being constrained by preconceived categories or theoretical frameworks. This decision aligns with the exploratory nature of the research (Casula et al., 2021), which seeks to understand how leaders in high-risk industries define safety leadership, a topic that lacks extensive empirical definitions in the existing literature (Adra et al., 2024). By taking this inductive approach, the analysis remains grounded in the real-world perspectives of the participants, ensuring that the findings are both contextually relevant, practically useful, and open to refinement as new insights emerge, in line with the pragmatic realist philosophy underpinning the present study. Secondly, a semantic approach to the analysis was assumed whereby themes were identified within surface meanings of the data and prevalence was based on the frequency of supporting instances of a theme across the data set. This is because the intent of the analysis is to extract a definition from the data based on prevalence. However, prevalence alone did not determine the value of a theme; equal importance was placed on how well it addressed the research question and whether it provided a coherent, insightful, and contextually rich meaning (Braun et al., 2021b). Prior to coding, and after removing any identifying information from the transcripts and ensuring the accuracy of the transcription, the transcripts were read once in detail to gain familiarity with and understanding of the data. The second reading was performed more rigorously whereby each line was read

scrupulously. Initial codes, or chunks of meaningful text that tell the reader something interesting about the data (Maguire et al., 2017), were generated through the course of the second reading. A third reading was performed to ensure all codes were captured. The codes were then analyzed to identify themes, or broad patterns that link portions of the data together (DeSantis et al., 2000). Themes were constantly refined as the list of codes were reviewed, and fine-tuning was stopped when the cost of incremental improvements outweighed the added value. Once the themes were finalized, the definition of safety leadership was constructed by organizing and synthesizing the themes into a meaningful and concise form. The themes were categorized into two groups: those that describe safety leadership as a concept and those that outline the characteristics of safety leaders. The definition itself was built using the first group of themes, capturing the essence of safety leadership from the perspectives shared by the participants. Although the intent of the present study was to arrive at a definition of safety leadership rather than to build a conceptual framework, Jabareen et al.'s (2009) proposed methodology was adopted to guide the definition construction process, particularly steps five to eight. The themes were systematically integrated into a coherent definition through an iterative process. The preliminary definition was reviewed internally through continuous dialogue with the researcher's supervisors to achieve consensus. Once an internal agreement was reached, the definition was presented externally to scholars specializing in the field for additional feedback. The process remained iterative until a final, refined definition was established.

3.8 Trustworthiness and Rigor

Lincoln et al. (1985) proposed several criteria to ensure the trustworthiness of qualitative research including credibility, transferability, dependability, and confirmability. Credibility, or internal validity in quantitative research, refers to the confidence in the truth of the findings. Several strategies were employed to enhance the credibility of the present study. Firstly, data was collected from leaders at varying seniority levels and from different companies, industries, and geographies. This data source triangulation was a limiting factor in Daniel's (2015) study, which the present study aimed to improve on. The second way to improve the credibility of the results involved peer debriefing. As discussed in section 3.6, the researcher's supervisors were regularly consulted to review and discuss the findings. This feedback process ensured potential biases were challenged (Henry, 2015), thereby improving the credibility of conclusions.

Transferability, or generalizability in quantitative research, refers to how well the findings can be usefully applied in other contexts. To improve transferability and real-word application, thick description, or detailed background information about the participants (gender, years of experience,

union/non-union experience, countries worked in, role title) and organizational information, was thoroughly documented. Though recognized to be irrational by some (Kahn, 1993; Leininger, 1994), this practice provides a richer understanding of the context, enabling future researchers to assess whether the findings could be relevant in other similar settings.

Dependability assesses the degree to which findings are consistent and replicable over time. Decisions were documented throughout the research process by use of a reflexivity diary to ensure a reliable audit trail is maintained. Furthermore, the diary also helped document the researcher's ongoing critical self-reflection on their role, potential biases, and influence on the research process and findings (Finlay, 2002) to help maintain confirmability. Ensuring transparency and self-awareness (Koch et al., 2008) helps achieve a level of neutrality so that findings reflect those of the respondents as much as possible rather than researcher bias.

Several measures were taken to enhance the study's rigor, or the systematic, transparent, and methodical execution of the research (Prager et al., 2019). In addition to accounting for reflexivity, a systematic coding procedure was followed, as described in section 3.7. Furthermore, clear interview protocols were adopted to ensure a systematic data collection process (section 3.6). Finally, the Standards for Reporting Qualitative Research (SRQR) (O'Brien et al., 2014) checklist was used to ensure the transparent and standardized reporting of key aspects of qualitative research, thereby further enhancing the rigor of the present research (Appendix 11).

3.9 Ethical Considerations

All data collection activities, including the design of the data collection process, were conducted by the author as part of their doctoral research at Lancaster University. These activities required ethical approval, which was obtained from Lancaster University's Faculty of Health and Medicine (FHM) Research Ethics Committee (Appendix 10) before initiating participant recruitment and data collection.

Consent was a priority from the initial stages of the present study. Potential participants were sent a detailed participant information sheet (Appendix 6) along with a consent form (Appendix 7) to ensure they understood the purpose of the research, the procedures involved, their rights as participants (including the right to withdraw at any time), and how their data would be handled, stored, and used in accordance with ethical guidelines. The consent form was required to be sent back to the researcher prior to the interview. Consent was also discussed in the first few minutes of each interview to ensure participants fully grasped the nature of their involvement in the study, and this was reiterated after the interview as well once the recording was switched off. The interview

design did not make use of participant deception to test a specific hypothesis. A debrief form was sent to each participant to reiterate what was being studied and to give interviewees a further opportunity to withdraw their consent and data from the study (Appendix 9).

While responses were anonymized to protect participants' identities, complete confidentiality could not be guaranteed if specific quotes were included in the final research paper. This limitation was transparently communicated to participants at multiple stages of the research process. At the outset of each interview, this was explained to the participants, and they were asked whether they felt comfortable proceeding. This information was also clearly outlined in both the participant information sheet (Appendix 6) and the consent form (Appendix 7) to ensure informed decision-making. Additionally, all participants were explicitly informed of their right to withdraw from the study at any time without providing a reason or facing any consequences. However, they were also made aware that withdrawal of their data might become difficult once it had been anonymized and incorporated into themes, typically two weeks after the interview.

The interviews were conducted over MS Teams and participants had the opportunity to define the time and date of the interview as per their convenience. This allowed participants to have a say in where they preferred to be during the virtual interview in case they felt more comfortable being interviewed outside of working hours or they had sensitive information to share, which was not anticipated. Participants were reminded that anything shared with the researcher would remain anonymous and that they could stop the interview at any time.

Interviews were conducted virtually, eliminating any anticipated physical risk to the researcher. The interviews were video recorded using the record feature on MS Teams for transcription and future reference. The company where each participant worked was noted to ensure participants from the same company were not selected more than once. However, this information, along with any other personal data, were removed during transcription because they were no longer relevant at that stage. However, data pertaining to years of experience, gender, industry, current location, countries of previous employment, union exposure, and job title were retained for the purposes of analysis. This information was used to contextualize participants' perspectives, identify patterns and variations in responses based on demographic and professional characteristics, and enhance the richness of the thematic analysis. By integrating these variables, the study aimed to explore potential influences on safety leadership practices across diverse industries, locations, and professional backgrounds.

The encrypted, anonymized data was stored on the researcher’s personal computer and was password protected. All data was securely managed in compliance with Lancaster University’s

guidelines. Each video recording was deleted from the researcher's computer immediately after the interview was transcribed and transferred to the researcher's OneDrive space. Transcripts will be subsequently transferred to Lancaster University's research information management system depository (PURE) for long-term storage as soon as the PhD is granted. They will remain in PURE for 10 years before being automatically deleted by the Data Manager. Any data stored on the researcher's personal computer will be deleted as soon as the PhD degree is granted. If an opportunity arises to publish the research, the supporting data will be made available in electronic format on the journal's website with unrestricted access post-publication.

Chapter 4. Results

Chapter 4 presents the findings of the study, beginning with an overview of participant profiles and the process of achieving data saturation. It then details the results of the thematic analysis, exploring key themes that were synthesized to define safety leadership and the qualities of safety leaders. The chapter then examines how these findings vary across different job roles and compares safety leadership with general leadership to provide context before concluding.

4.1 Introduction

The Hazardous Industries Group of the Institution of Occupational Safety & Health (IOSH) was approached to advertise the invitation poster (Appendix 5) to their members. While the group's relationship manager initially responded positively, further correspondence ceased despite persistent follow-ups over a three-month period. In contrast, the Safety Leadership group on LinkedIn granted the researcher access to its 66,000 members, and the invitation poster was successfully shared with the group. Attempts were also made to engage with female-focused LinkedIn groups, such as the Women Construction Owners & Executives group, but unfortunately, no responses were received. The researcher additionally shared the invitation poster on their personal LinkedIn account, which has approximately 8,000 connections. The post attracted over 7,000 impressions and generated significant interest, particularly among health and safety practitioners. The inclusion criteria were clearly outlined to these individuals, who were then encouraged to share the opportunity with their contacts meeting the eligibility requirements. A significant number of participants were recruited through this approach. A few interested participants were respectfully declined as they either lacked the minimum level of experience or were employed as health and safety professionals, which did not align with the inclusion criteria.

A total of 28 semi-structured interviews were conducted between August 2023 and May 2024 (nine months). However, three interviews were excluded from the analysis since they did not meet the inclusion criteria outlined in Chapter 3. Specifically, one interviewee lacked knowledge about safety leadership and was unable to respond to question 4 in the interview guide (Appendix 8), the second interviewee was employed as a health and safety professional at the time of the interview, and the third interviewee was employed by the same organization as a previously interviewed participant. Additionally, the interviewer had no prior relationship with any of the participants, ensuring that the results were not subject to potential bias or influence. Consequently, 25 interviews were deemed eligible and included in the final analysis. All interviewees had submitted their consent forms, and none requested that their data be removed from the data pool. The 25 interviews

conducted had an average duration of 34 minutes, with the shortest lasting 12 minutes and the longest extending to 62 minutes. Several interviews were rescheduled due to participant scheduling conflicts, and one interview was temporarily interrupted by an urgent meeting but resumed and was completed after a one-hour delay. Two interviewees became visibly emotional while recounting fatalities that had occurred under their responsibility. After a brief pause, both interviewees confirmed their readiness to continue before the interviews resumed.

The following section presents a summary of the participant demographics and characteristics relevant to the study.

4.2 Participant Profile

Of the 25 participants included in the present study, two were female (8%), and 23 were male (92%). The participants had an average of 28 years of professional experience, ranging from a minimum of 15 years to a maximum of 55 years. The participants represented a diverse range of high-risk industries (eight in total), including mining, oil and gas, manufacturing, maritime, construction, agriculture, transportation, and aviation. Among these, oil and gas had the highest representation (28%), while agriculture had the lowest (4%). Table 5 provides a detailed breakdown of the number of interviewees from each industry, along with their percentage representation relative to the total sample.

Table 5

Breakdown of Interviewees by Industry with Percentage Representation

No.	Industry	No. of Interviewees	% Representation
1	Mining	4	16%
2	Oil and Gas	7	28%
3	Manufacturing	2	8%
4	Maritime	2	8%
5	Construction	5	20%
6	Agriculture	1	4%
7	Transportation	2	8%
8	Aviation	2	8%
	TOTAL	25	100%

The interviewees were employed across a variety of organizations, including multinational corporations, government-owned entities, and privately owned companies. Five of the interviewees were employed by Fortune 500 companies, while one was employed by a FTSE 100 company. Table 6 provides a breakdown of interviewees by the size of the organizations they worked for, categorized by employee count.

Table 6

Breakdown of Interviewees Against Company Size

Size of company by employee count	No. of Interviewees
>1,000,000	1
500,000 – 999,999	1
100,000 – 499,999	2
50,000 – 99,999	4
10,000 – 49,999	4
5,000 – 9,999	3
1,000 – 4,999	3
500 – 999	1
100 – 499	5
0 – 99	1

Table 7 provides a breakdown of interviewees based on the locations of the companies' headquarters where they were employed.

Table 7

Breakdown of Interviewees Against Location of Company Headquarters

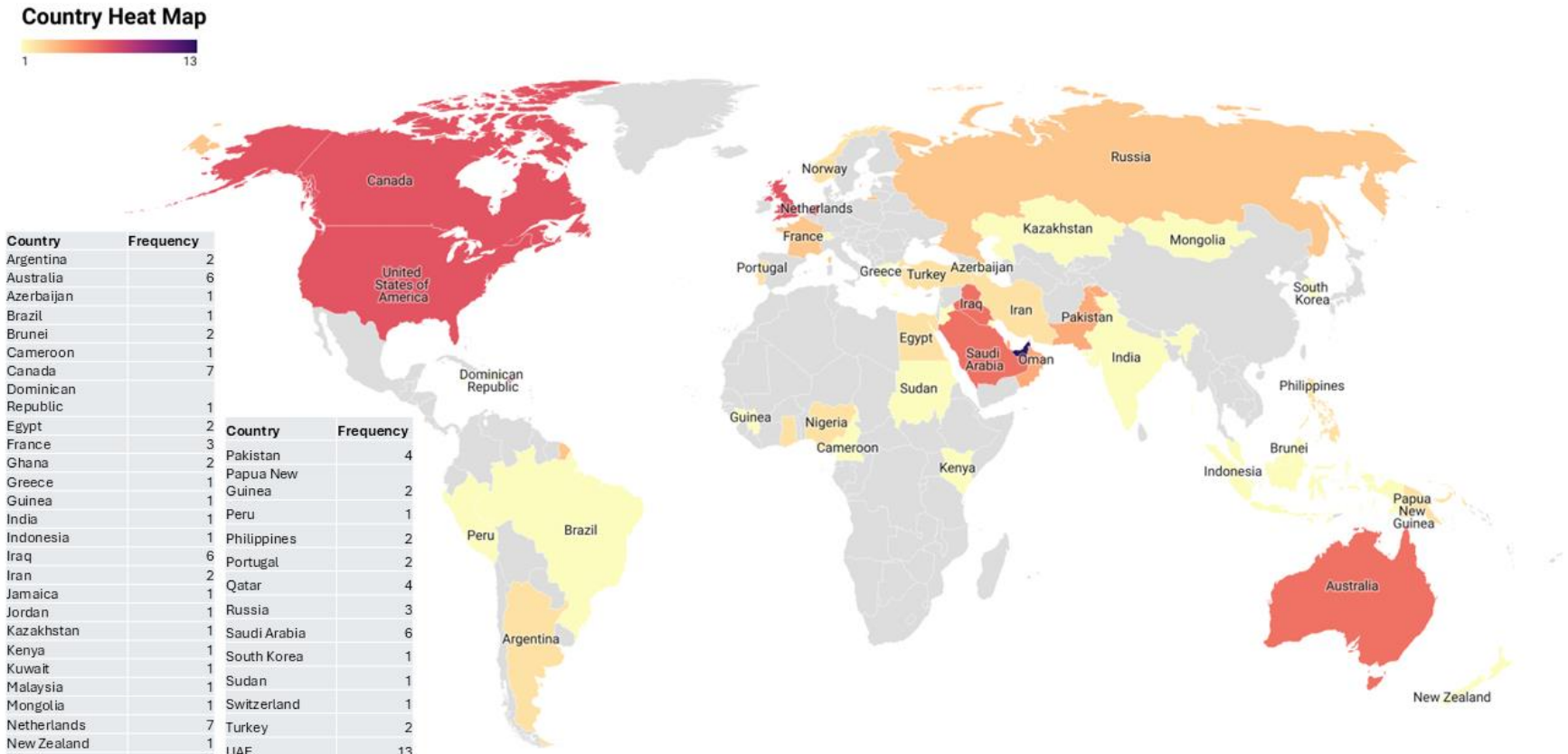
Location of Company HQs	No. of Interviewees
Canada	3
United Arab Emirates	3
France	4
United Kingdom	2
Iraq	1
Turkey	2
USA	4

Portugal	1
Australia	1
Saudi Arabia	2
Qatar	1
New Zealand	1

Although the companies' headquarters were based in various locations, the interviewees did not necessarily work in those specific countries at the time of the interviews. Nonetheless, the participants did have experience working across a wide range of countries (44 countries in total) across all seven continents, excluding Antarctica. Figure 2 presents a geographic heat map representing each of the countries where the interviewees worked over the span of their careers.

