



ELSEVIER

Contents lists available at ScienceDirect

Journal of Safety Research

journal homepage: www.elsevier.com/locate/jsr

Differences between managers' and safety professionals' perceptions of upwards influence attempts within safety practice

Cassandra Madigan^{a,*}, Kirsten A. Way^b, Kelly Johnstone^a, Mike Capra^a

^aThe University of Queensland, School of Earth and Environmental Sciences, St Lucia, Queensland 4072, Australia

^bThe University of Queensland, School of Psychology, St Lucia, Queensland 4072, Australia

ARTICLE INFO

Article history:

Received 22 July 2021

Received in revised form 22 September 2021

2021

Accepted 17 February 2022

Available online 10 March 2022

Keywords:

Safety

Influence

Influence behaviour

Safety professionals

Professional practice

ABSTRACT

Introduction: The ability to influence upwards and gain management commitment has been identified as an essential capability for safety professionals, yet little is known about managers' perceptions of their subordinates use and effectiveness of influence tactics. This study utilizes intra-organizational influence theory to explore how safety professionals influence managers who are making important safety decisions. **Method:** Survey data were collected from managers ($n = 145$) on influence tactics used by safety professionals, perceived outcomes, and factors that promote and impede influence. Survey data from a previous study of safety professionals ($n = 385$) were used to compare the differences in perceptions between the two groups. **Results:** Managers perceive that the use of influence tactics provides explanation for safety professionals' effectiveness, with rational persuasion being positively associated with influencing effectiveness, and personal appeals and legitimating being negatively associated with effectiveness. Certain factors (i.e., knowledge, understanding organizational context, interpersonal skills, and experience) were more frequently perceived by managers to enable influence, while others were more frequently reported as barriers (i.e., organizational culture, safety beliefs, and leadership styles of managers). Managers and safety professionals agreed on many of these findings, although safety professionals reported a broader range of tactics as being effective than did managers. **Conclusions:** This study provides important contributions to understanding the upward influence behavior of safety professionals, and to our knowledge is the first study to report this behavior from the perspective of managers. **Practical Applications:** These findings may prompt safety professionals to reflect on current tactic usage and associated efficacy from managers' perspectives. Safety professionals should also consider the culture of the organization, safety beliefs, and the leadership style of managers prior to influencing, as these factors may negatively impact influencing outcomes. Developing knowledge and skills in both technical and non-technical domains may enhance the strategic influence of safety professionals.

© 2022 National Safety Council and Elsevier Ltd. All rights reserved.

1. Introduction

Every day managers within organizations make decisions on business risks, including managing multiple goals of safety, production, and resourcing (Bofinger et al., 2015). Although safety decisions are made at all levels within organizations, the key decisions relating to safety priorities are largely made by managers, who have both the positional power and the obligation to take the necessary actions in relation to safety (Tappura et al., 2017). Conversely, safety professionals may lack formal authority or positional power, since they are often employed as middle level managers or advisors providing support to all levels of the hierarchy

(Wybo & Van Wassenhove, 2015). In the absence of decision rights, safety professionals seek to improve safety outcomes by influencing others (Provan et al., 2018). By definition, influence is any action or behavior that creates a change in the attitudes, behaviors, or actions of others (Yukl, 2013). Within workplaces, influence behavior can be differentiated according to the direction of influence (i.e., downward, lateral, and upward (Lee et al., 2017)). While safety professionals (the agent) may influence in all directions, this current study focuses on upward influence, since safety research has established that the attitudes, behaviors, and actions of managers (the target) are of particular importance for safety performance (Tappura et al., 2017; Fruhen et al., 2014; Hale et al., 2010). It follows then, that the ability of safety professionals to influence upwards and gain management commitment is essential

* Corresponding author.

E-mail address: c.madigan1@uq.edu.au (C. Madigan).

to the success of safety improvements and interventions (Swuste & Arnoldy, 2003; Provan et al., 2017; Pryor et al., 2019).

During the past decade there have been several studies conducted on how safety professionals exert upward influence within organizations (Olsen, 2012; Bunner et al., 2019; Madigan et al., 2020). These self-report studies have incrementally increased our understanding of upward influence practices from the perspective of safety professionals. However, self-reports can be inflated by social desirability bias, which can impact on the accuracy of their predictions for behavioral outcomes (Fleenor et al., 2010; Atwater & Yammarino, 1997; Podsakoff & Organ, 1986). Currently missing from peer reviewed safety research is the managers' perspective on how safety professionals attempt to influence upwards; and whether this perspective differs from the views of safety professionals themselves. This perspective is crucial since managers have the over-riding authority on safety decisions, and their viewpoint is of enormous interest to safety professionals who seek to influence these decisions.

In this study, a mixed method approach was utilized to gather data from managers regarding the use and effectiveness of influence tactics employed by safety professionals, and the factors that enable or hinder influence attempts. The aim of our study is two-fold. First, to explore how safety professionals exert influence in organizations from the viewpoint of managers; and second to compare the perceptions of managers and safety professionals in regard to upward influencing attempts.

This study explores the following four research questions:

RQ1: What influence tactics do managers perceive are being used by safety professionals during attempts to influence the managers' health and safety decisions?

RQ2: What influence tactics used by safety professionals do managers perceive as more or less effective in attempts to influence them?

RQ3: What factors do managers perceive either enable or hinder the strategic influence of safety professionals?

RQ4: Are there differences in the perceptions of managers and safety professionals in relation to RQ1, 2, and 3?

1.1. Intra-organizational influence theory

Influence tactics are the specific types of behaviors used to influence an individual or group to change their behaviors, attitudes, or actions (Kipnis et al., 1980; Yukl et al., 2008; Lee et al., 2017). The fundamental tenet of intra-organizational influence theory is that in any given situation, the outcome of an influence attempt depends to a great extent on the specific type(s) of tactics used to employ influence (Kipnis et al., 1980; Higgins et al., 2003; Yukl et al., 2008; Lee et al., 2017). A well-researched and validated taxonomy of influence tactics was developed by Yukl et al. (2008), and our current study focused on this taxonomy (Table 1).

With three distinct outcomes of influence (i.e., resistance, compliance, commitment), researchers have investigated these tactics to answer the fundamental question of which tactics are more or less effective in gaining target commitment to a request, proposed change, or provision of assistance/support (Higgins et al., 2003; Lee et al., 2017). The efficacy of influence tactics in an upward direction is particularly relevant for the safety profession, given the commitment of managers has been identified as critical for the successful implementation of safety strategies and initiatives (Mearns & Reader, 2008; DeJoy et al., 2010).

Intra-organizational studies investigating tactic efficacy generally (i.e., not specific to safety) have found that rational persuasion (Epitropaki & Martin 2012; Lee et al., 2017), inspirational appeals (Falbe & Yukl, 1992, Gattiker & Carter, 2010), and consultation (Falbe & Yukl, 1992; Higgins et al., 2003; Lee et al., 2017) are the most effective for eliciting commitment in upward influence

Table 1
Summary of influence tactics.

Rational Persuasion Exchange	Uses logical arguments and factual evidence to show the benefit of a request or proposed change. Uses an offer of implicit or explicit reward or benefit (unrelated to the request) if the target agrees to the request or proposed change.
Inspirational appeals	Uses an emotional or value-based appeal linking the request to the target's ideals, hopes, and values.
Legitimizing	Establishes the legitimacy of a request by calling upon a higher authority or referring to organizational policies and rules.
Apprising	Uses facts and logic to explain how supporting the request or proposed change will benefit the target personally.
Pressure	Uses demands and threats or assertive behavior i.e., continual checking and repeated reminders.
Collaboration	Offers to provide the necessary resources and assistance (directly related to the request) if the target supports request or proposed change.
Ingratiation	Uses flattery or praise either before or during an influence attempt.
Consultation	Seeks the target's input or suggestions in planning an activity or proposed change.
Personal appeals	Draws on the target's friendship or loyalty by requesting a favor.
Coalition	Uses the support of others to assist with influencing the target.

Source: Adapted from Yukl, 2013.

attempts. The few safety studies focusing on tactic efficacy have also found that rational persuasion is an effective tactic in gaining management support (Bunner et al., 2019), and perceptions of influence effectiveness (Madigan et al., 2020). Similarly, inspirational appeals was positively associated with safety professionals' perceptions of their ability to influence managers (Madigan et al., 2020).

The least effective tactics in upward influence identified in intra-organizational studies are pressure (Falbe & Yukl, 1992; Sparrowe et al., 2006), legitimizing (Falbe & Yukl, 1992; Furst & Cable, 2008; Gattiker & Carter, 2010), and coalition (Schilit & Locke, 1982; Yukl, 2013). These three tactics are considered hard forms of influence since they breach the social norm of reciprocity (Epitropaki & Martin 2012). Similar findings for legitimizing and pressure have been found in empirical safety studies (Madigan et al., 2020; Bunner et al., 2019). Legitimizing was negatively associated with safety professionals' perceptions of influencing effectiveness (Madigan et al., 2020), while the use of pressure by safety engineers failed to elicit managerial support (Bunner et al., 2019).

1.2. Factors that enable or hinder the influence of safety professionals

Although the key tenet of influence theory is that the success of an influence attempt largely depends on tactic choice, prior research has identified other individual, relational, and organizational factors that may enable or hinder influence attempts (Lee et al., 2017; Yukl, 2013; Higgins et al., 2003). These factors have been associated with characteristics of the agent and the target; the relationship between the agent and the target; and certain organizational factors. However, the factors that enable or hinder the strategic influence of safety professionals have not been widely researched and are poorly understood. This study focuses on those individual, relational, and organizational factors that are of interest to safety practice and have been identified in existing literature as potential enablers or barriers to influence. This is important since safety professionals who are cognizant of factors that promote or hinder influence from the perspective of managers may have improved influencing outcomes.

1.2.1. Characteristics of safety professionals

Few studies have explored the characteristics of safety professionals that are associated with influence (Pryor, 2010; Madigan et al., 2020). Pryor (2010) found that strategic influence was related to two individual characteristics of the safety professional (i.e., male gender and experience). However, Madigan et al. (2020) found no statistical association for gender, experience, age, education, and safety professionals' perceptions of influencing effectiveness. Nonetheless, the knowledge and ability of safety professionals has been identified in the safety literature as a key influencing enabler (Reiman & Pietikäinen, 2014; Antonsen, 2009), which is perhaps not surprising given the consistently positive efficacy of rational persuasion as an influence tactic. Safety professionals are considered "knowledge workers" (Provan et al., 2017), and prior safety studies have established that the knowledge approach is the preferred strategy for influencing safety decisions (Hasle & Sørensen, 2011; Olsen, 2012; Madigan et al., 2020). It follows then, that safety professionals require advanced safety knowledge and industry experience to be successful in using this approach to influence.

Along with safety knowledge, it has been argued that safety professionals require knowledge and understanding of the organizational context (e.g., organizational behavior; structure; planning processes; budgeting (Swuste & Arnoldy, 2003; Hasle & Sørensen, 2011; Theberge & Neumann, 2010; Reiman & Pietikäinen, 2014). A recent empirical study provides support for this argument with the authors finding that safety professionals create buy-in from managers by having an understanding of the business environment and demonstrating systems thinking beyond just safety (Madigan et al., 2021).

While the technical skills of the safety professional have been posited in the literature as important enablers, the success of an influence attempt is also related to non-technical skills. For example, the interpersonal skills of safety professionals have been identified as a key enabler or barrier to strategic influence (Swuste & Arnoldy, 2003; Provan et al., 2017; Guennoc et al., 2019). Swuste and Arnoldy (2003) suggest that these interpersonal skills include communication, negotiation, facilitation, problem-solving, decision-making, and assertiveness. Further, Borys (2014, p. 32) concluded that safety professionals "who lack the personal skills to engage senior managers may be missing out on the opportunity to add value, irrespective of their knowledge and skills".

Another key factor that has been vigorously debated in the safety domain is how much positional power and formal authority a safety professional requires to be influential (Provan et al. 2017; Wybo & Van Wassenhove, 2015; Dekker & Nyce, 2014). Some authors argue that the lack of formal authority and positional power impacts on the ability of safety professionals to be strategically influential (Olsen, 2012; Daudigeos, 2013; Wybo & Van Wassenhove, 2015). Others contend that having formal authority may be a limitation for the safety professional. These arguments are based on the premise that formal authority has the potential to marginalize the safety expertise of line managers (Provan et al., 2017), and unilateral mandates from safety professionals are rarely effective (Hale, 1995).

According to Klimoski and Donohue (2001), the characteristics of the "perceived" (the safety professionals in our study) impact how they or their message is received by the "perceiver" (the managers in our study). Therefore, identifying which personal and professional factors (e.g., age, gender, knowledge and experience, formal authority, interpersonal skills) managers may perceive as enablers or barriers to their safety professionals' ability to influence is important because these have the potential to impact influence outcomes.

1.2.2. Characteristics of managers

Whether individual characteristics of managers enable or hinder safety professionals' ability to influence has rarely been studied in empirical safety research. Madigan et al. (2021) found that safety professionals identified certain manager characteristics (i.e., poor safety knowledge, leadership styles, and safety beliefs) as a hindrance to their ability to influence and gain commitment for safety proposals. Similarly, Tappura et al. (2017) identified that negative attitudes toward safety and poor safety knowledge of managers were obstacles in gaining management commitment. It has been suggested that a manager's leadership style may affect an agents' choice of upward influence tactics, since an agent may take their cues on which tactic to use based on the manager's approach to leading others (Cable & Judge, 2003). In comparing transformational styles (i.e., motivating others by articulating a clear, appealing, and inspiring vision) and transactional styles (i.e., having clear performance expectations and the use of rewards and punishment contingent on performance), Epitropaki and Martin (2012) found significant differences in the types of influence tactics used. They concluded that transformational leadership was positively linked to the use of soft tactics (rational tactics, ingratiation, and exchange), whereas transactional leadership styles were associated with the use of the whole spectrum of tactics (including hard tactics) due to less reciprocity perceived in relationships with transactional managers (Epitropaki & Martin, 2012).