Figure 2

Geographic Distribution of Interviewees' Career Experience



Country	Frequency
Argentina	2
Australia	6
Azerbaijan	1
Brazil	1
Brunei	2
Cameroon	1
Canada	7
Dominican Republic	1
Egypt	2
France	3
Ghana	2
Greece	1
Guinea	1
India	1
Indonesia	1
Iraq	6
Iran	2
Jamaica	1
Jordan	1
Kazakhstan	1
Kenya	1
Kuwait	1
Malaysia	1
Mongolia	1
Netherlands	7
New Zealand	1
Nigeria	2
Norway	2
Oman	4

Country	Frequency
Pakistan	4
Papua New Guinea	2
Peru	1
Philippines	2
Portugal	2
Qatar	4
Russia	3
Saudi Arabia	6
South Korea	1
Sudan	1
Switzerland	1
Turkey	2
UAE	13
UK	7
USA	7

The most prominent locations where participants worked include the United Arab Emirates, the United States, the United Kingdom, the Netherlands, and Canada.

The interviewees held a variety of roles, ranging from managerial positions to executive leadership. Table 8 presents a breakdown of the interviewees based on the roles they held at their companies at the time of the interviews.

Table 8

Breakdown of Interviewees per Role

Role	No. of Interviewees
Executive leadership (CEO, COO, MD)	4
Senior leadership (SVP, VP, GM, Head of Department, Regional Director)	10
Upper management (Director, Regional Manager)	5
Middle management (PM, Manager)	6

Seven of the interviewees had no experience working in unionized environments, while the remaining 18 had worked in both unionized and non-unionized settings throughout their careers.

Table 9 summarizes the characteristics of each interviewee in order to provide the reader with context on who is expressing each perspective in the results and discussion sections, while maintaining confidentiality.

Table 9

Summary of Interviewee Characteristics

No.	Gender	Experience (yrs)	Industry	Role	Unionized?
Interviewee 1	Male	31	Manufacturing	Senior leader	Yes
Interviewee 2	Male	22	Maritime	Senior leader	Yes
Interviewee 3	Male	20	Mining	Executive leader	No
Interviewee 4	Male	28	Mining	Executive leader	Yes
Interviewee 5	Male	15	O&G	Upper manager	Yes
Interviewee 6	Female	25	Mining	Upper manager	Yes

Interviewee 7	Male	28	O&G	Executive leader	Yes
Interviewee 8	Male	26	Manufacturing	Senior leader	Yes
Interviewee 9	Male	19	O&G	Upper manager	Yes
Interviewee 10	Male	31	O&G	Senior leader	Yes
Interviewee 11	Male	27	O&G	Middle manager	Yes
Interviewee 12	Male	20	Maritime	Senior leader	No
Interviewee 13	Female	18	Mining	Middle manager	Yes
Interviewee 14	Male	30	O&G	Senior leader	Yes
Interviewee 15	Male	40	Aviation	Senior leader	Yes
Interviewee 16	Male	16	O&G	Upper manager	No
Interviewee 17	Male	17	Construction	Middle manager	Yes
Interviewee 18	Male	36	Transportation	Senior leader	No
Interviewee 19	Male	30	Agriculture	Senior leader	Yes
Interviewee 20	Male	40	Construction	Middle manager	No
Interviewee 21	Male	17	Construction	Middle manager	No
Interviewee 22	Male	52	Construction	Executive leader	Yes
Interviewee 23	Male	55	Construction	Middle manager	No
Interviewee 24	Male	19	Aviation	Upper manager	Yes
Interviewee 25	Male	31	Transportation	Senior leader	Yes

4.3 Saturation

In line with the qualitative design of the present study, participant recruitment and interviews continued until the researcher determined that saturation had been achieved, or when additional interviews resulted in no new perspectives or interpretations (Rubin et al., 1995). Saturation was initially perceived to have been reached after 18 interviews when the same insights were being repeated, prompting the researcher to consult with their academic supervisors. However, due to a high percentage of participants from the oil and gas industry and limited representation from other

industries such as construction, the supervisors recommended conducting further interviews to enhance diversity and representation. Recruitment efforts continued purposively, yielding additional perspectives from the agriculture, aviation, transportation, and construction industries. Participants from the oil and gas sector were intentionally excluded to ensure broader sectoral representation. Data collection concluded following the 25th interview, after which the analysis process was initiated.

4.4 Thematic Analysis

4.4.1 Introduction

The 25 interviews were reviewed twice to remove any identifiers like personal and company names and to ensure the accuracy of the transcription. Following this process, the transcripts were uploaded into NVivo to commence the analysis. After several iterative rounds of coding, a total of 265 codes were identified. Initially, 11 main themes were developed; however, two of these themes were found to overlap and were subsequently grouped under a single theme, reducing the total to 10. Further in-depth analysis revealed that three additional themes could be conceptually integrated under one overarching theme, resulting in a final total of eight themes. The rationale for these conceptual combinations will be elaborated upon in subsequent sections.

The titles of the themes were continually refined as the list of codes was reviewed, with the researcher's supervisors regularly being consulted throughout the process to enhance analytical rigor and ensure the credibility and coherence of the findings. The eight themes were subsequently organized into two main categories. The first category addresses the primary research question of this study: *How do senior leaders in high-risk industries define safety leadership?* This category focuses on the conceptual components of safety leadership, including its foundational elements (safety and leadership). The second category pertains to the secondary research question: *What characteristics or qualities do safety leaders possess?* Together, these two categories provide a comprehensive framework for understanding the concept of safety leadership and safety leaders. The eight themes derived from the analysis are presented in Table 10, along with their definitions, the number of codes assigned, and the number of references.

Table 10

Key Themes with Definitions, Code Counts, and Number of References

No.	Theme	Definition of theme	No. of codes	References
Category 1: How do senior leaders in high-risk industries define safety leadership?				
1.	Safety/ safety leadership is about authentic care	Codes that tie safety and safety leadership to care.	12	44
2.	Safety is embodied as a core value in high-risk organizations	Any code that describes how valuable safety is and why it's so important in high-risk industries.	28	103
3.	Safety/ safety leadership improves safety and business performance	Codes that link safety/ safety leadership with improved safety and non-safety (business) performance.	11	44
4.	Safety is leader-driven	Codes stating that leaders are responsible for defining and driving the value of safety in an organization (top-down).	12	76
5.	Safety leadership is applied by strategically prioritizing safety (decisions, actions, & communications)	Codes that describe safety leadership being applied/operationalized/brought to life by prioritizing safety in one's decisions, communications, and actions.	10	56
Category 2: What characteristics or qualities do safety leaders possess?				
6.	Safety leaders are trustworthy in all that they do	Codes that describe safety leaders as being trustworthy.		
	a. Safety leaders genuinely care	Codes that describe safety leaders as genuinely caring	24	92
	a. Safety leaders walk the talk	Codes that describe safety leaders as having integrity	19	99
	b. Safety leaders are competent	Codes that describe safety leaders as competent	11	52
7.	Safety leaders positively influence others to achieve safety outcomes	Codes that describe safety leaders as leaders who inspire, empower, convince, engage, influence, motivate, and interact with workers involved in the work to achieve safety outcomes.	16	49
8.	Safety leaders promote psychological safety for open reporting and speaking up	Codes that describe safety leaders as leaders who promote an environment where workers feel psychologically safe to report safety issues and speak up.	9	30

The following sections discuss each of the themes in more detail.

4.4.2 Safety/ safety leadership is about authentic care

This theme encompassed all codes that linked safety and safety leadership to the concept of care. Together with theme 6a. (Safety leaders genuinely care), associating care with both safety leadership and the characteristics of safety leaders emerged as the most frequently shared perspective among the majority of participants. Many participants emphasized that beyond safety procedures and policies, the underlying essence of safety leadership lies in care, as illustrated by the following excerpts:

> *"the fundamental thing is about care, care for people, right."* (Interviewee 12)

> *"It wasn't just about health and safety. It was about making sure that the workforce really understood that you cared about them."* (Interviewee 22)

The latter quote highlights the subtle but important point that merely stating that leaders cared was not enough; their care needed to be authentic, as reinforced by the following quotes.

> *"So that's that component for me is fundamentally different than other leadership elements when it comes to safety and it it's it's, you're talking to the human element, the person. And if you cannot touch that, you know one way or another. You're not there yet, yeah."* (Interviewee 10)

> *"So safety leadership is showing your authentic beliefs and your values, uh, and care for others."* (Interviewee 11)

As one participant aptly noted, what sets safety apart from other disciplines is that it's a "*very human endeavor"* (Interviewee 21), deeply rooted in genuine interaction and concern for one another. And this is what many interviewees were trying to emphasize; that safety at its core is about that concern, or care for other humans, rather than mere compliance. It is against this backdrop that several participants expanded on this concept further and stressed the importance of creating an interdependent culture where everyone looks out for each other. This perspective was frequently expressed by participants and is illustrated in the following excerpt.

> *"or stop others if they see those things happening that they need to intervene in and then you develop a true team culture of people looking out for each other as well."* (Interviewee 1)

Authentic care, as emphasized by the senior leaders interviewed as part of the present study, must therefore play a central role in the conceptual definition of safety leadership.

4.4.3 Safety is embodied as a core value in high-risk organizations

This second theme combined codes that highlighted the value of safety and the reasons why it is crucial in high-risk industries. A central focus of the current research was to explore safety leadership within these high-risk sectors, where leading with safety can be expected to be demonstrated and utilized to drive meaningful impact. Several participants provided insights into why safety is particularly critical in high-risk industries such as construction, as evidenced by the following excerpts.

> *"if we don't get it right (safety), what's the, what's the commercial effect in time and cost? It's horrendous. It costs everybody a lot of time, a lot of unnecessary cost, a lot of heartache. You don't wanna go there, you know."* (Interviewee 22)

> *"if any catastrophe happened like explosion or fire or, uh, a public gets affected by your project activity, that's your reputation, that's your company's reputation on the line. So actually the way we see it, it's actually all about at the end of the day it's a financial loss for every business entity in that scenario."* (Interviewee 17)

Without safety, companies in high-risk industries would face significant challenges in sustaining operations, as safety lapses could jeopardize their license to operate, profitability, and overall existence as a whole. Similarly, when asked about the differences and/or similarities between safety leadership and other forms of leadership, several participants shared perspectives along the same lines.

> *"you get safety leadership wrong, the consequences are huge and much more impactful on people's lives, reputation and the business, which is why it's a big difference, you know, if you think of other forms of leadership, the consequences, in my view, are not as significant."* (Interviewee 11)

> *"It's unforgiving. It's unforgiving. It's it's. You're dealing with the incidents accidents which are, they're undeniable and the price can be very high. So it's unforgiving compared to other leadership elements."* (Interviewee 10)

Beyond its moral significance, safety is undoubtedly a critical element in high-risk industries. It is perhaps for this reason that the majority of participants emphasized that safety is a core value for

them, making it one of the most prominent themes to result from the data and a fundamental component of safety leadership. Some excerpts that support this theme are found below.

> *"I think it (safety) is part of my fabric. I think it's ingrained in me."* (Interviewee 20)

> *"Because it's a, it's (safety) a a fundamental value for you as a leader."* (Interviewee 10)

> *"I don't consciously think about safety because it's in my, it's in my DNA now."* (Interviewee 24)

> *"You could see the, you know, the the more senior guys I work with, the guys that genuinely believe it (safety), they do it automatically, right? You can see it's just part of who they are."* (Interviewee 21)

Unlike priorities, which can change because of financial pressures and government influence for example, values tend to remain fixed because they are rooted in beliefs (Rokeach, 1973). The use of words like "DNA" and "fabric" by many participants indicates a strong integration of safety into the core identity of leaders in high-risk industries, providing valuable insights about the foundational elements of safety leadership.

4.4.4 Safety/ safety leadership improves safety and business performance

Given the critical importance of safety as emphasized by all interviewed participants, it is unsurprising that a common perspective shared by many is that a business cannot succeed without safety.

> *"We have all these plans, but at the top of that or the base of that is all safety. You can't, none of these plans work unless we have a safe environment."* (Interviewee 18)

> *"So for me it's very deeper in my mind and it's hard also because sometimes people are focusing a lot on production because we want to deliver. But if we lose the safety, we'll lose the quality and we will lose the production as well."* (Interviewee 6)

Beyond ensuring business sustainability and preventing the loss of life, numerous participants shared interesting perspectives on leveraging safety and safety leadership to drive business improvements, which ultimately resulted as a key theme.

> *"So I started looking at safety as a, a catalyst to also bring process improvement and efficiency, which saves money."* (Interviewee 15)

> *"safety leadership helps me in my, you know, other work. My part time job (jokingly) which is asset management."* (Interviewee 14)

> *"but also attracts people. The talent. Talent don't want to work in an organization that's not safe."* (Interviewee 25)

Participants were actually using safety to improve operational efficiency, enhance quality, and to ultimately reduce costs and improve the bottom-line. This theme demonstrates the potential use of safety leadership as a powerful and strategic tool to create value far beyond safety compliance.

4.4.5 Safety is leader-driven

A common perspective shared by many interviewees was that successful implementation of safety across an organization requires a top-down approach. This view was frequently expressed when discussing the role a leader plays in driving a safe work environment (question 3, Appendix 8). In fact, there was a unanimous consensus among all participants on this point.

> *"It (safety) doesn't work from bottom up, it, it always works from top to down."* (Interviewee 17)

> *"For me it (safety) cannot start in the middle of the chain. It starts at, at the top."* (Interviewee 6)

> *"I've been lucky to work for companies where it (safety) has come top down, otherwise I don't think it will work."* (Interviewee 9)

Participants further emphasized that leaders are not only responsible for establishing a safe work environment, but they also play a pivotal role in shaping and driving the organization's safety culture.

> *"If he's not leading it, if he's not leading the safety culture, you really haven't got a safety culture."* (Interviewee 23)

> *"A leader sets the culture."* (Interviewee 25)

All participants were of the opinion that a successful safety program cannot be realized through grassroot efforts. It had to be initiated and driven from the very top. This commonly recurring

perspective underscores the critical relationship between leadership and successful safety management, shedding light on the foundational building blocks of safety leadership.

4.4.6 ***Safety leadership is applied by strategically prioritizing safety (decisions, actions, & communications)***

The final prominent theme that was identified under the first category – how senior leaders in high-risk industries define safety leadership – centers on the practical aspects of how to operationalize safety leadership within organizations. This theme was supported by codes that described how safety is prioritized with respect to other responsibilities.

> *"I think in, in safety leadership as opposed to say manufacturing leadership or or or quality leadership or anything like that, it's simply a matter of priority."* (Interviewee 1)

> *"So when you're in that decision making, making a business decision, making a choice, uh safety has to be the first one."* (Interviewee 11)

> *"So safety should take priority. Precedence over any other decisions. Yeah. What I mean by that is, if you look at the hierarchy of, of decision making and you never prioritize anything above safety. What are we doing to make sure that safety is at the forefront of anything that we do at work?"* (Interviewee 9)

Safety was not only a component of the leadership equation according to many participants, it was at the forefront of their decision-making process and their leadership approach. They prioritized it whenever they needed to make a decision and also prioritized it in everything they said and did. Prioritizing safety also translated to the amount of time leaders spent on safety. Many interviewees noted that safety took up a significant amount of time of their daily responsibilities.

> *"I would say well over 50 percent, 50% of the time of our time is spent on safe delivery and the emphasis is on safe."* (Interviewee 21)

> *"I'm a safety leader first, then I am whatever I am. This is the first thing I do, and that's my main job and the rest of that are my secondary jobs."* (Interviewee 14)

It seemed that many leaders were strategically prioritizing safety in their leadership approach, making it a conscious and deliberate decision rather than an incidental consideration.

4.4.7 Safety leaders are trustworthy in all that they do

This theme was originally composed of three different themes including:

a. Safety leaders genuinely care
b. Safety leaders walk the talk
c. Safety leaders are competent

The first theme – Safety leaders genuinely care – was a prominent theme that was regularly brought up by participants when asked about the characteristics of safety leaders (questions 7 & 8, Appendix 8).

> *"Care. I think you genuinely have to care about people."* (Interviewee 21)
>
> *"You do it because you genuinely care about each and every individual."* (Interviewee 5)
>
> *"You show you show you show genuine care."* (Interviewee 11)

Participants were keen to point out that it wasn't just about care, the care had to be genuine or authentic. Notably, there are striking similarities between what participants shared about safety leadership (theme 1) and the characteristics attributed to safety leaders. As mentioned, care appears to be a central pillar of safety leadership and serves as a unifying element between the concept of safety leadership and the characteristics of effective safety leaders. This is especially significant because a lack of care on the part of a leader can undermine trust, as employees may perceive that their well-being is not genuinely prioritized. This may lead to disengagement and a weakened safety culture (Conchie et al., 2011).