Previous research on the relationship between leadership styles and safety performance have suggested that relational leadership styles are associated with improved safety outcomes (Zohar, 2002; Clarke & Ward, 2006; Kim & Gausdal, 2020). Despite these research findings, there is very limited understanding of the role that a manager's leadership style plays in either promoting or impeding the influence attempts of safety professionals. While there are a myriad of leadership theories and associated descriptions of specific leadership styles (see Dinh et al., 2014 for a review), we use a more global definition of leadership style, being a leader's manner or approach to motivating people, decision-making, and managing change initiatives (Goleman et al., 2004).

1.2.3. Level of trust

Establishing positive relationships with managers within organizations is seen as critical in enabling safety professionals to influence safety decision-making (Carrillo, 2010; Pryor, 2014; Provan et al., 2017). Trust has firmly been established in the safety literature as an important concept, since relationships are often characterized by the level of trust (Stalnaker, 1999; Peters et al., 1997; Conchie & Burns, 2009; Pryor 2014).

Mayer et al.'s (1995) influential model of trust development (ability, benevolence, and integrity) has been applied to the safety context (Conchie & Burns, 2009). Demonstrating safety expertise and knowledge (ability), showing care and concern (benevolence), and being open and honest (integrity) are considered the basis of trust development in safety practice (Conchie & Burns, 2009). However, there are few empirical insights into trust as a factor in the influence of the safety professionals (Pryor, 2014; Madigan et al., 2021). Pryor (2014) found that trust in the relationship was the key factor impacting managers' decision-making, and subsequently the influence of the safety professional. Similarly, Madigan et al. (2021) found that safety professionals readily identified that influence attempts were more successful where a level of trust existed, and they were perceived as trustworthy by managers.

1.2.4. Organizational factors

The effect of organizational factors on the strategic influence of safety professionals has rarely been studied. Research from the

social sciences supports the notion that organizational culture can potentially affect the relationship between influence behaviors and work outcomes (Schilit & Locke, 1982; Steensma, 2003). For example, within innovative organizations, the softer tactics of consultation, ingratiation, and inspirational appeals were used more frequently than the harder tactics of pressure and legitimating (Steensma, 2003). Few studies have explored safety culture as an enabler or barrier to influence. Generally considered a facet specific organizational culture, safety culture relates to how safety is valued and prioritized within an organization (Borys, 2019). Madigan et al. (2020) related the sequence of distinct safety cultures (i.e., pathological, reactive, calculative, proactive, and generative) described in Hudson’s (2001) safety maturity model to the influence practices of safety professionals. Safety professionals perceived cultures with a higher regard for safety (proactive and generative) positively and significantly impacted their ability to influence (Madigan et al., 2020). However, we propose that managers may view organizational and safety culture through a different lens given their primary role in both creating and communicating culture. Managers’ sense of ‘ownership’ may filter the positive valence they attribute to culture and impact managers’ beliefs about the power of culture to enable or hinder safety professionals’ influence.

Another organizational factor that may potentially impact on level of influence is the lines of reporting within an organizations’ hierarchical structure, a factor closely related to the positional power and formal authority of the safety professional. Several authors argue that the structural position in the organizational hierarchy and reporting relationships may moderate the safety professionals’ role and formal ability to influence (Daudigeos, 2013; Wybo & Van Wassenhove, 2015).

1.3. Differences between manager and safety professionals’ perceptions of influence tactics

An understanding of differences in perceptions between managers and safety professionals has practical implications for safety professionals who seek to be strategically influential. To our knowledge this is an area that has yet to be explored in the peer-reviewed safety literature. However, several studies from social sciences have explored the typical differences between agents’ and targets’ reports on upward influence attempts (Yukl & Falbe, 1990; Xin & Tsui, 1996; Blickle, 2003). For example, Xin and Tsui (1996) and Blickle (2003), in comparing agent and target reports of influence tactics, found that agents report a greater use of influence tactics than perceived by targets. In other words, agents felt that they were proactively influencing targets, whereas targets did not always perceive that they were being influenced. These authors linked these findings to attribution theory, a theory that describes “how the social perceiver uses information to arrive at causal explanations for events. . .and how it is combined to form a causal judgment” (Fiske & Taylor, 1991, p. 23) as both agents and targets may attribute outcomes to their own actions when positive results manifest. Previous influence research has established that attributions may differ considerably between agents (as actors) and targets (as perceivers) (Rao et al., 1995; Xin & Tsui, 1996; Blickle, 2003).

Differences in agent and target perceptions of influence tactics have been further explained by the construct of normative expectations in organizations (Xin & Tsui, 1996; Blickle, 2003; Yukl, 2013). Normative expectations are the socially expected modes of conduct of organizational members (Ajzen, 1991). For example, Blickle (2003) found significant differences when comparing the ratings of agents and targets on tactics that were considered normative (i.e., rational persuasion and ingratiation). In contrast, there was substantial convergence between agents and targets for tactics

that were considered “hard” or not normative (i.e., pressure and coalition). It follows then, targets may be more aware of influence behavior when it departs from the norm, and less cognizant of influence tactics that are expected or part of a social role.

2. Method

2.1. Samples and procedures

The primary focus of this article is on the influence behaviors of safety professionals from the perspective of managers within organizations (sample 1) investigating RQ 1, 2, and 3. However, in order to explore the differences between the perceptions of managers and safety professionals (RQ4), data from a previous study by the same authors (sample 2) were used (Madigan et al., 2020).

2.1.1. Sample 1

A cross-sectional survey was used to explore managers’ perceptions on the use and efficacy of influence tactics used by safety professionals, and the factors that enable or hinder influence attempts. The survey was administered using an online, self-administered questionnaire, comprised of closed and open ended questions. After receiving institutional ethics approval, safety professionals from a previous study were invited to send emails (composed by the researchers) with the URL for the online survey to managers at higher levels in the organization (n = 160). Forty-five (45) of these managers agreed to participate. In addition, the survey was distributed on the Prolific Academic online platform, which is considered to be a reliable source of data collection for behavioral research (Palan & Schitter, 2018; Peer et al., 2017) (n = 100). Currently working as a manager and having had a safety professional attempt to influence them in the past 12 months were criteria for inclusion.

Of the total 145 survey respondents, approximately two-thirds were male and aged 35 years or older, over half worked in the United Kingdom (56%), and the majority were employed in larger organizations (greater than 100 employees). Table 2 provides a summary of demographic data.

2.2. Measures

In this study, the target version of the Influence Behavior Questionnaire (IBQ-G) developed by Yukl and colleagues (2008) was utilized to measure the frequency of tactic use by safety professionals in their attempts to influence managers. The IBQ-G is the most validated measure of proactive influence tactics, and is the

Table 2 Summary of demographic variables.