The second theme – Safety leaders walk the talk – was another prominent theme that was brought up by a large portion of participants when discussing the characteristics of safety leaders. Interviewees emphasized the importance of integrity when describing safety leaders and frequently used the phrase "walk the talk" to describe how safety leaders should consistently align their actions with their words.

> *"I've seen organizations where safety is important and it has to be important, but I've seen certain people who probably just say the things for the sake of saying things, repeat the mantras that the company has, but you don't see their heart in it because essentially it's all about walk the talk."* (Interviewee 9)

> *"it's what a safety leader does is shows that visibility walking the talk."* (Interviewee 11)

> *"Ohh walk the talk simply. So even if you are giving a very good message and you are not displaying that message by your own walk, so again that that that's also very important."* (Interviewee 17)

Participants were stressing that if leaders truly wanted their teams to put safety at the forefront, they needed to lead by example and show the way themselves, as clearly articulated by the below interviewee.

> *"They will follow in the leader's footsteps, so if they find that you always carry as prime importance, safety and safe execution of activities, then obviously they'll emulate you."* (Interviewee 7)

Without integrity, *"you're done. You're toast"* as one interviewee put it (Interviewee 2).

The third theme – Safety leaders are competent – was also a common perspective shared in the interviews. Many participants expressed the opinion that safety leaders needed to demonstrate competence across multiple levels. The first level of competence discussed was competence in the leader's own job and the business in general. The following excerpts summarize a general perspective shared by participants when asked about the characteristics of safety leaders.

> *"So, you know, obviously priority is keeping people safe, but at the same time, there's no business if if there's no revenue, if there's no profit.*
> *So, you know, understanding the business side as well."* (Interviewee 4)

> *"somebody that has competence. Yeah. So it's safety leader should should understand the nature of the job."* (Interviewee 11)

Understanding the business side of things ensures that leaders *"have that credibility as well, someone that understands what the, that the nature of the task in hand."* as Interviewee 11 continued to explain.

The second level of competence discussed by participants was expertise in safety itself, as illustrated by the following excerpts.

> *"you have got to understand just as much about financing as you do about safety, risk, hazard identification and mitigation."* (Interviewee 15)

> *"A safety leader is somebody that, that has good, I think, hazard perception."* (Interviewee 11)

Being competent in safety was important because as one interviewee explained: *"You need to be able to go to a situation and understand this is safe. This is not safe. You don't need a safety officer next to you to say ohh Sir that's not safe."* (Interviewee 20). To be considered a safety leader, one had to possess strong knowledge of safety according to many interviewees. Otherwise, one's credibility as a leader would be compromised.

When analyzed in greater detail, these three themes – safety leaders genuinely care, walk the talk, and are competent – converge on the essential element of trust in a leader. In their seminal study on organizational trust, Mayer et al. (1995) identified three pillars of leader trustworthiness including integrity, benevolence (or care), and ability (or competence). These three pillars align with the themes discussed in this section of the present study, highlighting the role of trustworthiness in the characteristics of safety leaders. Numerous participants did in fact emphasize the importance of trust when discussing the qualities of safety leaders.

> *"the other people will trust you when you're saying something and they feel more comfortable."* (Interviewee 6)

> *"Yes, because the minute you lose integrity, you lose trust."* (Interviewee 24)

Leaders perceived to be trustworthy are better positioned to positively influence the overall culture and improve safety performance because their words and behaviors carry more credibility, making others more likely to follow in their footsteps, as noted by the participants below.

> *"I believed in his commitment. I believed what he was saying, so I think that was what took me on board."* (Interviewee 10)

> *"A safety leader sets umm, the example gives the example in what they do and everything they do."* (Interviewee 25)

> *"so I'm setting a good example to to to the team, to the organization. I remain a role model to the organization as long as I am, I can be looked upon as upholding the tenants of safety the, the, the, the, the attributes that are required for safe execution of the work."* (Interviewee 7)

Trustworthiness is therefore an important characteristic that participants identified as critical for safety leaders, as it underpins their ability to influence others, drive compliance and foster a culture that values safety.

4.4.8 Safety leaders positively influence others to achieve safety outcomes

The second most prominent theme that resulted from the interviews when discussing the qualities and characteristics of safety leaders was their ability to influence others to achieve safety outcomes. This encompassed codes that described safety leaders as those who inspire, empower, convince, engage, influence, motivate, and interact with frontline workers who are directly involved in the work to successfully ensure a safe work environment and realize safety objectives. Some of the excerpts which summarize many of the similar perspectives shared during the interviews include:

> *"he motivates them towards the safety measures."* (Interviewee 17)
>
> *"you measure a leader on what they inspire others to do, what they create around them, and I can be the greatest safety leader in the world but if I don't create a culture where people do that, live that, breathe that day in, day out. Umm. Then I'm not, I'm not a safety leader."* (Interviewee 5)
>
> *"It needs someone that is a someone that influences for the right outcome."* (Interviewee 13)

One of the common perspectives shared during the interviews on how to operationalize this influence was the importance of leaders spending time in the work environment engaging with frontline workers directly. *"Being visible, being involved, that's very important to being a safety leader"* (Interviewee 2) if you wanted to *"win their hearts and minds"* (Interviewee 15). Further excerpts that support this insight are found below.

> *"You can do all the meetings you want, but at the end, if the leadership is not going down to the floor, nothing will happen (to safety results)."* (Interviewee 19)
>
> *"People see you and hear you directly, and it's not somebody who's sitting there in their ivory tower and and and cause it's so it's somebody's visible."* (Interviewee 12)
>
> *"Safety leader is, uh, a guy. He's on the site."* (Interviewee 8)

In contrast, *"a bad safety leader"* according to one participant (Interviewee 24) "*is an armchair manager, or passenger driver. I'm not interested in hearing about that. You weren't there on the ground. You weren't there when it was happening."*

Experienced senior leaders in high-risk industries were keen to emphasize the importance of spending time on site as a critical way to influence workers to achieve safety outcomes.

4.4.9 Safety leaders promote psychological safety for open reporting and speaking up

The third most common theme that was identified under the second category – characteristics or qualities of safety leaders – revolves around how safety leaders promote psychological safety to encourage open reporting and speaking up. This theme was supported by codes highlighting the importance of creating a safe environment where employees feel comfortable sharing concerns, reporting incidents, and providing feedback without fear of blame or retribution. The following excerpts highlight common perspectives shared by participants interviewed as part of the current study.

> *"it's about creating a a safety culture, creating a safety culture where people feel free to speak up."* (Interviewee 11)

> *"a good leader will will do the right thing and will ensure that his people are looked after and feel, and feel confident to be able to say I don't, I don't feel comfortable. I don't feel safe and be able to assist and help."* (Interviewee 25)

In contrast, several participants painted a picture of what the situation might look like when a leader fails to promote an environment of psychological safety.

> *"if you lead by fear, you're not going to be a good leader in health and safety, are you? If you, if you do your analysis of the leaders who lead by health and by by fear, they're, they're not going to have the commitment to getting everybody home safe every day. Do they lead by believing that knowledge is power, do you think those people are going to have a great commitment to getting everybody home safe everyday?"* (Interviewee 22)

> *"who would create an environment of blame and and and and cover up. Right. That's for me what a non safety leader may be."* (Interviewee 12)

Some participants did provide some insight on how to promote an environment of comfort for workers to speak up and report. For example, one participant mentioned that:

> *"it's difficult for some people to open themselves to say hey I made a mistake, it's my fault. But if we are not doing that, we, we don't have the good result at the end and we don't probably find a root cause about what's happened. So transparency and also, and transparency bring the trust after that. So when you are capable to see that you made a mistake but the other people will trust you when you're saying something and they feel more comfortable."* (Interviewee 6)

By admitting mistakes and *"being open for feedback",* a leader *"creates a learning environment for their own team as well"* (Interviewee 16). Promoting psychological safety to encourage safe and open reporting was therefore seen as an important leadership requirement by many participants to ultimately contribute to enhanced safety performance and improved culture.

4.4.10 Formulating a conceptual definition of safety leadership

As already mentioned, the researcher worked closely with their academic supervisors throughout the analytical process, engaging in multiple rounds of consultation to review the coding process, theme development, and theme title refinement. This collaborative engagement spanned several months and involved ongoing dialogue to ensure analytical rigor and coherence. The thematic analysis resulted in eight distinct themes, which were grouped into two overarching categories to answer the primary and secondary questions central to the present research study. Five themes were identified to answer the study's primary question of how senior leaders in high-risk industries define safety leadership. The remaining three themes addressed the secondary question by providing participant insight on the most important characteristics or qualities of safety leaders.

The five themes generated to address the primary question were arrived at by asking five questions to all participants during the interview process (Appendix 8), which formed the basis for understanding the foundational elements of safety leadership and the meaning of the term from the perspective of senior leaders (refer to section 3.6 for details). The resulting five themes include:

1. Safety/ safety leadership is about authentic care
2. Safety is embodied as a core value in high-risk organizations
3. Safety/ safety leadership improves safety and business performance
4. Safety is leader-driven
5. Safety leadership is applied by strategically prioritizing safety (decisions, actions, & communications)

Following this, the themes were integrated into a conceptual definition using steps 5-8 of Jabareen's (2009) method. This method was particularly appropriate for the current research, as it enables the

systematic integration of themes into a coherent conceptual whole, while allowing for future refinement as new evidence emerges, an approach consistent with the pragmatic realist view that truth is fallible. The initial draft of the definition was presented to the researcher's academic supervisors, who had been closely involved throughout the analysis. Over a span of two months, the definition was refined through a series of detailed consultations, each focusing on enhancing conceptual clarity, alignment with the identified themes, and the practical relevance of the language used.

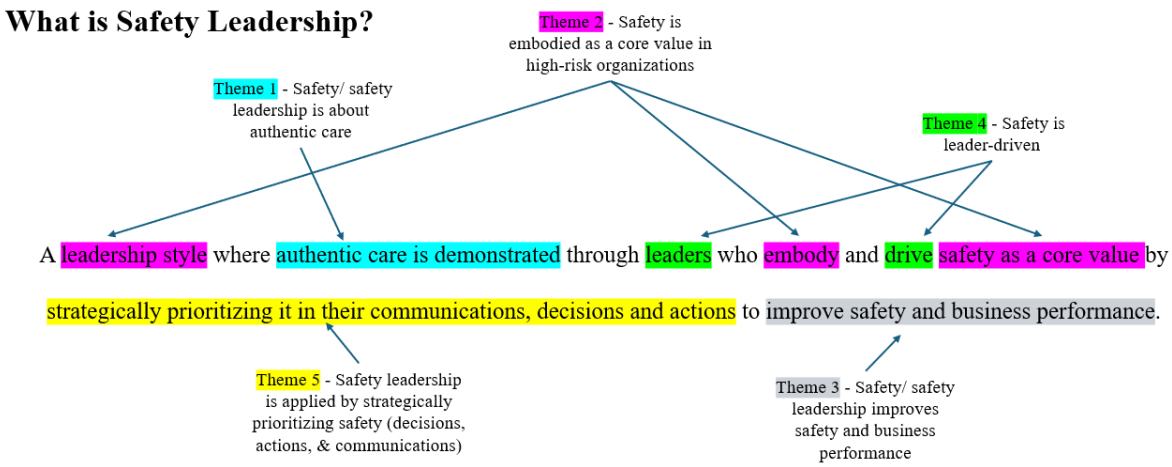
Once internal consensus was reached, the definition was presented, through the supervisors, to a panel of three external scholars with expertise in safety leadership and organizational culture. Their feedback offered valuable critiques regarding both conceptual coherence and contextual applicability. In light of their suggestions, further refinements were made to sharpen the language, ensure conceptual precision, and enhance overall utility. This reflexive and collaborative process ultimately led to the development of the final definition of safety leadership presented below:

"A leadership style where authentic care is demonstrated through leaders who embody and drive safety as a core value by strategically prioritizing it in their communications, decisions and actions to improve safety and business performance."

The following diagram illustrates how the different themes identified in the present study were integrated to construct the final definition of safety leadership.

Figure 3

Integration of the Different Themes to Construct Final Safety Leadership Definition



Safety leadership was explored in high-risk industries, where safety has been considered a core value by almost all of the interviewed participants. This contrasts with low-risk industries such as IT or banking where occupational health and safety is not regarded as a priority (Suárez-Albanchez et al., 2021) and leaders may not be encouraged to adopt such a leadership style in their context due to its perceived lack of relevance. This context-specific characteristic, coupled with findings presented in section 4.6, highlights the case for recognizing safety leadership as a distinct leadership style in and of itself (theme 2).

As mentioned in section 4.4.2, authentic or genuine care was the most prevalent perspective shared by participants throughout the 25 interviews in relation to the meaning of safety leadership and the qualities of safety leaders. In fact, it formed the basis of two of the eight themes in the present study (themes 1 and 6). This underscores the foundational role care plays in the overall conceptualization of safety leadership, positioning it as a central element of the definition. The way leaders demonstrated this care in high-risk industries according to a very large number of interviewees was by embodying and driving safety as a core value (theme 2). It was important to clarify that this approach was leader-driven in the definition given that it was frequently emphasized during the interviews as key to ensuring success in enhancing safety performance (theme 4). How leaders embody and drive safety as a core value according to participants was by prioritizing safety in one's decisions, actions, and words (theme 5). By strategically prioritizing safety in this fashion leads not only to improvements in safety performance, but also to improvements in business performance (theme 3).

4.5 Similarities and Differences Between Job Roles

Across the data, there were more similarities in the perspective on safety leadership and safety leaders than differences between the different job roles (Table 8). The four executive leaders interviewed all associated safety and safety leadership with care and considered safety as a core value in high-risk industries. Additionally, there was unanimous agreement that safety is leader-driven and they shared the view that leaders play an influencing role in achieving safety outcomes by inspiring others. Two perspectives that were emphasized at the executive leadership level, compared to other levels, is the role leaders play in providing the appropriate resources to their teams and the cost of getting safety leadership wrong.

Similarly, the 10 interviewees in senior leadership positions emphasized the central pillar care plays in safety leadership and concurred with their executive counterparts that safety must be driven from the top and that it was a value in their industries. Though they also looked at safety from a business

perspective, this group spoke more about the role safety can play on non-safety performance (e.g., operational efficiency, quality) rather than solely at its costly consequences if poorly implemented. They also spoke about how it should be strategically prioritized above everything else, particularly in the decision-making process. The importance of safety leaders leading by example and "walking that talk" was a commonly shared perspective about safety leaders and participants in this category maintained that leaders should be visible on site to influence workers effectively. Finally, this cohort underscored the critical importance of fostering an environment of psychological safety to ensure leadership was aware of what was really happening on the frontline.

As seniority decreased, there was little difference between the views of upper management and senior leadership, except that the emphasis on safety's potential impact on business performance was less pronounced. A similar observation was made among the six middle managers interviewed. Additionally, while middle managers placed less emphasis on psychological safety, they strongly emphasized the importance of safety leaders possessing deep safety knowledge.

4.6 Safety Leadership vs. General Leadership

Question 6 (Appendix 8) in the interview guide specifically asked participants about the differences and similarities between safety leadership and other forms of leadership. This question was informed by the findings of the systematic review (Chapter 2), which highlighted that most of the literature considers transformational leadership as the foundation of safety leadership. Consequently, participants were specifically asked about their perspective on the topic. Although none of the participants explicitly associated safety leadership with transformational leadership, there were a few that did consider it a component of overall leadership as suggested by the following excerpts:

> *"for me safety leadership is really a component of an overall leadership package."* (Interviewee 1)
>
> *"safety it is one ingredient of a big piece."* (Interviewee 13)
>
> *"safety leadership is a part of the part of that total leadership."* (Interviewee 3)

The same opinion was expressed by some participants when discussing the qualities and characteristics of safety leaders.

> *"those qualities of leadership, are the definition of safety leadership to me just applied in the world of health and safety and applied in the in the in the field."* (Interviewee 22)

The central argument among participants who shared this view was that that effective leadership inherently requires safety to be an integral part of one's overall leadership approach. They could not envision a competent leader in their industry who did not lead with safety.

> *"I don't think I would see someone and say he's a safety leader. I if I'm gonna call somebody a leader, they have to be focused on safety."* (Interviewee 15)

Nonetheless, numerous other interviewees did consider safety leadership as a distinct form of leadership that differed from other styles on three levels. Firstly, they argued that unlike other leadership approaches, safety leadership carries a life-threatening dimension that could result in catastrophes if it wasn't applied effectively.

> *"if you get safety leadership wrong, the consequences are extremely severe. So I think the difference, the difference between the safety leadership is around consequence."* (Interviewee 11)

> *"if you don't finish a project on time, no one's gonna die, right? OK, shareholders might lose money and you might close the shop and lose your business, but it's not a life threatening event."* (Interviewee 14)

The second argument put forth by participants regarding how safety leadership differed from other forms of leadership is the prioritization of safety above all else.