Variables		n	%
Gender	Male	96	66
	Female	48	33
	Prefer not to disclose	1	1
Age	18 to 24 years	10	7
	25 to 34 years	40	28
	35 to 44 years	39	27
	45 to 54 years	36	25
	55 to 64 years	18	12
	65 to 74 years	2	1
Main location of work	United Kingdom	81	56
	Australia	61	42
	Other	3	2
Organization size	1 to 50 employees	15	10.5
	51 to 100 employees	19	13
	101 to 500 employees	28	20
	501 to 1000 employees	12	8
	1001 to 5000 employees	24	17
	>5000 employees	45	31.5

most commonly used to study influence within organizations (Lee et al., 2017). The target IBQ-G was developed to measure a target’s perceptions of an agent’s use of 11 proactive tactics in attempts to influence the target respondent (Yukl et al., 2008). The IBQ-G consists of 44 items with each tactic scale having four items. Each item has five anchored response choices, ranging from “I can’t remember them ever using this tactic” to “they use this tactic very often with me (almost every week).” Managers were asked to choose a response based on how often their nominated safety professional used each tactic during the past 12 months in their attempts to influence the manager. Internal consistency was assessed for tactic scales using Cronbach’s alpha, according to the procedure described by DeVellis (2012). Internal consistency was found to be good with all alpha values exceeding 0.80, except for legitimating (0.77). Although it is desirable to have values of 0.80 or higher, any values above 0.70 are widely considered acceptable (DeVellis, 2012). Composite reliability (CR) and average variance extracted (AVE) were considered to be within a good range (CR 0.71–0.86; AVE 0.60–0.83) (Fornell & Larcker, 1981). Further, tolerance levels were greater than 0.01, signifying an absence of multi-collinearity (Tabachnick & Fidell, 2013).

Perceived effectiveness of safety professionals to influence managers was measured using a four-item scale developed by the researchers, with a five-point response Likert scale where managers indicated their level of agreement from strongly agree to strongly disagree (e.g., “their professional opinion has a real influence on decisions that I make relating to occupational health and safety”). Internal consistency for this scale was good with an alpha value of 0.84. The AVE (0.68) and CR (0.76) were found to be at acceptable levels (Fornell & Larcker, 1981), and there was an absence of multi-collinearity (i.e., tolerance levels greater than 0.01; Tabachnick & Fidell, 2013).

For factors that enable or hinder safety professionals’ ability to influence managers, we utilized a qualitative approach. We compiled a list of 14 items (Table 3) previously posited as potential enabling or hindering factors from extant literature (Swuste & Arnoldy, 2003; Olsen, 2012; Pryor, 2014; Tappura et al., 2017; Provan et al., 2017; Madigan et al., 2020). Respondents were asked to consider these factors from a broad perspective (i.e., the manner or approach related to the leadership styles of managers in general, rather than considering their own individual approaches). Respondents were asked to choose three items that they considered to be the most important enablers and three items they considered to be the most important hindrances.

2.2.1. Sample 2

A total of 385 safety professionals rated how often they used each influence tactic to influence managers, using the agent ver-

Table 3
Factors that enable or hinder safety professionals’ influence attempts.

Safety professional characteristics
<ul style="list-style-type: none"> • Age • Gender • Knowledge • Work Experience • Education • Formal authority • Interpersonal skills • Understanding organizational context
Manager characteristics
<ul style="list-style-type: none"> • Leadership style of managers • Safety beliefs of managers
Safety professional/manager relationship
<ul style="list-style-type: none"> • Level of trust between managers and the safety professional
Organizational factors
<ul style="list-style-type: none"> • Lines of reporting • Organizational culture • Safety maturity

sion of the IBQ-G. A manager in this study was defined as someone who is at a higher level in the organizational hierarchy than the safety professional (e.g., operations manager, line manager, senior manager, managers in administration roles). The self-report agent version of the IBQ-G has parallel items and a similar rating format to the target version, with only minor differences in wording. In the agent version, the scale ranges from “I can’t remember ever using this tactic” to “I use this tactic very often (almost every week).” Safety professionals were asked to choose a response based on how frequently they utilized each of the 11 tactics during the past 12 months to influence managers who are making safety decisions.

Safety professionals rated their perceived effectiveness in influencing managers using a five-point Likert scale (ranging from very effective to very ineffective). For the enabling and hindering factors, safety professionals reported the 3 factors that most enabled or hindered their ability to influence managers from a list of 14 factors (Table 3).

Approximately two-thirds of the safety professionals were male. The majority were 35 years or older (91%), located in Australia (92%), and worked in the private sector (61%).

3. Results

3.1. RQ1: What influence tactics do managers perceive are being used by safety professionals during attempts to influence the managers’ health and safety decisions?

Means, standard deviations, and inter-correlations for the 11 proactive influence tactics and safety professionals’ effectiveness are presented in Table 4.

Managers perceived that safety professionals most frequently used rational persuasion ($M = 3.49, SD = 0.84$), legitimating ($M = 3.43, SD = 0.79$), collaboration ($M = 3.10, SD = 0.98$), and consultation ($M = 3.09, SD = 0.96$). Pressure ($M = 1.87, SD = 0.89$), personal appeals ($M = 1.92, SD = 0.1.01$), exchange ($M = 2.01, SD = 1.07$), and coalition ($M = 2.10, SD = 0.96$) were perceived as having the lowest frequency of use (Table 4).

3.2. RQ2: What influence behaviors used by safety professionals do managers perceive as more or less effective in attempts to influence them?

To assess the use of the various influence tactics to predict safety professionals’ effectiveness to influence managers, standard multiple regression was employed. In this technique, all variables (i.e., the influence tactics in this study) were entered into the model simultaneously and each independent variable was evaluated in terms of its predictive power (Cohen et al., 2003). Table 5 displays the regression results.

Results of standard multiple regression show a significant effect between the 11 proactive tactics and safety professionals’ effectiveness in influencing explaining 24% ($R^2 = 0.24$) of the variance. Only three tactics made a statistical contribution, rational persuasion ($\beta = 0.27, p < 0.05$), personal appeals ($\beta = -0.25, p < 0.05$), and legitimating ($\beta = -0.24, p < 0.05$). Rational persuasion was positively associated with the perceived effectiveness of safety professionals, while personal appeals and legitimating were negatively associated with perceptions of influence (Table 5).

3.3. RQ3: What factors do managers perceive either enable or hinder the strategic influence of safety professionals?

Table 6 reports the number of responses for each of the 14 factors that were perceived to either enable or hinder the influence of safety professionals.

Table 4
Means, standard deviations, and inter-correlations between main study variables.

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Rational Persuasion	(0.83)											
2. Exchange	0.30**	(0.93)										
3. Inspirational Appeals	0.64**	0.38**	(0.84)									
4. Legitimizing	0.48**	0.24**	0.25**	(0.77)								
5. Appraising	0.32**	0.63**	0.44**	0.27**	(0.89)							
6. Pressure	-0.04	0.38**	0.02	0.29**	0.31**	(0.82)						
7. Collaboration	0.41**	0.36**	0.43**	0.39**	0.49**	0.25**	(0.86)					
8. Ingratiation	0.25**	0.50**	0.46**	0.17*	0.67**	0.26**	0.45**	(0.90)				
9. Consultation	0.54**	0.36**	0.63**	0.22**	0.44**	-0.06	0.50**	0.52**	(0.86)			
10. Personal Appeals	0.09	0.57**	0.21*	0.02	0.58**	0.35**	0.24**	0.59**	0.25**	(0.89)		
11. Coalition	0.16	0.55**	0.27**	0.24**	0.55**	0.48**	0.24**	0.49**	0.32**	0.67**	(0.87)	
12. SP effectiveness	0.32**	-0.01	0.33**	-0.01	-0.10	-0.17*	0.22**	0.16	0.32**	-0.06	0.34	
Mean	3.49	2.01	2.92	3.43	2.41	1.87	3.10	2.54	3.09	1.92	2.10	3.78
SD	0.84	1.07	0.99	0.79	1.10	0.89	0.98	1.12	0.96	1.01	0.96	0.78

* $p < .05$. ** $p < .01$.
Alpha coefficients in parenthesis.

Table 5
Standard multiple regression results of relationship between influence tactics on safety professionals' effectiveness-standardized coefficients (β).

Influence tactics	
Rational Persuasion	0.27*
Exchange	-0.15
Inspirational Appeals	0.12
Legitimizing	-0.24*
Appraising	0.01
Pressure	-0.12
Collaboration	0.16
Ingratiation	0.14
Consultation	0.04
Personal Appeals	-0.25*
Coalition	0.20
R^2	0.24***
F	3.8

Dependent variable: Safety professionals' effectiveness in influencing managers.
*** $p < .001$. ** $p < .01$. * $p < .05$.

Four individual characteristics of safety professionals were perceived by managers as the most important in enabling influence (i.e., knowledge (92), understanding organizational context (62), interpersonal skills (53), and work experience (49)). However, two individual characteristics of safety professionals were perceived as being the least important (i.e., age (3) and gender (1)).

The four factors that were perceived by managers to most negatively impact on safety professionals' ability to influence were organizational culture (51), safety beliefs of managers (43), leadership style of managers (38), and the interpersonal skills of the safety professional (36). Of the 14 hindering factors, work experience (13) and gender (11) were perceived as the least important.

3.4. RQ4: Are there differences in the perceptions of managers and safety professionals in relation to RQ1, 2, and 3?

In exploring the differences in perceptions of managers (sample 1) and safety professionals (sample 2) for frequency of tactic use, we calculated means for each of the 11 influence scales (Table 7). Independent-samples t-tests were used to compare the frequency of tactic usage scores across the 11 tactics. For all tests, statistical significance was set at 95% probability (Table 7).

A comparison of the means for frequency of tactic use showed similarities between the two groups. Both groups agreed rational persuasion, legitimizing, collaboration, and consultation were the most commonly used tactics, while personal appeals and pressure were the least reported (Table 7). However, results of t-tests show

Table 6
No. of responses for factors that enable or hinder safety professionals to influence managers.

Factor	Frequency	
	Enable	Hinder
<i>Safety professionals' characteristics</i>		
Knowledge	92	32
Understanding organizational context	62	30
Interpersonal skills	53	36
Work experience	49	13
Formal authority	21	32
Education	13	16
Age	3	21
Gender	1	11
<i>Managers' characteristics</i>		
Safety beliefs	17	43
Leadership style	7	38
<i>Relationship manager/safety professional</i>		
Level of trust	39	31
<i>Organizational factors</i>		
Organizational culture	25	51
Safety maturity	19	25
Lines of reporting	4	31
Total	405	410

significant differences between the two groups in perceptions of the relative frequency of tactic use. There were statistically significant differences for all tactics except for legitimizing, coalition, and exchange. Of these differences, managers reported a less frequent use of numerous tactics: rational persuasion, collaboration, consultation, inspirational appeals, ingratiation, and appraising. Two tactics (i.e., pressure and personal appeals), were perceived by managers to be used more frequently.

In order to explore the difference in perceptions of both groups for tactic effectiveness and safety professionals' influence effectiveness, we compared the standard multiple regression results for both groups (Table 8).

Results of multiple regression indicated that for both the managers and safety professionals there was a collective significant effect between the 11 proactive tactics and safety professionals' effectiveness in influencing explaining 24% ($R^2 = 0.24$) and 21% ($R^2 = 0.21$) of the variance, respectively. Managers perceived rational persuasion ($\beta = 0.27$, $p < .05$) to be positively associated with safety professionals' perceptions of effectiveness, while safety professionals perceived both rational persuasion ($\beta = 0.32$, $p < .001$) and inspirational appeals ($\beta = 0.20$, $p < .01$) to be positively associated with influence effectiveness. Personal appeals ($\beta = -0.25$, $p < .05$) and legitimizing ($\beta = -0.24$, $p < .05$), were perceived by the managers to be negatively associated with safety

Table 7
Results of t-test – frequency of tactic use by group.

	Group						95% CI for Mean Difference		
	Managers		Safety Professionals				t	df	
	M	SD	n	M	SD	n			
Rational Persuasion	3.5	0.84	145	4.1	0.71	380	-0.75, -0.45	7.62***	288
Legitimizing	3.4	0.79	145	3.4	0.87	379	-0.16, 0.16	0	287
Collaboration	3.1	0.98	145	3.7	0.87	383	-0.78, -0.41	6.47***	290
Consultation	3.1	0.96	145	4.1	0.75	380	-1.17, -0.83	11.30***	288
Inspirational Appeals	2.9	0.99	145	3.3	0.84	377	-0.58, -0.22	4.31***	286
Ingratiation	2.5	1.11	145	3.1	1.01	378	-0.80, -0.40	6.17***	286
Appraising	2.4	1.10	145	2.7	0.97	378	-0.50, -0.10	2.88**	286
Coalition	2.1	0.96	145	2.2	0.84	379	-0.28, 0.08	1.10	287
Exchange	2.0	1.07	145	2.0	0.94	379	-0.20, 0.20	0	287
Personal Appeals	1.9	1.01	145	1.6	0.73	379	0.12, 0.48	3.27**	287
Pressure	1.9	0.89	145	1.7	0.65	375	0.04, 0.36	2.46*	284

***p < .001. **p < .01. *p < .05.

professionals’ perceptions of effectiveness, while safety professionals perceived three tactics (legitimizing $\beta = -0.28$, $p = <0.001$; exchange $\beta = -0.18$, $p = <0.01$; and collaboration $\beta = -0.15$, $p = <0.05$) as having a significant negative effect.

In order to compare the perceptions of the two groups on factors that enable or hinder the ability of safety professionals to influence managers, frequency data for each of the 14 factors was computed as a percentage. Fig. 1 reports the percentage of responses for each enabling factor from the perspective of managers (from a total of 405 enabling factors reported) and that of safety professionals (from a total of 1,055 enabling factors reported).