> *"so the the safety leadership comes with, as compared to other leaders, or the safety leader where versus the other operational leader so, so his priority for everything starts with safety, it is that every action starts with, the safety."* (Interviewee 16)

> *"so safety leadership is that leadership that really places the right emphasis on the safety critical safety indicators."* (Interviewee 7)

The final way participants distinguished safety leadership from other forms of leadership was through its emphasis on care. They argued that, unlike other leadership approaches, safety leadership placed a stronger focus on the individual by prioritizing their well-being.

> *"In other forms of leadership like I would say I've worked with many leaders. Some are very, very business focused. Some are very, very focused on their results and they try to ignore all other parameters of the work site or the project. So I would say that a safety leader is more humble, more communicative, more, I*

> *would say, empathetic. He will, he would like to connect with people, he would like to know that what are people challenges on the site regarding their, not only for the work-related thing but also would there for personal challenges."* (Interviewee 17)
>
> *"and has safety at the forefront of his mind. In whatever he does. Not because he has to, but certainly because it's, it's, it's part of the fabric. It's part of the of the person, right?"* Interviewee (20)

Though some participants viewed safety leadership as an important component of overall leadership, many found it to be distinct because of its prioritization of safety, its emphasis on care, and the potential consequences of failing to implement it.

4.7 Concluding Remarks

The findings presented in this chapter contribute to a new understanding of safety leadership that can potentially offer valuable insights to advancing the science of safety and inform the development of more effective safety leadership practices in high-risk industries. The implications and practical utility of these results are discussed in greater detail in the next chapter.

Chapter 5. Discussion

5.1 Introduction

The present study set out to explore the meaning of safety leadership from the perspective of senior leaders in high-risk industries and to identify the characteristics of safety leaders. Data saturation was reached after conducting 25 interviews, and thematic analysis was employed to generate a conceptual definition of safety leadership and identify the respective qualities of safety leaders. The credibility of the results was supported through an iterative process of internal and external consultation. This research makes several key contributions to the safety leadership literature and offers practitioners actionable guidance to operationalize safety leadership.

Chapter 5 discusses the main findings in detail and analyzes how they compare to the results of previous studies. The findings are also discussed in relation to other leadership styles to determine the degree of similarity and differences. The contributions the study makes to the academic and practitioner worlds are also presented followed by a discussion of its strengths and weaknesses. Finally, recommendations for future research are suggested.

5.2 Overview of Findings

The first theme that contributed to the definition of safety leadership (Safety/ safety leadership is about authentic care) was one of the most commonly shared perspectives by interviewees when considering both the conceptual elements of safety leadership and qualities of safety leaders. It is important to clarify that the emphasis is not just on care, but authentic care. Authenticity was emphasized by interviewees when talking about both safety leadership and the traits of safety leaders and so it was important to highlight this in the final results. The importance of care in safety leadership is not a new concept. Although he didn't use the word "care" explicitly, Zohar (2002) found that leadership practices, which operationalize concern for safety, serve as the basis for perceptions of safety climate. Recently, Abiodun (2024) found care to be the most important safety leadership factor for the creation of trust in the oil and gas sector. According to many of the leaders interviewed as part of this study, if leaders do not demonstrate authentic care in the context of health and safety, their leadership effectiveness is called into question. How to demonstrate this care in high-risk industries, participants shared, is by embracing safety as a core value (theme 2). Through these interviews, it was clear how highly participants valued safety. The organizations employing many of the interview participants had provided their leaders with the training, coaching, and supporting organizational culture to put safety at the forefront of everything they do. This was not by chance but rather by design, especially because of the potential consequences of accidents in

high-risk industries. As a result, everything they said, did, and decided, strategically prioritized safety (theme 5), which is how safety as a core value was operationalized in practical terms. The impact of leaders prioritizing safety against competing demands cascades down the hierarchal chain, ultimately influencing safety perceptions and climate (Zohar, 2002). In fact, Pilbeam et al. (2016a) and Molnar et al. (2019) have even suggested that safety leadership may simply refer to the priority leaders place on safety, which is a perspective supported by the results of the current study. Although the positive impact leadership (theme 4) has on safety performance is well documented (refer to Table 3 for ample evidence), the influence on non-safety metrics like operational efficiency, quality, and the bottom-line are much less explored. The interview data in this study indicates a perceived positive relationship between safety leadership and non-safety outcomes (theme 3), a noteworthy pattern that is highlighted in the final results.

Theme 7 (Safety leaders positively influence others to achieve safety outcomes) aligns well with the general qualities of safety leaders discussed in the literature, particularly given the traditionally strong association of safety leadership with transformational leadership theory. Rather than relying on authority or force, safety-specific transformational leadership emphasizes inspiring and uplifting employees to achieve safety goals. This is a perspective that was regularly shared and emphasized by participants during the interviews, making it an unsurprising theme that emerged from the data to describe safety leaders.

Theme 8 (Safety leaders promote psychological safety for open reporting and speaking up) is a particularly interesting finding from the current study, as it is not a quality that is traditionally associated with safety leaders. Psychological safety is defined by Amy Edmondson, the American scholar credited with popularizing the term (Jowett, 2023), as a construct that describes how individuals perceive the potential consequences of taking interpersonal risks within a specific setting, such as the workplace (Edmondson et al., 2014). High psychological safety describes an environment where employees feel safe speaking up and reporting incidents (Newman et al., 2017). Unlike trust, which focuses on dyadic relationships, such as that between a worker and their leader, psychological safety is a group-level construct describing the shared belief that a team holds (Edmondson et al., 2004). There is a limited body of research specifically examining the relationship between safety leadership and psychological safety (Quansah et al., 2023). Trustworthiness on the other hand, is a well-established quality of safety leaders that has been extensively examined and shown to influence employee safety behaviors (Conchie et al., 2011; Ordysiński, 2024). Its emergence in the present study as a key quality of safety leaders (theme 6) is therefore not as unexpected as that of psychological safety. Despite the limited number of studies

exploring the relationship between safety leadership and psychological safety, interviewees highlighted it as a critical contributor to promoting a positive safety culture. Without psychological safety, they argued, incidents go unreported, and the organization does not learn from these events, exposing it to increasing risk with time. This perspective aligns with the broader understanding of how a lack of psychological safety negatively impacts organizations (Edmondson, 2019). These findings present an opportunity to examine the relationship between safety leadership and psychological safety with greater depth and detail.

5.3 Comparison with Daniel's (2015) Definition

Safety leadership has been predominantly studied using quantitative research, resulting in valuable insights about the nomological network of safety leadership (its impact on other variables) but very little understanding of its empirical and conceptual foundations (Jiang et al., 2024). This gap has been highlighted by the systematic review conducted as part of the present study (Chapter 2), stressing the need for more qualitative explorations on the topic. According to the findings of this systematic review, conducted in May 2023, only one other study was identified that examined safety leadership using qualitative means. Daniel (2015) developed a definition of safety leadership by interviewing 20 participants at a construction company in Australia. Daniel's (2015, p.11) definition, *"The demonstration of safety values through the creation of a vision and the promotion of wellbeing through the art of engagement, honesty and discipline."*, broadly shares some common elements with the characteristics of safety leaders identified as part of this research. These include engagement (Safety leaders positively influence others to achieve safety outcomes) and honesty (the integrity pillar of the theme "Safety leaders are trustworthy in all that they do"). Though Daniel's (2015) definition does emphasize leaders demonstrating multiple safety values (fairness, integrity, and the importance of safety), the present study frames safety as a core value without suggesting it is supported by multiple underlying values.

Despite these similarities, the definitions differ significantly in other aspects. Care emerges as a central pillar in the definition identified in this study, along with a clear articulation of how to operationalize safety as a core value – by prioritizing safety in your decisions and what you say and do. Furthermore, the impact of safety on both safety and non-safety performance is an important part as well. None of these components emerge as part of Daniel's (2015) definition, which raises the question as to why there is such a significant difference between the two definitions. In fact, when isolating responses from interviewees in the construction industry, 80% of participants interviewed in the current study emphasized the importance of care – an element entirely absent from Daniel's (2015) themes.

As highlighted in Chapter 2, one potential drawback with the approach Daniel (2015) adopted was interviewing participants from the same company, where employees' views on safety leadership may have been influenced by the organization's unique culture, leadership practices, shared experiences, and standardized training. It was therefore the intent of the present study to build upon and refine Daniel's (2015) research design by interviewing participants from multiple companies and industries from across the world. Notably, this study expanded beyond construction to include representation from 25 different companies across seven other high-risk industries (Table 5), ensuring a broader and more diverse perspective on safety leadership. Initially, oil and gas represented 39% (7/18) of the total sample, a significant proportion that could have introduced bias into the findings. However, to mitigate this and to ensure better representation from other industries, the researcher's supervisory team recommended proceeding further with interviews. Therefore, an additional seven interviews were conducted, reducing the oil and gas sample to 28% and introducing further viewpoints from construction, transportation, aviation and agriculture. While agriculture remained underrepresented with only one interview, the overall distribution of industries helped strengthen the study's findings beyond the initial 18 interviews. Another underrepresentation was observed in company size (Table 6), where only four companies had more than 100,000 employees. Nonetheless, this is not unexpected, as the frequency of companies tends to decrease as employee count increases. For example, according to the US Census Bureau (2021), 57% of businesses in the US have fewer than 5 employees while only 0.1% employ 1,000 employees or more. Only seven of the 25 (28%) companies interviewed in this study had less than 1,000 employees, skewing the data towards larger organizations, which may limit the applicability of the findings to smaller firms. However, a positive aspect of this study is the representation across all company sizes, along with a diverse range of participants from various types of organizations, including multinational corporations, government-owned entities, and privately owned companies. This broad representation was further enhanced by a sample pool with a global footprint. Participants not only worked for organizations that were headquartered in different countries (Table 7), each with potentially distinct professional and social cultures, but they also brought experiences from across 44 countries (Figure 2). While all of Daniel's (2015) interviewees were based in Australia, 65% of them had previously worked internationally, which may have helped promote the diverse viewpoints sought in the present study.

A further noteworthy difference between Daniel's (2015) design approach and that of the present study, which may have helped contribute to the observed differences in definitions, is the targeted respondent group. Daniel (2015) not only chose to interview operational leaders (GMs, Project Managers, Construction Managers), but he also interviewed five health and safety managers, which

represents 25% of his participant pool. Health and safety professionals, along with leaders from other support functions (e.g., HR, finance), were intentionally excluded from the interviews in the current study, as such roles do not have direct oversight of or accountability for the workforce engaged in high-risk activities.

One common disadvantage shared by both Daniel's (2015) study and the present research is the sample's gender imbalance. Only two females (8%) were interviewed as part of this study, despite the researcher's efforts to engage several female membership groups on LinkedIn. Daniel (2015) also interviewed 2 females as part of his study (10%) and suggests that this imbalance is due to male dominance in high-risk industries such as construction and mining. There is ample evidence in the literature to suggest that this is indeed the case (Du Plessis, 2013; Stergiou-Kita, 2015). There were no notable differences between the findings from male and female participants interviewed in the current study. However, one female participant did repeatedly mention the challenges she faced in a male-dominated industry, while the second female participant did not mention it at all.

The current research revealed strong similarities across seniority levels with some notable exceptions. Highlighting the cost of getting safety leadership wrong, for example, was a common perspective shared by executive leaders whereas for senior leadership, the focus was more on how safety leadership could be leveraged to improve both safety and overall business performance. Viewing safety leadership through a business lens aligns with the strategic nature of higher-level roles within an organization. Being visible and walking the talk was a perspective that was highlighted with decreasing seniority while competence was particularly highlighted by middle managers who were closer to the frontline, an outcome that is not surprising given their relative proximity to the workforce.

Daniel (2015) also found more similarities in how safety leadership was perceived across different job positions, however he did identify minor differences, particularly around the relationship between safety leadership and general leadership. Daniel's (2015) research found that safety leadership becomes increasingly amalgamated with general leadership as seniority rises. This relationship was not observed in the current research. Nonetheless, Daniel (2015), along with others such as Molnar et al. (2019), have suggested that safety leadership should be considered an independent leadership style that does not "piggyback" on other forms of leadership. This is a view that is contrary to the prevailing position in the academic literature, and it is a finding that the results of the present study support as well. Though some participants did consider safety leadership a part of general leadership, as mentioned in section 4.6, this perspective may have often been held because they could not envision a leader who did not prioritize safety in their leadership approach.

Safety being a core value in high-risk industries was a very prominent theme (theme 2) and as such, holding this view is understandable given the severity of the consequences that could arise otherwise. However, because this attitude towards safety is particularly relevant in the context of high-risk industries and somewhat irrelevant in low-risk sectors (Suárez-Albanchez et al., 2021), it provides strong justification for considering safety leadership distinct from general leadership.

Furthermore, for many interviewees, because care was a central pillar of leading with safety, it was viewed as no different from general leadership, where leaders need to genuinely care about their team members regardless of context. If a leader does not care, then simply put *"you're not a leader"* as Interviewee 18 put it. It was therefore the opinion of several participants that safety was just one aspect of the total leadership package. Leaders had to be caring, genuine, and good communicators, among other characteristics, and safety leaders, some argued, had to be caring, genuine, and good communicators as well. This equivalency may explain why safety leadership and general leadership were considered one and the same by some. However, other participants differentiated between the two arguing that being an effective leader does not necessarily translate to success in safety leadership. As one participant noted:

> *"because you're a successful leader in another area, doesn't mean you're gonna be a successful leader in safety."* (Interviewee 2)

A leader could be caring (theme 1) but not embody and drive safety as a core value (themes 2&4). A leader can genuinely care but not strategically prioritize safety in everything they say and do (theme 5). The results indicate that participants offered a specific way to operationalize care in high-risk industries, reinforcing a fundamental differentiation between safety leadership and general leadership. Moreover, the participants that saw no difference between safety leadership and general leadership used qualities and characteristics to equate the two. However, the research design of the present study deliberately separated traits from conceptual elements to ensure a clearer differentiation. In other words, the definition focused on the conceptual foundations of safety leadership rather than the personal qualities a good safety leader should embody. Therefore, a leader could be caring, genuine, and a good communicator but if they did not operationalize the conceptual components of safety leadership, then they would not be considered a safety leader.

The definition of safety leadership established in the present study differs from the definition Daniel (2015) proposed through his qualitative research, potentially due to differences in research design. However, both studies converge on the independence of safety leadership as a distinct leadership style.

5.4 Comparison with Safety-Specific Transformational Leadership

As discussed in section 1.3, safety-specific transformational leadership, combined with transactional leadership, has been the predominant framework embraced in the academic literature to date when examining safety leadership. This approach has been critically evaluated in the systematic review chapter of the present study (section 2.5) where several limitations have been identified to question this widespread adoption, despite the empirical support the framework has received. One of the main challenges associated with safety-specific transformational leadership is its reliance on a trait-based approach to leadership, which makes it difficult to identify which specific behavior(s) inspires certain outcomes (Molnar et al., 2019). This constraint is not exclusive to safety-specific transformational leadership but extends to any leadership style that revolves around almost personality-driven characterizations of leadership such as charisma (Casey et al., 2019). To avoid this challenge, the research design of the present study deliberately distinguished between the conceptual elements of safety leadership and the traits of safety leaders. This distinction marks the first major difference between the definition derived from this study and the conventional framework predominantly adopted in the academic literature to refer to safety leadership.

Safety-specific transformational leaders motivate employees to achieve safety outcomes by role modelling safety (idealized influence), inspiring a safety vision (inspirational motivation), promoting critical thinking (intellectual stimulation), and tending to the needs of each individual follower (individualized consideration) (Clarke, 2013). Comparing these four behaviors to the characteristics and qualities identified in the current study does show considerable alignment. The overall philosophy of safety-specific transformational leadership is to inspire and uplift employees to attain safety goals (Hater et al., 1988), which resonates quite strongly with theme 7 (Safety leaders positively influence others to achieve safety outcomes). Role modeling safety, or idealized influence, aligns with one of the three elements that make up theme 6, which suggests that safety leaders walk the talk and set the example. The individualized consideration trait of safety-specific transformational leadership has common elements with the genuine care aspect of theme 6, although offering individualized support to each follower was not a perspective explicitly shared by participants interviewed in the current study. Similarly, intellectual stimulation was not a trait specifically identified by this research as a quality of safety leaders, however fostering an environment where followers feel comfortable engaging in such activities was. Without psychological safety (theme 8), the frontline workers will not feel comfortable speaking up, suggesting ideas to improve safety performance, and challenging the status quo (Quansah et al.,

2023). Theme 8 is an overarching requirement necessary to promote safety-specific transformational leadership's intellectual stimulation. As for inspirational motivation, although there were a few interviewees that did mention the importance of leaders articulating an inspiring vision to motivate employees, this perspective was not shared frequently enough to merit a distinct theme. Of the four pillars of safety-specific transformational leadership, three directly or indirectly align with the three themes describing the qualities of safety leaders in this study.