Although there were differences between managers and safety professionals in terms of how frequently they identified certain enabling factors, Fig. 1 indicates that both groups agreed the four most important enabling factors for influence were knowledge, interpersonal skills, work experience, and understanding organizational context. Further, both groups agreed on the two factors that were the least important for enabling influence (i.e., age and gender of safety professionals).

Fig. 2 reports the percentage of responses for each factor that managers (410 total responses) and safety professionals (1,075 total responses) perceive to hinder the ability of safety professionals to influence.

For factors that hinder influence, both groups agreed that organizational culture, the leadership style of managers, and the safety beliefs of managers hindered influence the most. The results showed differences between the two groups on several factors that were perceived to impede influence. Safety professionals viewed

Table 8
Standard multiple regression showing relationship between influence tactics and SP effectiveness across groups – standardized coefficients (β).

Influence tactics	Manager	Safety professionals
Rational Persuasion	0.27*	0.32***
Exchange	-0.15	-0.18 **
Inspirational Appeals	0.12	0.20**
Legitimizing	-0.24*	-0.28***
Appraising	0.01	-0.01
Pressure	-0.12	0.05
Collaboration	0.16	-0.15*
Ingratiation	0.14	0.08
Consultation	0.04	0.84
Personal Appeals	-0.25*	0.10
Coalition	0.20	-0.10
R ²	0.24***	0.21***
F	3.8	8.4

Dependent variable: Safety professionals’ effectiveness in influencing managers
***p < .001. **p < .01. *p < .05.

safety maturity as a greater hindrance to influence, while managers rated the safety professionals’ interpersonal skills, knowledge, and understanding of organizational context as a greater impediment to influence. In addition, managers reported the level of trust between managers and safety professionals as more of a barrier to strategic influence.

4. Discussion

In investigating a novel intersection of intra-organizational influence theory and safety practice, the present study aimed to understand how safety professionals enact upward influence from the perspective of managers who are making health and safety decisions. We specifically examined managers’ perceptions of the frequency of safety professionals’ tactic use and perceptions of influencing effectiveness. We further addressed the role of various individual, relational, and organizational factors in either promoting or impeding strategic influence of safety professionals. Finally, we explored differences in the perceptions of managers and safety professionals in relation to the upward influence behavior of safety professionals.

Previous safety research suggests safety professionals are choosing to use and to avoid using certain influence tactics to obtain safety objectives (Daudigeos, 2013; Olsen, 2012; Bunner et al., 2019). Empirical studies from other disciplines (non-safety) have consistently identified that the four core tactics of rational persuasion, consultation, inspirational appeals, and collaboration are the most frequently used, and are considered the most effective (Cable & Judge, 2003; Barbuto et al., 2007; Yukl et al., 2008; Lee et al., 2017). Our study aligns with these findings to a large degree since safety professionals were perceived by managers to use three of these four core tactics most frequently (i.e., rational persuasion, consultation, and collaboration). However, a key difference in our study was that legitimizing was more frequently used than other tactics, except for rational persuasion (Table 4). The requirement to ensure compliance with legislation by referring to rules, standards, or procedures has significantly shaped the role of safety professionals over the past few decades (Provan et al., 2017). It is not surprising, therefore, that empirical research in the safety context and our current study have established that safety professionals make liberal use of rules and procedures to exert authority and influence within their organizations (Olsen, 2012; Daudigeos, 2013; Madigan et al., 2020).

According to the managers, the influence tactics that were least favored by safety professionals were pressure, personal appeals, exchange, and coalition (Table 4). There is strong agreement in the literature that the use of pressure leads to resistance and can

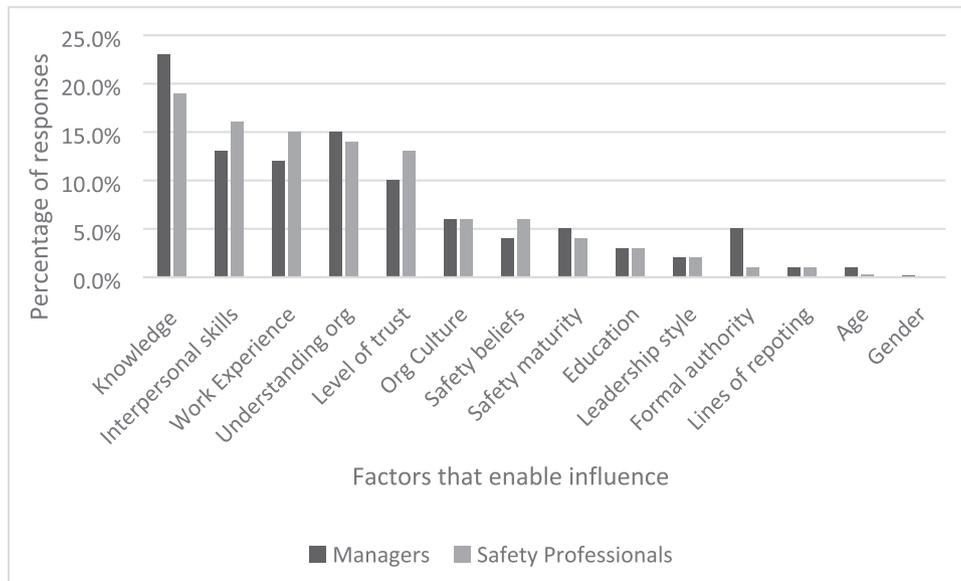


Fig. 1. Percentage of responses for factors that enable safety professionals to influence managers.



Fig. 2. Percentage of responses for factors that hinder safety professionals in attempts to influence managers.

undermine relationships (Falbe & Yukl, 1992; Sparrowe et al., 2006). Existing research also points to the challenges of using exchange, personal appeals, and coalition in an upward direction. Safety professionals may avoid using these methods because exchange requires having control over rewards and benefits, personal appeals involve issues of equity, and coalition can sometimes be perceived negatively by the target as an attempt to “leapfrog” the target by leveraging support from upper management (Yukl, 2013).

But do safety professionals and managers share the same perspectives on the tactics used in upward influencing attempts? Two distinct findings have emerged from our research on how often safety professionals use each proactive influence tactic to influence managers. First, both groups agreed that the top four tactics of choice for safety professionals were rational persuasion, legitimating, collaboration, and consultation. Further, both groups identified pressure and personal appeals as the least prevalent

amongst the 11 tactics. Our results align with other studies that have found agents and targets report similar methods of influence, regardless of whether they are describing successful or unsuccessful upward influence attempts (Schilit & Locke, 1982; Yukl & Falbe, 1990).