One other notable difference between the definition arrived at in this study and safety-specific transformational leadership lies in the scope of impact they each have. The safety-specific transformational leadership literature is clear about its impact on safety performance whereas the data from the current research indicates that safety leadership has far wider implications than just safety. Interviewed participants shared valuable insights about the positive effect safety leadership can have not only on safety outcomes, but on non-safety metrics like operational efficiency, quality and costs, which led to the development of theme 3. This is an important distinction, one that is not extensively explored in existing research, as highlighted in section 2.7 of the literature review chapter (Chapter 2).

An important question that was highlighted in the discussion section of the literature review chapter is whether safety leadership should be regarded as an independent leadership style or as a sub-facet of other leadership styles (Wu et al., 2016), particularly transformational leadership. Of the 37 definitions presented in Table 3, 20 are underpinned by transformational leadership theory in whole or in part, and eight are based on Wu's (2005) construct, who also associates his definitions with transformational and transactional leadership. Why this widespread adoption is the case is not entirely certain, however, the lack of dedicated research on the conceptual understanding of safety leadership may have contributed to it (Jiang et al., 2024). Apart from the commonalities with most of the characteristics or qualities of safety leaders, the definition arrived at in the current study does not align with the definition of safety-specific transformational leadership. As discussed in section 5.3 of this thesis, the results indicate that safety leadership can be considered an independent form of leadership as Daniel (2015) and Molnar et al. (2019) have maintained. In addition to being conceptually distinct from safety-specific transformational leadership, which focuses more on motivational and inspirational traits, the safety leadership concept developed from interviews with senior leaders in high-risk industries offers a more practical and grounded approach to operationalizing safety as a core value. This is particularly relevant given that the original construct of safety-specific transformational leadership, rooted in Burns' book on leadership, was initially tested among restaurant workers (Barling et al., 2002), a vastly different context from high-risk

industries such as aviation and mining. While safety-specific transformational leadership, and transactional leadership to a lesser extent, have offered the academic literature and practitioners, a good starting point to understanding safety leadership, it is now necessary to advance toward more contextual and evidence-based conceptualizations of the construct.

5.5 Comparison with Other Definitions Identified in the Literature Review

The systematic review conducted as part of the current study identified 37 definitions of safety leadership. Of these, only seven were empirically derived, six of which were endorsed by their operational definitions (i.e. how to measure safety leadership) and one which was derived using qualitative means. The latter was discussed in section 5.3, while one of the six (safety-specific transformational leadership (Barling et al., 2002)) was discussed in section 5.4. The remaining five definitions are listed in Table 11 below:

Table 11

Empirically Derived Definitions of Safety Leadership Identified from Systematic Review

No.	Author	Conceptual Definition	Underpinning Theory	Industry
1.	Griffen et al., 2013	*"specific leader behaviours that motivate employees to achieve safety goals"*	Self-regulation framework	Range of industries including construction (8%) and technical (7%)
2.	Molnar et al., 2019	*"leadership that is not necessarily characterized by either transformational or transactional leadership behaviors but rather indicates the degree to which the leader gives focus and priority to safety over other aspects such as speed and schedules, reacts to subordinates' safe/unsafe conduct (i.e., positive and negative feedback), and takes initiatives to actions concerning safety issues"*	Unspecified	Paper mill
3.	Mullen et al., 2009	*"a safety-specific transformational leader engages in behaviour that is characteristic of the components of transformational leadership, yet specifically focused on inspiring and promoting positive safety-related practices"*	Transformational leadership	Healthcare
4.	Wu, 2005	*"the process of interaction between leaders and followers, through which leaders could exert their influence on followers to achieve organizational safety goals under the circumstances of organizational and individual factors"*	Operational definition based on social system theory which is used to endorse conceptual definition	Taiwanese Universities
5.	Wu, 2008	*"the process of interaction between leader and followers through which a leader can exert influence on followers to achieve group safety goals within the context of organizational and individual factors"*	Author references Wu (2005) to derive their definition (social system theory)	Taiwanese Universities

The definition proposed by Mullen et al. (2009) is based on transformational leadership theory and specifically revolves around a trait-based approach to safety leadership, focusing on leader behaviors. Although not based on safety-specific transformational leadership, Griffen et al.'s (2013) definition also proposes a trait-based definition of safety leadership. As discussed in previous sections, such approaches to conceptualizing leadership constructs do offer valuable insights but fall short of capturing the foundational elements that distinguish their salient features, especially when many qualities and characteristics are common between different leadership approaches. This overlap can blur the unique aspects of a leadership style, thereby undermining its effectiveness. From a safety leadership perspective, a separation between concept and characteristics is essential for ensuring uniqueness and impact, especially in high-risk industries where the stakes are exceptionally high.

The two definitions proposed by Wu are very similar in nature with the key distinction being that his 2005 definition applies to the organizational level, while the 2008 definition is intended for the group level, as reflected in the different terms used in each respective definition. While both of Wu's definitions emphasize the "process of interaction" between leaders and followers, the reference to "individual factors" implicitly alludes to qualities or behaviors of safety leaders. It should be noted that both these definitions were derived in the education sector, specifically within university settings rather than in high-risk industries. In fact, this is largely the case for the five definitions presented in Table 11, with the exception of Molnar et al.'s (2009) definition, which was studied in paper mills. A further distinction is that all five definitions (save for Molnar et al.'s (2009)) explicitly limit the scope of safety leadership to safety performance alone as opposed to safety and non-safety metrics. Despite these differences, Wu's two definitions, along with Mullen et al. (2009) and Griffin et al.'s (2013), do share a common emphasis on the positive influence leaders exert on followers to drive safety performance, aligning with the definition and characteristics derived from the present research (themes 4&7).

Molnar et al.'s (2019) definition shares several key elements with the findings of the present study. Through examples, they suggest that safety leadership involves providing feedback to workers and addressing safety concerns when raised, both of which arguably reflect a leader's care factor (theme 1). Moreover, unlike the other four definitions in Table 11, Molnar et al. (2019) strongly align with this study's finding on the strategic prioritization of safety in all matters (theme 4), a conclusion also echoed by Pilbeam et al. (2016a) in their systematic review of the characteristics of safety leaders. Additionally, Molnar et al. (2019) make it a point to indicate that safety leadership is not characterized by transformational or transactional behaviors, thereby dividing between the

conceptual elements of safety leadership and the characteristics of safety leaders. These three key elements of Molnar et al.'s (2019) definition align closely with the findings of this study, distinguishing both from the prevailing mainstream perspectives on safety leadership that dominate the academic literature

On the subject of the prioritization of safety as part of the definition of safety leadership, one important point worth highlighting is whether it could be applied to different contexts with minimal adjustment. In other words, if "safety" is substituted with another focal area such as "innovation" or "quality", would the framework result in similar insights and strategies, thereby compromising its distinctiveness? Substituting "safety" with "quality" or "innovation" in the following definitions of safety leadership illustrates this point:

1. *Safety leadership is generally defined as leadership behaviors that have positive impact on employees' safety behaviors* (Cheung et al., 2021)
2. *Safety leadership can be defined as a form of transformational leadership focused on achieving safety outcomes* (de Vries et al., 2016)

"Innovation" or "quality" can be easily interchanged for safety, making both these definitions broad and generalized. Similar arguments can be made for definitions of quality leadership or innovation leadership. Replacing "innovative" or "quality" in the below with "safety" yields similar generalized results:

1. *Innovative leadership is defined by the researcher as the behaviors of leaders that foster and enhance followers' creativity and innovative behavior* (Khalili, 2017)
2. *Quality leadership is defined as organizational leaders creating an environment that facilitates contributions by all staff toward improving the organization's results* (Bliersbach, 1992)

Analyzing the definition arrived at in the current study, several factors set it apart from the limitations that constrain other definitions. Firstly, safety leadership's central pillar of care does not resonate well with other focal areas such as quality or innovation. Care was found to be a central tenant to leading with safety that emphasizes its "human" aspect, which several participants referred to. Secondly, it has been argued that safety leadership is most effective in high-risk industries, where safety is extremely relevant and is upheld as a value by leaders. This context-specific feature promotes it as an independent leadership style, a finding that is not shared by many definitions, particularly those of safety leadership. The absence of traits or required behaviors in the definition further reinforces its uniqueness, particularly given that listing desired behaviors is a common

practice in leadership definitions (refer to Table 3). Another notable finding associated with the safety leadership definition generated by the current research is its impact on safety and non-safety performance. A review of the definitions in Table 3 reveals that all the definitions that address impact restrict their scope to safety alone. This is not unlike the other focal area definitions, such as those for quality and innovative leadership quoted above. Positively influencing metrics beyond the focal area serves as further evidence of the distinctiveness and exclusivity of this leadership style. One of the strongest arguments, however, is the fact that the definition of safety leadership in the current study is empirically grounded, giving it a distinct advantage over other definitions. Together, these findings not only set the current safety leadership definition apart but provide academics with fertile ground to explore the conceptual definitions of focal leadership styles (e.g., quality, innovation, etc.) and how they compare and contrast with the findings of this study.

5.6 Comparison with Other Leadership Styles

The role transformational and transactional leadership have played on the centrality of safety leadership was discussed in detail in section 5.4. This section will focus on how safety leadership compares to other prominent leadership styles in the academic literature.

It is interesting to note that throughout all the interviews, only one participant explicitly named a specific leadership style. When asked about safety leadership, they spoke about care and used servant leadership to describe it:

> *"So when you say safety leadership, I think servant leadership."* (Interviewee 15)

The participant did not speak about servant leadership in detail but described it as a *"privilege to be the leader"*. Greenleaf, who coined the term "servant leadership", did not specifically define servant leadership but described servant leaders in his 1970 essay *The Servant as Leader*, as those who ensure that others' *"highest priority needs are served first"* (Greenleaf, 1970, p.4). Many studies have developed measures for servant leadership, with Spears (2010) providing one of the most widely accepted frameworks (Barbuto et al., 2006). Spears (2010) proposes a set of ten characteristics of servant leaders from Greenleaf's writings, including listening (to hear effectively), empathy (to appreciate the circumstances of others), healing (to heal others, especially from an emotional perspective), awareness (to notice what is happening), persuasion (to influence without authority), conceptualization (to use mental models), foresight (to anticipate the future), stewardship (to positively impact society), growth (to develop others), and community building (to build community spirit). Although serving others can be viewed as an extension of care, as suggested by interviewee 15 above, the concept of servitude was not specifically brought up by any other

participant when discussing safety leadership. In terms of characteristics, servant leadership's listening, empathy, healing, and growth can be interpreted to fall under the umbrella of leaders genuinely caring (theme 6), and persuasion corresponds strongly with theme 7 (safety leaders positively influence others). Despite these similarities, however, safety leadership does not align with the philosophical foundations of servant leadership. The care factor in safety leadership is focused on protecting people from harm by actively fostering a culture where safety is embedded in a leader's every behavior. In contrast, care in servant leadership is deeply rooted in the foundational principal of service, with an emphasis on facilitating both personal and professional growth.

Unlike servant leadership, the literature on authentic leadership is much more theoretical and definitional (Anderson et al., 2017). After Henderson et al. (1983) attempted to define and operationalize the leadership authenticity construct, many studies have proposed definitions of authentic leadership over the years that varied considerably (Gardner et al., 2011). However, empirical research on the topic has been on the rise due to two validated measures including the 16-item authentic leadership questionnaire by Walumbwa et al. (2008) and the 14-item authentic leadership inventory by Neider et al. (2011). Both these models are based on four conceptual elements including self-awareness (to be cognizant of one's strengths and weaknesses), relational transparency (to present an authentic version of oneself), balanced processing (to make informed decisions), and internalized moral perspective (to be guided by internal moral standards and values) (Anderson et al., 2017). The underlying philosophy of authentic leadership centers on the need for a genuine and values-based leadership model in response to serious concerns about the ethical conduct of some leaders in today's corporate world (Gardner et al., 2011). This aligns strongly with safety leadership's integrity pillar of trust where walking the talk is critical to trust-building. Safety as a core value, a cardinal element of safety leadership, also has commonalities with authentic leadership's value-based principle. Despite these broad similarities however, the differences arise in their primary focus and intended outcomes. Whereas integrity is the end product of authentic leadership, it is a means to an end in safety leadership, or a tool to achieve a safe work environment and improved business performance.

On the topic of ethics, ethical leadership is another leadership style that has recently garnered increased attention because of ethical scandals in the business world (Den Hartog, 2015). Popularized by Brown et al. (2005) in their seminal paper *Ethical Leadership: A Social Learning Perspective*, they defined ethical leadership as *"the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through two-way communication, reinforcement, and decision-making."*

(Brown et al., 2005, p.120). The vague nature of "appropriate conduct" has been criticized because it is not clear what appropriate conduct refers to, particularly in light of varying cultural and organizational perspectives (Giessner et al., 2010). Eisenbeiss (2012) proposes four characteristics to address these criticisms and provide clarity to this leadership construct, which have been supported empirically (Mayer et al., 2012). They include humane orientation (to treat others respectfully), justice orientation (to make fair and consistent decisions), responsibility and sustainability orientation (to have concern for society and the environment), and moderation orientation (to demonstrate self-restraint and humility). Like authentic leadership however, the overall ethos of ethical leadership is to drive moral conduct, which aligns with safety leadership's integrity pillar of trust (theme 6) in spirit but not in purpose.

Introduced by Louis Fry in the early 2000s, spiritual leadership is a leadership style that aims to foster a sense of purpose and meaning in the workplace. Fry (2003, 694-695) defined spiritual leadership as *"the values, attitudes, and behaviors that are necessary to intrinsically motivate one's self and others so that they have a sense of spiritual survival through calling and membership"*. Fry (2003) argues that this entails creating a vision that instills a sense of calling and creating a culture based on love and care, so members feel a sense of membership. The sense of calling inherent in spiritual leadership strongly aligns with the perspectives shared by several interviewees about safety. Safety is a cause, or a common enemy that brings people together.

> *"It creates a common enemy. You know, everybody likes a common enemy. To create, to create a team you need a common enemy."* (Interviewee 22)
>
> *"I think you know it's a calling that I, I got the privilege to be the leader."* (Interviewee 15)

In fact, some participants even used religious connotations to describe safety and safety leadership.

> *"But you need to have the call. It's like the wahy (inspiration) comes from Allah (jokingly). You need to, you know, feel it in your heart, you know."* (Interviewee 14)
>
> *"You maintain the course and eventually those people are going to become not only converted, but they will become evangelists."* (Interviewee 7)

Safety was described as a cause with safety leaders as evangelists whose mission it is to convert others to the faith. This reference fits quite well with Fry's (2003) idea of spiritual leadership. Furthermore, the care aspect of the construct aligns with safety leadership's first theme (Safety/

safety leadership is about authentic care), even though, as with the previous leadership styles, the ultimate end products do not coincide.

Leader-Member Exchange (LMX) is arguably the third most studied leadership concept in the context of safety leadership, following transformational and transactional leadership. As discussed in section 1.3, LMX focuses on the quality of the relationship between leaders and their followers. Anderson et al. (2017) argue that LMX is not a leadership style, but rather a concept that describes the nature and quality of the relationship between a leader and their follower. Graen et al. (1995, p.225) suggest that it describes how *"effective leadership relationships develop between dyadic 'partners' in and between organizations."*. Although relationships are quite important between leaders and followers, the strength of such a relationship was not discussed explicitly by interviewees in the current study. Rather, the importance of relationships appeared in the form of trust (theme 6), which aligns with Donovan et al.'s (2018) finding regarding the most important LMX practice.

Despite safety leadership sharing several features with many of the prominent leadership styles in the literature, particularly around care, influence, and trust, safety leadership emerges as a leadership style that is distinct in scope and context.

5.7 Comparison with Systematic Review Results

The thematic synthesis of the systematic review of 37 definitions of safety leadership (Chapter 2) resulted in three themes including:

1) Safety leadership improves safety performance (why safety leadership?)
2) Safety leaders lead by influence and example, not authority (how do safety leaders lead?)
3) Safety leadership can be practiced by leaders at all levels of the organization (who are safety leaders?)