Second, there were greater differences between the perspectives of managers and safety professionals on the relative frequency of tactic use (i.e., how often each tactic was perceived to be employed by safety professionals). Almost across the board, safety professionals reported greater use of influence tactics than those perceived by managers. A notable exception to this trend was the influencing tactic ‘legitimating’ for which both managers and safety professionals perceived the same frequency of usage. A possible explanation for this difference is the assumption that safety professionals have an awareness of the influence tactics they employ, since social influence is a proactive process. In contrast, there are several reasons for managers being more or less aware

of specific tactics employed to influence them. As previously discussed, targets of upward influence are potentially more aware of influence behavior that does not conform with normative expectations (Blickle, 2003). This may explain why managers in our study reported significantly less use of tactics that might be considered normative such as rational persuasion, collaboration, consultation, inspirational appeals, ingratiation, and apprising. In contrast, the tactics that depart from normative expectations were either reported more frequently by the managers (pressure) or there were no statistical differences between the two groups (legitimizing and coalition). In addition, certain tactics are easier for the target to recognize and recall as they are more obvious or explicit. For example, personal appeals would be obvious to the target since the agent requests a favor based on their relationship. Alternatively, ingratiation is more effective if subtle and undetected by the target (Blickle, 2003).

Having considered the frequency of tactic use, we next explored the tactics that managers perceived were more or less effective in attempts to influence them. We found that the influence tactics when considered collectively explained a significant amount of the variance in perceived influence effectiveness. Having established the importance of safety professionals' influence behavior in general, we next explored which tactics were perceived by managers to be positively or negatively associated with safety professionals' strategic influence.

Of the three tactics that appeared to matter the most to managers, rational persuasion had a positive association, while personal appeals and legitimating had a negative association. It is unsurprising that rational persuasion is positively associated with perceived influencing effectiveness, since influence attempts underpinned by the use of logic and reasoning are preferred by managers in upward influence situations (Foste & Botero, 2012; Geertshuis et al., 2013; Clarke et al., 2019). In contrast, personal appeals (which is the practice of drawing upon the target's loyalty or friendship by requesting a favor to support a request or proposal) was negatively associated with influence effectiveness. This tactic is considered more likely to be successful in attempts to influence peers (Falbe & Yukl, 1992), and as previously discussed may be problematic for upward influence due to perceptions of favoritism (Yukl, 2013). Similarly, legitimating is generally viewed unfavorably by managers (Furst & Cable, 2008; Gattiker & Carter, 2010; Lee et al., 2017). This may be explained by self-determination theory (SDT), a concept that has previously been linked to safety (Burstyn et al., 2010; Dekker, 2017), and suggests that managers (like most people) have an innate psychological need for autonomy, relatedness, and competence (Deci & Ryan, 1985). Where the use of legitimating is perceived to threaten an individual's intrinsic motivation and autonomy, previous research suggests engagement, effort, and commitment is undermined (Deci & Ryan, 1985; Burstyn et al., 2010).

Having identified the influence tactics that managers perceive to be more or less effective in upward influence attempts, we next compared their perceptions with those of safety professionals. A key finding for both groups is a strong association between legitimating and reduced perceived influencing effectiveness. Although both groups identified legitimating as one of the least effective tactics, paradoxically we found safety professionals are liberally using this strategy in efforts to exert influence. There have been strong arguments in the safety literature that the use of rules and bureaucratic processes may lead to resistance, non-commitment, and can actually harm safety efforts (Hale & Swuste, 1998; Dekker, 2014; Hale et al., 2015). Further, it has been suggested that safety professionals differentiate between rules and procedures for high-risk activities that are mandated by regulations (e.g., working at heights or confined spaces), and those rules that are internally generated within organizations and have no relationship to legal obli-

gations or safety outcomes (Dekker, 2014; Hale et al., 2015; Dekker & Tooma, 2021). Although legitimating may lead to compliance (Yukl, 2013), our findings suggest that safety professionals should reflect on each circumstance and determine whether a different tactic might be more effective in gaining manager commitment. For example, there was agreement between managers and safety professionals that rational persuasion was the most effective of the 11 proactive tactics. Rational persuasion has previously been cited as an effective strategy in the safety context (Hasle & Sorenson, 2011; Olsen, 2012; Madigan et al., 2021), a finding consistent with our study.

There was a key difference in the perceptions of the two groups regarding the collaboration tactic. Safety professionals perceived a negative association between collaboration and upward influence, while although not reaching statistical significance managers viewed this tactic more positively. While there are a few existing studies on the use of the collaboration tactic, Yukl (2013) argues that collaboration is used least often in an upward direction since subordinates have less control over discretionary resources. In contrast, Gibson (2012) found that collaboration was successful in gaining target commitment in an upward direction, since agents are able to offer their own individual assistance and "insider experience" which is helpful to complete a task or change project (Gibson, 2012). Although speculative, the difference between the perspectives in our study may relate to safety professionals underrating their experience or ability to provide assistance with change processes.

There was also a difference between safety professionals and managers on the use and efficacy of personal appeals in upward influence. For managers, personal appeals were negatively and significantly associated with safety professionals' influencing effectiveness. Although not reaching statistical significance, safety professionals viewed the use of personal appeals more positively. A possible explanation for the less favorable managerial perspective is that personal appeals are considered more effective with peers or subordinates (Falbe & Yukl, 1992; Gibson & Chavez, 2017) due to managers being more concerned with issues of equity and favoritism when this tactic is used in an upward direction (Yukl, 2013).

Understanding the relative effectiveness of different influence tactics may be useful in guiding safety professionals to select or avoid certain influence tactics to achieve safety objectives. However, as many researchers have suggested the use of effective influence tactics does not always guarantee desirable outcomes, with situational factors playing an important role (Sparrowe et al., 2006; Yukl, 2013; Madigan et al., 2020). To this end, we explored a range of factors that have been posited in existing literature to either help or hinder safety professionals' ability to be strategically influential. The managers in our study rated certain individual characteristics of the safety professional (i.e., knowledge, understanding organizational context, interpersonal skills, and work experience) as the most critical for strategic influence. Given that the knowledge or rational approach is the dominant influence strategy in safety (Hasle & Sørensen, 2011; Olsen, 2012; Bunner et al., 2019), it follows that managers may consider that safety knowledge, work experience, and understanding organizational context enable this influence strategy, since rational persuasion involves presenting strong logical arguments and factual evidence.

While technical skills such as knowledge and experience were viewed as enablers, a non-technical skill (i.e., interpersonal skills) was also perceived to promote influence. This finding supports existing literature that suggests interpersonal skills are as critical to the role of the safety professional as are technical skills (Swuste & Arnoldy, 2003; Chang et al., 2012; Guennoc et al., 2019). Further, the International Network of Safety and Health Practitioner Organizations (INSHPO) has recognized their importance by embedding interpersonal skills (e.g., verbal communication into the "The OHS

Professional Capability Framework: A Global Framework for Practice" (INSHPO, 2017).

Alternatively, the four factors that were perceived by managers to most negatively impact safety professionals' ability to influence were organizational culture, the safety beliefs of managers, the leadership styles of managers, and the interpersonal skills of safety professionals (Table 6). Managers reported that organizational culture was the factor that most hindered the influence of safety professionals. A broad description of organizational culture is the "way we do things around here" (Bower, 1966), but more specifically, culture is the sum of shared assumptions, values, and beliefs learned by a group (Schein, 2010). Our findings strongly support the general view that safety professionals who work in organizations where safety is not valued or prioritized are perceived to have less opportunities to influence safety management (INSHPO, 2017; Madigan et al., 2020). The safety beliefs of managers, a concept related to organizational culture (Borys, 2019), were reported as a key barrier to enact influence. Andrei et al. (2015), in a large study in the mining industry, identified that negative beliefs toward safety procedures and safety professionals were found to decrease safety compliance and participation (Andrei et al., 2015). Tappura et al. (2017) found that managers with negative attitudes toward safety resisted new safety measures thereby making it more challenging to exert influence.