The above results generally align with the findings arrived at in the present study. The first of the above themes, which answered the "why" of safety leadership, corresponds with the third theme (Safety/ safety leadership improves safety and business performance) identified in the thematic analysis. However, the scope of the current findings extends beyond safety, encompassing broader impacts as well (e.g., operational efficiency and quality). The vast majority of studies on safety leadership focus primarily on the impact of this leadership style on safety outcomes. However, the senior leaders interviewed as part of this study clarified from their experiences that safety leadership improves both safety and non-safety performance. The question of the scope of impact was

identified as a potential area for future research (section 2.7) and so its emergence as a theme represented in the definition is a key finding.

The second of the above themes answered the "how" of safety leadership, focusing on how safety leaders lead. It was found that safety leaders influence their followers rather than use force or authority. This was a resounding perspective in the interviews as well. Although participants did mention that accountability was important, they argued that the only way to promote safety compliance in high-risk industries was through positive influence (theme 7).

The third of the above themes answered the question of "who" safety leaders were. The systematic review revealed that safety leadership could be practiced by leaders at any level of the organization, which aligns very strongly with the findings of the current research (theme 4). Though there were a few participants that suggested that safety leadership could also be embodied by any person, including workers on the frontline, the overwhelming consensus was that leaders drove safety leadership.

Although there is alignment between the three themes identified by the thematic synthesis and the findings of the current research, the definition arrived at diverges from the orthodox view of safety leadership currently embraced by the academic literature, as discussed in detail throughout this section. Safety leadership has been established as a standalone leadership style, a result that challenges the conventional position that it is merely a sub-facet of transformational leadership. Secondly, the present research differentiates between the conceptual elements of safety leadership and the traits of safety leaders, a distinction not commonly made in existing academic definitions of safety leadership.

5.8 Summary of Contributions

The present study offers the first systematic review of how safety leadership has been defined, providing a coherent and critical account of the existing body of research. It also addresses a gap that has been highlighted by Pilbeam et al. (2016a) and recently reinforced by Adra et al. (2024) and Jiang et al. (2024), who noted that the conceptual elements of safety leadership remain underexplored. While Daniel (2015) was the first to look at safety leadership qualitatively and proposed a definition, there is room for improvement in the methodological design he employed. Therefore, this study expanded beyond construction to include representation from 25 different companies across seven other high-risk industries to ensure a broader, more diverse perspective on safety leadership. The improved research design resulted in both a robust conceptual definition of safety leadership as well as several important qualities of safety leaders, including the promotion of

psychological safety, a dimension that has received limited attention in the safety leadership literature to date. Separating the conceptual elements of safety leadership and the traits of safety leaders was a deliberate and strategic decision made at the outset to ensure the definition is not constrained by a personality-driven characterization of leadership, a common critique of many leadership styles. There was strong evidence from the data to suggest that safety leadership is a leadership style in and of itself, independent from general or transformational leadership. This outcome confirms Daniel's (2015) finding as well and helps advance the science of safety with new insights that can hopefully set researchers on a new path of exploration with the aim of reducing harm to human life.

The results from the present study are not limited to advancements in the academic field but also make valuable contributions for practitioners as well. Unlike the vast majority of definitions of safety leadership in use today, the definition arrived at in the present study is empirically grounded in the experiences of senior leaders in high-risk industries from across the globe. Furthermore, because the conceptual elements of the construct were purposefully separated from the qualities of safety leaders, the definition can be easily adopted by leaders to improve their leadership skills. The definition offers a practical and pragmatic way to embody and drive safety as a core value in the form of prioritizing safety in one's communications, decisions and actions. This guidance not only presents leaders with a shining star towards which to direct their efforts but also offers tangible measures to gauge development progress. Additionally, and by extension, experienced leaders can leverage the framework to mentor junior leaders, helping them grow into effective safety leaders. A further advantage of separating the conceptual elements of safety leadership from the qualities of safety leaders is that the definition can be operationalized by leaders in the very short term. Improving one's qualities or traits on the other hand requires a substantial investment of time and effort. Leaders can therefore start making an impact immediately by operationalizing the definition and can use the qualities as a longer-term development opportunity. The actionable features of the definition can lead to improved leadership practices without delay and potentially improve safety performance and business performance as well.

The contributions of this study align closely with the experience-based and action-oriented nature of the pragmatic realist approach underpinning the research. By grounding the findings in the lived experiences of senior leaders, this study not only advances the theoretical understanding of safety leadership but also enhances its practical application in high-risk industries.

5.9 Strengths and Limitations

According to Jiang et al. (2024), who conducted a recent bibliometric literature review, the safety leadership academic literature is focused on relationship-based or transformational leadership and driven primarily by quantitative research. The vast majority of conceptual or empirical efforts draw upon existing non-safety-specific leadership theories, with many simply integrating safety-related words when defining or measuring safety leadership (refer to Table 3 for examples). As a result, Jiang et al. (2024) conclude that the core attributes of safety leadership have been underexplored and recommend that qualitative methods, such as interviews, be used to address this gap. Similar findings were found in the present study following a systematic review of the definition of safety leadership. A qualitative approach to studying safety leadership was therefore adopted to understand its conceptual constituents. To the researcher's knowledge, this is the second qualitative study conducted to date aimed at defining safety leadership. The present study built upon the first qualitative study by improving the methodological design to ensure a broader and more diverse perspective. This led to a robust conceptual definition and a set of qualities of safety leaders, grounded in the lived experiences of those operating in high-risk industries. The trustworthiness of the findings was supported through both internal and external checks, with another key strength being the strong methodological rigor applied throughout the research.

A further strength of the current study is the strategic distinction between the conceptual elements of safety leadership and the qualities of safety leaders. This has been a criticism of transformational leadership (Casey et al., 2019) and a conscious effort was made to avoid this approach in order to arrive at the core and distinct elements of safety leadership.

Interviews were conducted in English, which excludes the experiences of leaders who do not speak the language. Because of the global nature of the research design, however, participants from different countries with experiences spanning 44 countries were interviewed, thereby capturing a broad spectrum of perspectives. Furthermore, though an attempt was made to capture a gender diverse sample, only two females participated in the interview process. Such low female representation is reflective of the gender bias prevalent in high-risk industries however, which therefore does not undermine the results. Similarly, although participants were drawn from a range of high-risk sectors, the sample was not proportionally representative of the broader industry landscape. Future research could address this by adopting stratified or quota-based sampling strategies aligned with industry census data, to improve sectoral representation of findings.

During the interviews, two participants became emotional when recounting fatalities that had occurred under their watch. While they were comforted and permission was obtained before proceeding, the inclusion of a distress protocol would have offered a more standardized, ethically sound, and human-centered response. This underscores the importance of incorporating such protocols in safety research, even when the perceived risk of distress is minimal.

The research was designed to capture the experiences of senior leaders in high-risk industries with the assumption that such leaders would have been exposed to leadership in relation to safety at different stages of the corporate ladder throughout their careers. This would result in rich insights from these experiences and a more holistic understanding of the concept of safety leadership. While this assumption is reasonable, the extent to which it guarantees a truly holistic perspective, especially regarding past experiences, remains uncertain.

The active role the researcher plays in shaping how themes are identified and named during thematic analysis is recognized. Like all qualitative approaches to research, this introduces a potential drawback. To minimize the impact of this limitation, a reflexivity diary was maintained and the researcher's academic supervisors were frequently consulted during the data analysis process, which resulted in numerous rounds of revisions. Additionally, external scholars were also consulted to further critique the findings and minimize the risk of subjective influence. Though thick descriptions were provided of the participants to facilitate the transferability of results, it should be noted that the present study was conducted in the context of high-risk industries. Readers should therefore observe caution when applying the findings, particularly in low-risk settings.

The use of multiple data sources (different companies, industries, geographies and participant seniority level) was a strategic improvement adopted to improve the credibility of the results compared to a previous study (Daniel, 2015). Frontline leader perspectives were excluded from the data collection process, however, despite the strong evidence in support of the critical role they play in shaping the safety behaviors of their employees (e.g., Zohar, 2000 & 2002). This drawback should be considered when assessing the transferability of the results. One strategy that could have been applied to further enhance the credibility of the findings is member-checking, or presenting the conclusions to the interviewees to ensure trustworthiness (Henry, 2015). Lincoln et al. (1985) maintain that this is the most important method for establishing credibility, which is a limitation of the present study. Numerous provisions were made to ensure the research is conducted systematically and transparently including documenting key decisions by use of a reflexivity diary, adopting clear interview protocols and data collection procedures, and presenting the results as per

the SRQR guidelines. Despite some of the limitations presented, the overall trustworthiness and rigor of the research remain robust and do not compromise the significance of the findings.

5.10 Recommendations for Future Research

The qualitative approach of this study in exploring the conceptual elements of safety leadership provides valuable insights to the academic literature. A natural next step in the research process is to develop and validate a scale using quantitative means. Creating a structured questionnaire to quantify the key elements of the findings, followed by statistical validation, can help practitioners assess safety leadership in their organizations and assist academics in conducting future research and advancing theory.

Several key findings from this study challenge the orthodox view embraced by safety leadership academics to date. The first is the finding that safety leadership is a leadership style in and of itself, independent from transformational leadership. This is a significant finding considering the amount of energy and effort invested in safety-specific transformational leadership by the academic community. The second is the view that safety leadership has impacts far beyond safety performance, making it an area worthy of longitudinal investigation. The third is the finding that promoting psychological safety is a key quality of safety leaders, a result that has not been explored extensively yet. These pioneering results carve a new direction in safety leadership science that invites further exploration and deeper examination.

Lyubykh et al. (2022) found in their meta-analysis that the effectiveness of safety leadership behaviors vary across national cultures, industries, and workforce demographics, particularly age. Though the research design of the present study captured experiences from across different cultures and industries, age of participants was not a demographic factor that was looked at explicitly. Rather, role seniority was taken into account and the differences and similarities analyzed. Future researchers are encouraged to look at safety leadership perspectives as a function of age. Additionally, whether the definition of safety leadership varies as a function of lower management and frontline supervisors is a supplementary area of potential exploration, particularly since the perspective of such leaders was not accounted for in the present research design.

Finally, the current study was investigated in the context of high-risk industries. Although there is evidence to suggest that adopting safety as a core value is particular to such sectors, further research is needed to assess whether excluding low-risk industries from the application of safety leadership is justified. Furthermore, as mentioned in section 5.5, exploring the conceptual definitions of focal leadership styles such as quality leadership and innovation leadership, and how they compare and

contrast with the findings of the current study, presents a promising avenue for future research for academics in other fields.

Chapter 6. Conclusion

6.1 Overview of the Study

The present study began with a systematic review of the academic literature to explore the existing empirical research on the definition of safety leadership. Seven conceptual definitions were identified, one of which was developed through qualitative semi-structured interviews and thematic analysis (Daniel, 2015). The remaining six definitions were derived from their corresponding operational definitions. Despite introducing the first empirically grounded conceptual definition of safety leadership, the methodological approach Daniel (2015) adopted had certain limitations, primarily with regards to data source triangulation. Interviews were conducted with leaders from the same company and geographical location, which could introduce bias due to participants being exposed to the same organizational culture and standardized training. The systematic review also revealed that transformational leadership served as the foundational concept for the majority of safety leadership definitions in the academic literature and that there was no consensus on the conceptual definition of the term to date. These findings set the stage for the second phase of the present study, which sought to improve on Daniel's (2015) methodology by interviewing senior leaders from high-risk industries from different organizations globally to formulate a definition of safety leadership. The study also aimed to explore the qualities or characteristics of safety leaders.

By interviewing 25 senior leaders in eight high-risk industries and thematically analyzing the results, eight themes were identified. Five of these themes formed the basis for the conceptual definition of safety leadership and three themes described the traits of safety leaders. The conceptual definition of safety leadership arrived at through this research is:

"A leadership style where authentic care is demonstrated through leaders who embody and drive safety as a core value by strategically prioritizing it in their communications, decisions and actions to improve safety and business performance."

The resulting three characteristics of safety leaders include:

1. Safety leaders are trustworthy in all that they do
2. Safety leaders positively influence others to achieve safety outcomes
3. Safety leaders promote psychological safety for open reporting and speaking up

Although safety leadership did share common characteristics with other leadership styles, it was found that safety leadership was a construct that was conceptually unique and distinct. This was a significant finding, particularly because most of the academic literature associates safety leadership

with transformational leadership. The results also indicated that safety leadership improved both safety and business performance, a finding that was at odds with the academic literature as well. In terms of characteristics, trustworthiness and the ability to positively influence were two recognized qualities of safety leaders in the literature. Promoting psychological safety, however, was not.

The present research makes several key contributions to the academic community. Firstly, it identified safety leadership as a leadership style in and of itself that does not "piggyback" on other leadership styles. Secondly, it unveiled a new area of exploration, notably that safety leadership can positively impact non-safety metrics like quality and operational efficiency. Thirdly, it offers future researchers the opportunity to build upon the conceptual findings of this study by developing and validating a scale through quantitative means. The present research also offers several contributions to practitioner circles. Separating the conceptual elements of safety leadership and the qualities of safety leaders provides leaders with a practical strategy for immediately operationalizing safety leadership while also offering a long-term developmental pathway to cultivate the characteristics of effective safety leaders.

6.2 Final Words

The research journey has been a long but deeply enriching experience. Having embarked on this PhD in 2017, without having heard of the concept of safety leadership before 2014, my interest in the topic has steadily grown over time, despite the challenges and potential setbacks life has presented along the way. This growth was fueled by the realization that I was not only contributing new knowledge to the academic world but also generating insights that could empower leaders to make a tangible impact, ultimately helping to save lives. Having spent over a decade working in high-risk industries by the time I started my journey and witnessing the challenges firsthand, this cause became deeply personal and close to my heart.

Beyond being dumbstruck by the existence of philosophical paradigms and the wars that are still fought over the nature of knowledge and reality to this day, several profound revelations were made over the course of the last seven and a half years that have convinced me that I was on to something important. Firstly, the results from the systematic review, particularly the lack of consensus on the definition of safety leadership and the fact that most definitions centered on transformational leadership, were quite telling. How can we not agree on what safety leadership is when everybody is talking about it? The next revelation happened while I was interviewing senior leaders. As I spoke to more and more of them, I started to realize that their perspective of safety leadership differed significantly from what the literature suggested. To them it was distinct and unique and

many of them were strategically leveraging safety to drive improved safety and business performance. I became increasingly convinced that the choices I made to study the topic – engaging with those on the ground who were immersed in the risks and applying thematic analysis to identify a definition based on their practical experiences – were the right choices.

My hope is that the findings from this piece of work will inspire academics to continue advancing the field, exploring this new and powerful leadership style to further the science of safety. But more importantly, my ultimate aspiration is that practitioners can take the results and operationalize them, enabling us to make a tangible impact on the unacceptable toll of the world of work.

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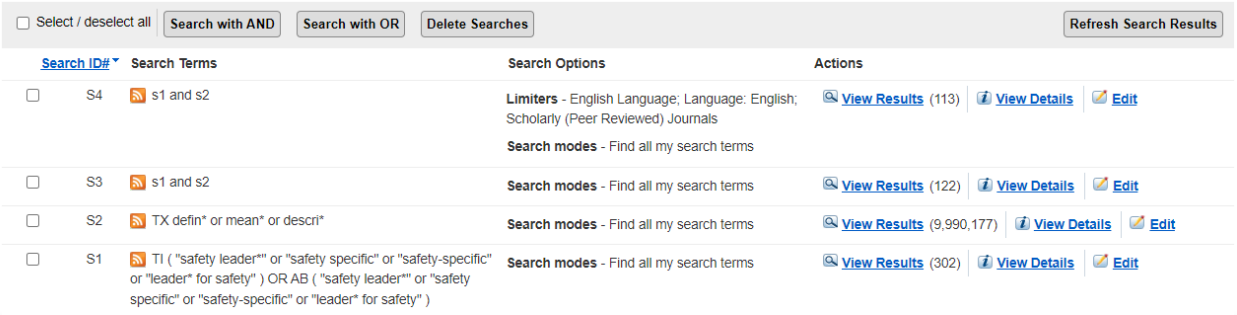
APPENDIX 1

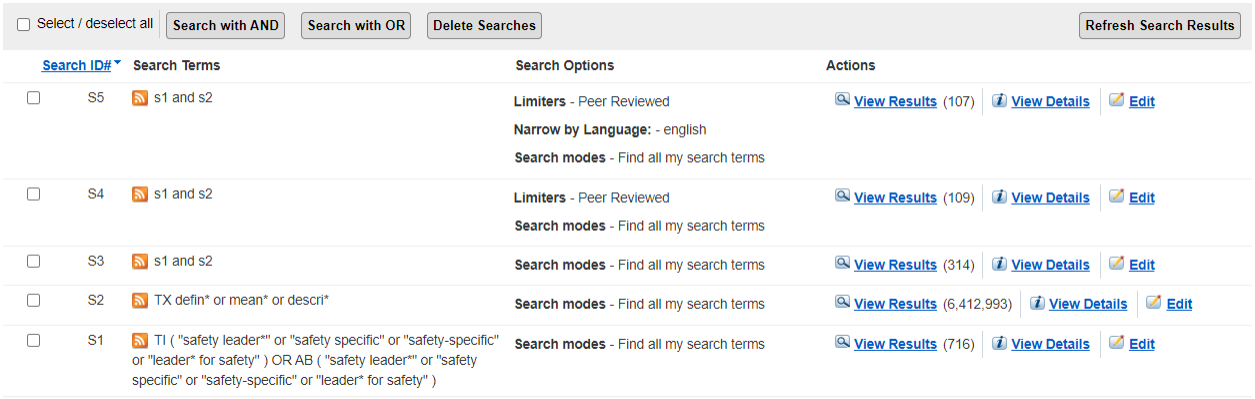
Medline Search Strategy



Select / deselect all | Search with AND | Search with OR | Delete Searches | Refresh Search Results

Search ID#	Search Terms	Search Options	Actions
S4	s1 and s2	**Limiters** - English Language; Language: English; Scholarly (Peer Reviewed) Journals **Search modes** - Find all my search terms	View Results (113) | View Details | Edit
S3	s1 and s2	**Search modes** - Find all my search terms	View Results (122) | View Details | Edit
S2	TX defin* or mean* or descri*	**Search modes** - Find all my search terms	View Results (9,990,177) | View Details | Edit
S1	TI ("safety leader*" or "safety specific" or "safety-specific" or "leader* for safety") OR AB ("safety leader*" or "safety specific" or "safety-specific" or "leader* for safety")	**Search modes** - Find all my search terms	View Results (302) | View Details | Edit

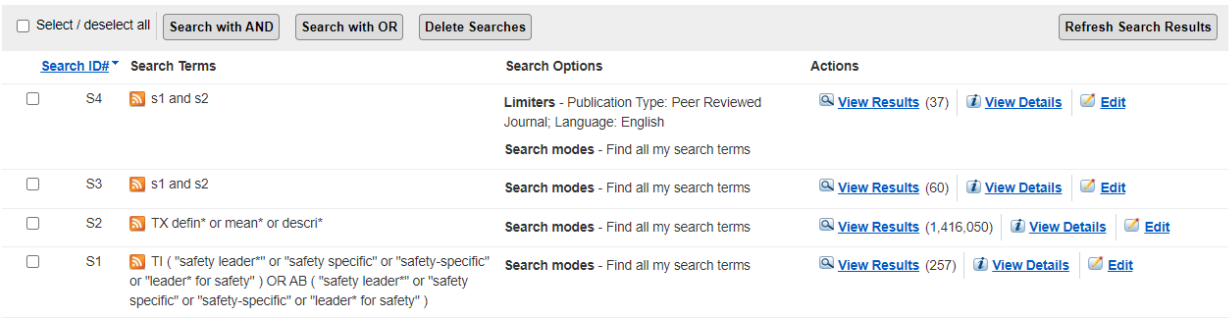
Business Source Complete Search Strategy



Select / deselect all | Search with AND | Search with OR | Delete Searches | Refresh Search Results

Search ID#	Search Terms	Search Options	Actions
S5	s1 and s2	**Limiters** - Peer Reviewed **Narrow by Language:** - english **Search modes** - Find all my search terms	View Results (107) | View Details | Edit
S4	s1 and s2	**Limiters** - Peer Reviewed **Search modes** - Find all my search terms	View Results (109) | View Details | Edit
S3	s1 and s2	**Search modes** - Find all my search terms	View Results (314) | View Details | Edit
S2	TX defin* or mean* or descri*	**Search modes** - Find all my search terms	View Results (6,412,993) | View Details | Edit
S1	TI ("safety leader*" or "safety specific" or "safety-specific" or "leader* for safety") OR AB ("safety leader*" or "safety specific" or "safety-specific" or "leader* for safety")	**Search modes** - Find all my search terms	View Results (716) | View Details | Edit

APA PsycInfo Search Strategy



Select / deselect all | Search with AND | Search with OR | Delete Searches | Refresh Search Results

Search ID#	Search Terms	Search Options	Actions
S4	s1 and s2	**Limiters** - Publication Type: Peer Reviewed Journal; Language: English **Search modes** - Find all my search terms	View Results (37) | View Details | Edit
S3	s1 and s2	**Search modes** - Find all my search terms	View Results (60) | View Details | Edit
S2	TX defin* or mean* or descri*	**Search modes** - Find all my search terms	View Results (1,416,050) | View Details | Edit
S1	TI ("safety leader*" or "safety specific" or "safety-specific" or "leader* for safety") OR AB ("safety leader*" or "safety specific" or "safety-specific" or "leader* for safety")	**Search modes** - Find all my search terms	View Results (257) | View Details | Edit

ABI ProQuest Search Strategy

Set	Search	Databases	Results	Save search/alert	Other actions
S5	⊞ s1 and s2 ✔ Limits applied	65 databases	130	Save search/alert ▾	Other actions ▾
S4	⊞ s1 and s2 ✔ Limits applied	65 databases	134	Save search/alert ▾	Other actions ▾
S3	⊞ s1 and s2	65 databases	509	Save search/alert ▾	Other actions ▾
S2	⊞ fulltext(defin* or mean* or descri*) ✔ Limits applied	65 databases	106,818,997	Save search/alert ▾	Other actions ▾
S1	⊞ abstract("safety leader*" or "safety specific" or "safety-specific" or "leader* for safety") OR title("safety leader*" or "safety specific" or "safety-specific" or "leader* for safety")	65 databases	1,373	Save search/alert ▾	Other actions ▾

Scopus Search Strategy

206 document results

((TITLE ("safety leader*" OR "safety specific" OR "safety-specific" OR "leader* for safety") OR ABS ("safety leader*" OR "safety specific" OR "safety-specific" OR "leader* for safety"))) AND (ALL (defin* OR mean* OR descri*)) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (SRCTYPE , "j"))

APPENDIX 2

SCREENING & SELECTION TOOL			
Reviewer Name:		**Date:**	
Title:		**Publication date:**	
Author(s):		**Journal:**	
Abstract:			
PCC	**Question**	**Response**	
Population			
Concept	Is the study about safety leadership?	YES	NO
	Does the study provide a definition for safety leadership?	YES	NO
Context	Does the study speak about safety leadership in an organizational setting?	YES	NO
Study Design	Is the study qualitative, quantitative or mixed methods?	YES	NO
Language	Is the study in the English language?	YES	NO
Date	All-inclusive.	YES	NO
Source Type	Academic peer-reviewed journal?	YES	NO
Decision	Article to be included for next stage?	YES	NO
Additional Comments			

Screening & Selection Tool

APPENDIX 3

Quality Assessment Tool					
Author and title:					
Date:					
	Good	**Fair**	**Poor**	**Very Poor**	**Comment**
(1) Abstract & title					
(2) Introduction and aims					
(3) Method and data					
(4) Sampling					
(5) Data analysis					
(6) Ethics and bias					
(7) Findings/ results					
(8) Transferability/ generalizability					
(9) Implications and usefulness					
Total					
Grand Total					

Quality assessment tool

APPENDIX 4

No.	Author	Definition	Coded for
1.	Berumen-Flucker et al. (2019)	"safety leadership is the process of interaction between business leaders and workers through which leaders can influence workers to achieve business safety objectives and promote a positive safety culture"	1) Safety leadership (SL) is a leadership relationship between the leaders of a business and workers 2) SL can be used to achieve safety objectives and improve safety culture 3) Safety leaders influence workers
2.	Donovan et al. (2017)	Safety leadership is "defined by a leaders' ability to inspire and motivate followers to achieve common goals"	1) SL is a leadership relationship between a leader and his/her followers 2) Safety leaders inspire and motivate their followers 3) SL can be used to achieve goals
3.	Conchie et al. (2013)	"We use the term 'safety leadership' throughout our discussion to capture actions that have a positive impact on employees' safety behaviors"	1) SL positively impact safety behaviors 2) SL is a leadership relationship between a leader and his/her employees
4.	Daniel (2015)	"the demonstration of safety values through the creation of a vision and the promotion of wellbeing through the art of engagement, honesty and discipline"	1) Safety leaders walk the talk 2) SL promotes wellbeing 3) Safety leaders create a vision
5.	Stiles et al. (2018)	"safety leadership is associated with visible and active commitment from the management team. Safety responsibilities are taken seriously and leading by example to establish and reinforce expectations for peers and colleagues through effective downward communication systems, and integration of safety in company-wide decision making"	1) SL is a leadership relationship between management and workers 2) Safety leaders lead by example 3) Safety leaders integrate safety in decision-making
6.	Griffin et al. (2013)	"specific leader behaviours that motivate employees to achieve safety goals"	1) SL can be used to achieve safety goals 2) Safety leaders motivate employees 3) SL is a leadership relationship between a leader and his/her employees
7.	Molnar et al. (2019)	"leadership that is not necessarily characterized by either transformational or transactional leadership behaviors but rather indicates the degree to which the leader gives focus and priority to safety over other aspects such as speed and schedules, reacts to subordinates' safe/unsafe conduct (i.e., positive and negative feedback), and takes initiatives to actions concerning safety issues"	1) Safety leaders prioritize safety over other business activities 2) SL is a leadership relationship between a leader and his/her subordinates
8.	Wu (2005)	"the process of interaction between leaders and followers, through which leaders could exert their influence on followers to achieve organizational safety goals under the circumstances of organizational and individual factors"	1) SL is a leadership relationship between a leader and his/her followers 2) SL can be used to achieve safety goals 3) Safety leaders influence followers
9.	Wu (2008)	"the process of interaction between leader and followers through which a leader can exert influence on followers to achieve group safety goals within the context of organizational and individual factors"	1) SL is a leadership relationship between a leader and his/her followers 2) SL can be used to achieve safety goals 3) Safety leaders influence followers
10.	de Vries et al. (2016)	Safety-Specific Transformational Leadership "can be defined as a form of transformational leadership focused on achieving safety outcomes"	1) SL can be used to achieve safety outcomes
11.	Mullen et al. (2009)	"a safety-specific transformational leader engages in behaviour that is characteristic of the components of transformational leadership, yet specifically focused on inspiring and promoting positive safety-related practices"	1) Safety leaders inspire their followers 2) SL positively affects safety practices

12.	May et al. (2019)	"Leadership in occupational health and safety is aimed at protecting the health, safety, and well-being of workers in the workplace, reducing risks, and preventing damage or illnesses arising from work-based activities"	1) SL protects employees' safety and health, reduces risk, and prevents damage 2) SL is a leadership relationship between a leader and his/her workers
13.	Mullen et al. (2011)	"a safety-specific transformational leader engages in behaviour that is characteristic of the components of transformational leadership, yet specifically focused on inspiring and promoting positive safety-related attitudes and behaviours in the workplace"	1) Safety leaders inspire their followers 2) SL positively affects safety behaviors
14.	Kelloway et al. (2006)	"safety-specific transformational leadership means that leaders take an active and inspirational approach to safety issues, serving as good models of safety behavior and encouraging others to work in a safe manner"	1) Safety leaders inspire others 2) SL positively affects safety behaviors 3) SL is a leadership relationship between a leader and others 4) Safety leaders are role models
15.	Conchie (2013)	"Safety-specific transformational leadership is defined by behaviors that provide employees with a shared vision for safety and the necessary motivation, skills, and self-efficacy to achieve this vision. In essence, it defines an individual who provides employees with an inspiring vision for safety and works with them to achieve this vision rather than relying on formal contingencies (e.g., procedures)"	1) Safety leaders create a safety vision 2) Safety leaders motivate their employees 3) SL is a leadership relationship between a leader and his/her employees
16.	Li et al. (2020)	"safety leadership refers to a process in which a person guides and influences other individuals or groups to achieve safety objectives when completing organizational tasks"	1) Safety leaders influence others 2) SL can be used to achieve safety objectives 3) Anybody can be a safety leader
17.	Irshad et al. (2021)	safety specific transformational leaders "encourage employees to look for more effective ways of ensuring safety (intellectual stimulation), inspire them to achieve safety standards with were considered unattainable in the past (inspirational motivation), promote occupational safety as a core value (idealized influence), and take a keen interest in the physical and mental well-being of every single employee (individual consideration)"	1) Safety leaders inspire their employees 2) Safety leaders genuinely care about their employees 3) SL is a leadership relationship between a leader and his/her employees 4) SL can be used to achieve safety standards
18.	Eatough et al. (2012)	"Safety-specific leadership involves leaders' emphasizing the value of safe performance, setting goals for injury prevention, and rewarding safety related Compliance"	1) Safety leaders reward safety compliance 2) SL prevents injuries and promotes compliance
19.	de Koster et al. (2011)	"Safety-specific transformational leadership refers to transformational leadership in which leaders focus their inspirational and motivational efforts towards safety"	1) Safety leaders are inspirational and motivational
20.	Neag et al. (2020)	"Anybody who has positive social influence over their peers and an interest in improving safety across the organization could be considered a safety leader"	1) SL can be used to improve safety 2) Anybody can be a safety leader 3) Safety leaders influence their peers
21.	Adi et al. (2021)	"Safety leadership is a leadership style that affects and encourages subordinates to carry out activities that emphasize safety values both for themselves and for the organization that ultimately aims to reduce the occurrence of accidents at work"	1) SL is a leadership relationship between a leader and his/her subordinates 2) SL can be used to reduce the occurrence of accidents 3) Safety leaders encourage subordinates

22.	Zhang et al. (2018)	"Safety leadership is the process of interaction between leaders and followers in order to achieve organizational safety goals"	1) SL is a leadership relationship between a leader and his/her followers 2) SL can be used to achieve safety goals
23.	Cheung et al. (2021)	"Safety leadership is generally defined as leadership behaviors that have positive impact on employees' safety behaviors"	1) SL is a leadership relationship between a leader and his/her employees 2) SL positively affects employees' safety behaviors
24.	Fang et al. (2020)	"Safety leadership refers to the ability and skills of leaders to exert influence on subordinates' behavior to achieving safety goal"	1) SL is a leadership relationship between a leader and his/her subordinates 2) Safety leaders influence subordinates' behavior 3) SL can be used to achieve safety goals
25.	Lu et al. (2019)	"Safety-specific transformational leadership is a leadership style that delivers a shared vision of safety to employees and encourages them to exercise their energy, skills, and self-efficacy to realize this vision". "Safety-specific active transactional leadership improve employees' safety performance by clearly conveying contingent incentives and penalties and providing active supervision".	1) Safety leaders create a safety vision 2) Safety leaders encourage their employees 3) SL can be used to realize a safety vision and improve safety performance 4) Safety leaders incentivize 5) SL is a leadership relationship between a leader and his/her employees
26.	Vignoli (2018)	"Safety transformational leaders can be defined as leaders who inspire, intellectually stimulate and consider workers as individuals"	1) SL is a leadership relationship between a leader and his/her workers 2) Safety leaders inspire their workers 3) Safety leaders genuinely care about their workers
27.	Wang et al. (2015)	"A leader with safety-specific transformational leadership is one who tries to become a role model by doing what is right (i.e., focusing on safety), rather than what is profitable (i.e., focusing on performance pressures)"	1) Safety leaders are role models 2) Safety leaders prioritize safety over other business activities
28.	Rafique et al. (2021)	Safety leadership "delivers a shared vision of safety to subordinates and inspires them to exercise their self-efficacy, skills and energy to achieve their vision"	1) SL is a leadership relationship between a leader and his/her subordinates 2) SL deliver a shared vision 3) Safety leaders inspire their subordinates 4) SL can be used to achieve a safety vision
29.	Shi et al. (2022)	"commitment and attitude of leaders on the safety related issues at the workplace"	
30.	Barling et al. (2002)	Safety leadership is "a transformational leadership style that emphasizes occupational safety"	1) Safety leaders emphasize occupational safety
31.	Cooper et al. (2023)	Safety leadership includes "leaders *setting a clear approach to health and safety*, consistent action to reinforce safety values and governance arrangements to ensure accountability for health and safety"	1) SL can be used to reinforce safety values and ensure accountability for health and safety *2) Safety leaders set a clear approach to health and safety*
32.	Delegach, M. et al. (2017)	"Transformational leaders who demonstrate real concern for followers' safety show a value-driven aspirational orientation towards safety and **allow employees to use their discretion and take an active part in shaping a safe work environment**"	1) Safety leaders demonstrate real concern for their followers 2) SL is a leadership relationship between a leader and his/her followers **3) Safety leaders empower employees to shape a safe work environment**

33.	Draghici, A., et al. (2022)	"Safety leadership is a concept encompassing *clear definition of safety goals*, integration of safety as a key value in organizational culture, and ~~creation of a successful occupational safety team.~~"	*1) Safety leaders set a clear definition of safety goals* 2) Safety leaders integrate safety in the organizational culture ~~3) Safety leaders create a successful safety team~~
34.	Kark, R. et al. (2015)	Safety leadership "refer to leaders' behaviors specifically targeted toward promoting followers' safety-related behaviors in the workplace"	1) SL is a leadership relationship between a leader and his/her followers 2) SL positively affects employees' safety behaviors
35.	Makki, A. et al. (2022)	Safety leadership is "a system of influence processing where safety leaders lead this process to influence their followers in a specific environment to achieve their ultimate safety goal."	1) SL is a leadership relationship between a leader and his/her followers 2) Safety leaders influence their followers 3) SL can be used to achieve safety goals
36.	Unur, M. et al. (2022)	"Safety leadership is a safety-goal-oriented leadership style, which is the ability to achieve the optimum safety benefits by effectively arranging organizational resources, as well as having a significant positive effect on employee safety behavior and workplace safety."	1) SL has a significant effect on employee safety behavior and workplace safety and helps achieve the optimum safety benefits
37.	Zhao, L. et al. (2022)	Safety leadership is "an influence process in which the safety leader improves the work safety environment of the enterprise, guides, or requires employees to regulate their own safety behaviors, and helps them obtain the support of the organization to achieve the overall safety goal of the enterprise"	1) Safety leaders influence their followers 2) Safety leaders improve the safety environment of the enterprise 3) SL is a leadership relationship between a leader and his/her employees

Legend

Code	Frequency	Code	Frequency
Safety leadership improves safety and helps achieve safety goals	27	Safety leaders incentivize/reward	2
Safety leaders inspire/influence/motivate/encourage	20	Safety leaders create a safety vision	4
SL is a leadership relationship between a leader and his/her workers	22	SL is a leadership relationship between management and workers	2
Safety leaders lead by example/are role models	4	Safety leaders genuinely care about their employees	3
Safety leaders integrate safety in decision-making	1	Safety leaders prioritize safety over other activities	3
Anybody can be a safety leader	1	*Safety leaders set a clear approach to H&S*	2
Empower employees to shape a safe work environment	1	~~Safety leaders create a successful safety team~~	1
Safety leaders integrate safety in the organizational culture	1		

APPENDIX 5

CALLING ALL LEADERS!

Are you a senior leader (manager or above) with a minimum of 15 years of experience? Are you currently working or have your worked in a high-risk industry? If so, are you interested in helping further our understanding of safety leadership?

Then contact PhD researcher Islam Adra (i.adra@lancaster.ac.uk) to set up a 30-60min interview on MS Teams in English at a date and time of your convenience.

APPENDIX 6

Participant Information Sheet

Safety Leadership: A Qualitative Study Exploring the Conceptual Definition of the Term

For further information about how Lancaster University processes personal data for research purposes and your data rights please visit our webpage: www.lancaster.ac.uk/research/data-protection

My name is Islam Adra and I am conducting this research as a student in the Organizational Health & Well-being program at Lancaster University, Lancaster, United Kingdom.

Please take time to read the following information carefully before you decide whether or not you wish to take part.

What is the study about?

The purpose of this study is to explore the concept of safety leadership. Safety leadership is used quite regularly in academia and industry but not much work has actually been done to date on what the term actually means.

Why have I been approached?

You have been approached because the study requires information from senior leaders (managers or above) with a minimum of 15 years of experience who are working or have worked in high-risk industries.

I would be very grateful if you would agree to take part in this study.

Do I have to take part?

No. It's completely up to you to decide whether or not you take part. Your participation is voluntary and you are free to withdraw at any time, without giving any reason.

What will I be asked to do if I take part?

If you decide you would like to take part, you will be asked to participate in an interview over MS Teams which will be recorded and which will last between 30 and 60min at a date and time of your convenience.

Will my data be Identifiable?

The data collected for this study will be stored securely and only I, the researcher conducting this study, and my supervisors, will have access to the data you share with me. The typed version of your interview will be made anonymous by removing any identifying information including your name and company name, however information about the country you work in, the number of years of experience you have, whether you've worked in unionized and non-unionized environments, your gender, and your generic role title may be used for analysis purposes. Anonymized

direct quotations from your interview may be used in the reports or publications from the study, so your name will not be attached to them.

- The video recording of the interview will be deleted from the researcher's computer as soon as the interview is transcribed and transferred to the researcher's OneDrive space.
- The transcript will be deleted from the researcher's OneDrive as soon as the PhD is granted but will be stored on the University's research information management system depository (PURE) for a minimum of 10 years after the end of the study.
- The files will be encrypted (that is no-one other than the researcher will be able to access them) and the computer is password protected.
- All your personal data will be confidential and will be kept separately from your interview responses.
- All reasonable steps will be taken to protect the anonymity of the participants involved in this project.

There are some limits to confidentiality: if what is said in the interview makes me think that you, or someone else, is at significant risk of harm, I will have to break confidentiality and speak to a member of staff about this. If possible, I will tell you if I have to do this.

What will happen to the results?

Your data will be pooled with those of other participants for analysis and reporting as part of the PhD thesis. The results may also be submitted for publication in an academic or professional journal and may be presented at conferences or training programs. Only anonymized quotes will be used so that you cannot be identified.

What if I change my mind?

You are free to withdraw at any time and if you want to withdraw, I will extract any data you contributed to the study and destroy it. Data means the information, views, ideas, etc. that you and other participants will have shared with me. However, it is difficult and often impossible to take out data from one specific participant when this has already been anonymized or pooled together with other people's data and incorporated into themes (2 weeks after the interview), but every attempt will be made to do so up to the point of publication.

Are there any risks?

There are no risks anticipated with participating in this study. However, if you experience any distress following participation you are encouraged to inform the researcher and contact the resources provided at the end of this sheet.

Are there any benefits to taking part?

Although you may find participating interesting, there are no direct benefits in participating apart from helping enhance our understanding of safety leadership.

Who has reviewed the project?

This study has been reviewed and approved by the Faculty of Health and Medicine Research Ethics Committee at Lancaster University

Where can I obtain further information about the study if I need it?

If you have any questions about the study, please contact the main researcher at i.adra@lancaster.ac.uk

What if I have a concern or complaint?

If you wish to make a complaint or raise concerns about any aspect of this study and do not want to speak to the researcher, you can contact his Supervisors:

Professor Stavroula Leka
Director of the Centre for
Organizational Health & Well-Being
Department of Health Research
Email: stavroula.leka@lancaster.ac.uk
Lancaster University
Lancaster

Dr. Claire Hardy
Senior Lecturer in Organizational
Health and Well-Being
Department of Health Research
Email: c.hardy1@lancaster.ac.uk
Lancaster University
Lancaster

If you wish to speak to the Research Director instead, you may contact:

Professor Jane Simpson
Research Director
Department of Health Research
Email: j.simpson2@lancaster.ac.uk
Lancaster University
Lancaster

If you wish to speak to someone outside of the Organizational Health and Well-Being Doctorate Program, you may also contact:

Dr. Laura Machin
Chair of FHM REC
Email: l.machin@lancaster.ac.uk
Faculty of Health and Medicine
Lancaster Medical School
Lancaster University
Lancaster
LA1 4YG

Resources in the event of distress

Although the subject of the interview is not sensitive in nature and no risks are anticipated with participating in this study, you are encouraged to contact your GP or mental health provider if you feel distressed as a result of taking part in this interview. You may also seek support from MIND services by visiting the following website: https://www.mind.org.uk/information-support/helplines/

Thank you for taking the time to read this information sheet.

APPENDIX 7

Health & Medicine | Lancaster University

CONSENT FORM

Project Title: Safety Leadership: A Qualitative Study Exploring the Conceptual Definition of the Term

We are asking if you would like to take part in a research project on understanding the conceptual definition of the term safety leadership. Before you consent to participating in the study, we ask that you read the participant information sheet and tick each box below if you agree. If you have any questions or queries before signing the consent form please speak to the principal investigator, Islam Adra.

Please read the following carefully:

1. I confirm that I have read the information sheet and fully understand what is expected of me within this study. ☐
2. I confirm that I have had the opportunity to ask any questions and to have them answered. ☐
3. I understand that my interview will be video recorded and then made into an anonymised written transcript. ☐
4. I understand that the video will be deleted from the researcher's computer after the anonymized transcript has been transferred to the researcher's secure OneDrive space, which is backed by the University's server. ☐
5. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected. ☐
6. I understand that once my data have been anonymised and incorporated into themes (2 weeks after the interview) it might not be possible for it to be withdrawn, though every attempt will be made to extract my data, up to the point of publication. ☐
7. I understand that the information from my interview will be pooled with other participants' responses, anonymised and may be published; all reasonable steps will be taken to protect the anonymity of the participants involved in this project. ☐
8. I consent to information and quotations from my interview being used in reports, conferences and training programs. ☐
9. I understand that the researcher will discuss data with their Supervisors as needed. ☐
10. I understand that any information I give will remain confidential and anonymous unless it is thought that there is a risk of harm to myself or others, in which case the principal investigator will/may need to share this information with their research supervisors. ☐
11. I understand that the data will be deleted from the researcher's OneDrive as soon as the PhD is granted but will be stored on the University's research information management system depository (PURE) for a minimum of 10 years after the end of the study. ☐
12. I consent to take part in the above study. ☐

Name of Participant	_____	**Signature**	_____	**Date**	_____
Name of Researcher	_____	**Signature**	_____	**Date**	_____

APPENDIX 8

Interview Guide

Safety Leadership: A Qualitative Study Exploring the Conceptual Definition of the Term

Interview begins with researcher introducing himself and providing an overview of the purpose of the study and objectives of the interview. Consent and confidentiality are then addressed.

Participant then asked if they feel comfortable continuing with the interview and will be reminded that the interview will be video recorded.

Recording Initiated

Interview questions:

1. Can you tell me a bit about yourself including years of experience, the industries and countries you've worked in, whether you have unionized and non-unionized experience, and your current role?
2. To what extent is safety important in your line of work?
3. What role does a leader play in driving a safe work environment?
4. What is safety leadership to you?
5. How would you define safety leadership?
6. How is safety leadership similar to or different from other forms of leadership?
7. To what extent would you consider yourself a safety leader?
8. In your opinion, what characteristics should a safety leader possess?
9. If there is anything else you'd like to add, please feel free to discuss it now.

Recording Ended

Next steps are discussed with the participant including debrief form, anonymizing of data, transcription, pooling of data, and storage. Consent and confidentiality are reiterated.

Participant is then asked if they continue to feel comfortable participating in the study or if they'd like their data withdrawn.

Participant is then thanked for their time and participation.

APPENDIX 9

Debrief Form

Safety Leadership: A Qualitative Study Exploring the Conceptual Definition of the Term

Thank you for participating in this study.

Purpose of the study

This PhD research is about a facet of leadership called safety leadership and the objective is to explore the conceptual definition of the term. Safety leadership is used quite regularly in academia and industry but not much work has actually been done to date on what the term actually means. This is both surprising and unfortunate, especially in light of the International Labour Organization work-related fatality statistics that have worsened over the last decade. Thus, finding ways to improve workplace safety and reduce the moral, psychological, and economic consequences of unsafe work is high on the agenda for many organizations, governments, and non-profits alike, and evidence suggests that even small improvements in safety leadership can translate into significant amelioration in workplace safety. It is for this reason that understanding the foundational elements of safety leadership is not only timely, but pertinent and necessary.

Confidentiality

Please note that everything on the consent form remains correct including the way we keep your data confidential.

Having now completed the interview, you may decide that you do not want your data used in this research. If this be the case and you would like your data removed from the study and permanently deleted, please notify the researcher as soon as possible, bearing in mind that it may be difficult to withdraw the data after the data has been anonymized and incorporated into themes (2 weeks after the interview). Nonetheless, every attempt will be made to do so up to the point of publication.

It would be appreciated that you do not disclose the research procedures to anyone who may participate in this study so as not to affect the results of the study.

Final report

Please notify the researcher by email if you would like to receive a copy of the final report.

Contact information

If you have any questions about the study, please feel free to contact the main researcher at i.adra@lancaster.ac.uk.

If you wish to make a complaint or raise concerns about any aspect of this study and do not want to speak to the researcher, you can contact:

Professor Stavroula Leka
Director of the Centre for
Organizational Health & Well-Being
Department of Health Research
Email: stavroula.leka@lancaster.ac.uk
Lancaster University
Lancaster

Dr. Claire Hardy
Senior Lecturer in Organizational
Health and Well-Being
Department of Health Research
Email: c.hardy1@lancaster.ac.uk
Lancaster University
Lancaster

If you wish to speak to the Research Director instead, you may contact:

Professor Jane Simpson
Research Director
Department of Health Research
Email: j.simpson2@lancaster.ac.uk
Lancaster University
Lancaster

If you wish to speak to someone outside of the Organizational Health and Well-Being Doctorate Program, you may also contact:

Dr. Laura Machin
Chair of FHM REC
Email: l.machin@lancaster.ac.uk
Faculty of Health and Medicine
Lancaster Medical School
Lancaster University
Lancaster
LA1 4YG

Resources in the event of distress

As a reminder, you are encouraged to contact your GP or mental health provider if you feel distressed as a result of having taken part in this interview. You may also seek support from MIND services by visiting the following website: https://www.mind.org.uk/information-support/helplines/

Once again, thank you for your participation in this study.

APPENDIX 10

Lancaster University Ethics Approval

Re: [External] FHM-2023-0614-RECR-2 Ethics Approval from Faculty Research Ethics Committee

From: donotreply@infonetica.net <donotreply@infonetica.net>
Sent: 25 May 2023 14:27
To: Adra, Islam (Postgraduate Researcher) <i.adra@lancaster.ac.uk>
Cc: Leka, Stavroula <stavroula.leka@lancaster.ac.uk>; Hardy, Claire <c.hardy1@lancaster.ac.uk>
Subject: [External] FHM-2023-0614-RECR-2 Ethics Approval from Faculty Research Ethics Committee

This email originated outside the University. Check before clicking links or attachments.
Name: Islam Adra
Supervisor: Stavroula Leka
Department: Health Research
FHM **REC Reference:** FHM-2023-0614-RECR-2
Title: Safety Leadership PhD Data Collection

Dear Islam Adra,
Thank you for submitting your ethics application in REAMS. The application was recommended for approval by the FHM Research Ethics Committee, and on behalf of the Committee, I can confirm that approval has been granted for this application.
As Principal Investigator/Co-Investigator your responsibilities include:
- ensuring that (where applicable) all the necessary legal and regulatory requirements in order to conduct the research are met, and the necessary licences and approvals have been obtained.
- reporting any ethics-related issues that occur during the course of the research or arising from the research to the Research Ethics Officer at the email address below (e.g. unforeseen ethical issues, complaints about the conduct of the research, adverse reactions such as extreme distress).
- submitting any changes to your application, including in your participant facing materials (see attached amendment guidance).
Please keep a copy of this email for your records. Please contact me if you have any queries or require further information.
Yours sincerely,
Dr Laura Machin
Chair of the Faculty of Health and Medicine Research Ethics Committee
fhmresearchsupport@lancaster.ac.uk

APPENDIX 11

Standards for Reporting Qualitative Research (SRQR)

No.	Topic	Page No. / Section
S1	Title	Page 0
S2	Abstract	Page i
S3	Problem formulation	Sections 1.1-1.3
S4	Purpose of research question	Sections 1.4 & 2.8
S5	Qualitative approach and research paradigm	Sections 3.2 & 3.3
S6	Researcher characteristics and reflexivity	Sections 1.5 & 4.1
S7	Context	
S8	Sampling strategy	Sections 3.4
S9	Ethical issues pertaining to human subjects	Section 3.9
S10	Data collection methods	Section 3.6
S11	Data collection instruments and technologies	Section 3.6
S12	Units of study	Sections 4.1 & 4.2
S13	Data processing	Section 3.7 & 3.9
S14	Data analysis	Section 3.7
S15	Techniques to enhance trustworthiness	Section 3.8
S16	Synthesis and interpretation	Section 4.4
S17	Links to empirical data	Section 4.4
S18	Integration with prior work, implications, transferability, and contribution(s) to the field	Sections 5.1-5.8
S19	Limitations	Section 5.9
S20	Conflicts of interest	Page viii
S21	Funding	Page viii