Similarly, leadership styles have been linked to influence behavior and outcomes (Cable & Judge, 2003; Walumbwa et al., 2008; Epitropaki & Martin, 2012), with our study suggesting that certain leadership styles of managers were viewed as an impediment to influence. Social science research suggests that agents use different influence strategies based on the leadership style of the target (Cable & Judge, 2003; Walumbwa, et al., 2008; Epitropaki & Martin, 2012). For example, in situations where the leadership style does not encourage participation in decision-making (e.g., authoritarian or command and control styles), agents often resort to employing harder influence tactics, which are less effective and have the potential of jeopardizing the relationship with the manager (Epitropaki & Martin, 2012; Cable & Judge, 2003). In these circumstances, agents may choose to become less engaged and suppress active influence attempts (Krone, 1992; Yukl, 2013), impacting their ability to influence.

An important finding of our study is the similar views of managers and safety professionals on the factors that enable influence. Both groups ranked knowledge, interpersonal skills, work experience, and understanding organizational context as the most critical factors that promote upward influence of safety professionals. However, when comparing the responses for both groups on the obstacles to influence more differences emerged. Although both groups identified that organizational culture, the safety beliefs of managers, and the leadership styles of managers hindered influence the most, our results showed interesting differences between the two groups on other barriers. For example, safety professionals reported safety maturity of organizations as a key barrier, whereas the managers perceived this as less important. The explanation for this difference may relate to safety professionals having a greater depth of understanding of the concept of safety maturity (i.e., pathological, reactive, calculative, proactive, and generative (Hudson, 2001) and its' relationship with organizational culture. A further difference was that managers rated certain characteristics of the safety professional (i.e., interpersonal skills, knowledge, and understanding of organizational context) as more of an impediment to influence. Of interest is that safety professionals rated these factors as less important, a finding potentially explained by fundamental attribution error (which is the tendency of individuals to attribute failures to situational or external factors, and successes to internal factors such as their own competence (Ross, 1977; DeJoy; 1994).

4.1. Potential limitations and future research

While the well-validated IBQ-G utilized in our study describes observable influence behavior, it does not capture the perceptual and motivational processes that would explain how different tactics influence the attitudes and behavior of the managers. This could be a question for future research. In addition, single source measures are commonly identified as a potential source of common-method variance (CMV) (Podsakoff et al., 2003). Our study attempted to address some of these criticisms by utilizing several of Podsakoff et al.'s methodological controls to minimize CMV, including: the use of different response formats to measure the independent and dependent variables; positioning of the independent and dependent variables in separate sections of the survey; and ensuring anonymity of the respondents. In addition, we found tolerance levels greater than 0.01 suggesting an absence of multi-collinearity (Tabachnick & Fidell, 2013), and correlations in the wide range of 0.01–0.67. Further, by comparing the findings of the managers' survey with previous data collected from safety professionals themselves, we did not rely on single-source measures alone. Recall bias may be a potential limitation, since participants chose responses based on how often they had observed (managers) or used (safety professionals) tactics during the past 12 months. While just under half of the manager sample worked in Australia and the remainder worked in the United Kingdom, the safety professionals worked predominantly in Australia. While cross-cultural differences may impact influence behaviors (Yukl, 2013), this likelihood is reduced in our study due to the cultural similarities between the United Kingdom and Australia (i.e., low power distance, individualism, gender egalitarianism). Further, both have an ideology of neoliberalism and utilize a Robens style of occupational health and safety legislation (Johnstone & Tooma, 2012).

Our study focused on upward influence attempts with managers, so care should be taken when generalizing to other populations or targets of influence. Future research could explore other directions of influence (i.e., downwards (e.g., workers) and lateral (e.g., peers)), since different approaches and tactics may be more effective with different groups, and safety professionals should adapt their influencing behaviors depending on the target of influence. Finally, research could explore the relationships between a safety professional's formal reporting line in an organization and proximity to senior managers and their strategic influence. Qualitative methods could explore, in-depth, the association between positional power (i.e., position in the organizational hierarchy and the ability to influence).

5. Conclusions

To our knowledge this is the first published study that has explored specific upward influence tactics (i.e., use and effectiveness) employed by safety professionals, from the perspective of managers. In addition, we identified those factors that were viewed as either enablers or barriers to safety professionals being strategically influential. An interesting outcome of our study was that managers and safety professionals agreed on many of these concepts. Specifically, rational persuasion was found to be the most effective of the 11 proactive tactics, while legitimating was identified as one of the least effective. Certain individual characteristics of safety professionals were rated by both groups to enable influence, including: knowledge, experience, understanding organizational context, and interpersonal skills. Barriers to influence common to both groups included organizational culture, safety beliefs, and leadership styles of managers. However, there were differences on the factors that may hinder influence that related

to the characteristics of the safety professional (i.e., interpersonal skills, knowledge, and understanding of organizational context). Managers rated these factors substantially higher than safety professionals. Our study provides important contributions to the understanding of influence behavior of safety professionals and the practical implications for safety practice that may be applied to other disciplines.

5.1. Practical applications

This research highlights three key practical applications for safety professionals to consider when attempting to influence managers within organizations.

1. **Tactic Choice:** The type of influence tactic used has the potential to make a difference to influence outcomes. In this study on upward influencing, managers perceived rational persuasion to be the most effective, while personal appeals and legitimating were the least effective. By reflecting on the relative effectiveness of certain influence tactics, safety professionals can navigate between a range of influence tactics depending on the situation.
2. **Enabling influence:** Managers and safety professionals agreed that knowledge, interpersonal skills, experience, and understanding organizational context were the factors that most enabled strategic influence. Developing these technical and non-technical knowledge and skills may promote organizational influence.
3. **Barriers to influence:** Safety professionals should pay attention to situational factors when they decide to use certain influence behaviors. Our study indicates that prior to upward influencing, safety professionals should particularly consider the leadership style and safety beliefs of the manager that they are attempting to influence. Being sensitive to these characteristics, as well as organizational cultural influences on safety, may also improve influencing outcomes.

Declaration of interest

The first, third and fourth authors are employed by The University of Queensland, School of Earth and Environmental Sciences.

The second author is employed by The University of Queensland, School of Psychology.

Acknowledgements

The University of Queensland, School of Earth and Environmental Sciences are acknowledged for their support of this research.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211.

Andrei, D., Griffin, M., Cham, B., Opacic, J., Diaz, R. & Pacheco, P. (2015). The role of safety beliefs in influencing safety outcomes in the mining sector in South American countries. Retrieved from: <https://www.im4dc.org/wp-content/uploads/2015/07/Safety-beliefs-FR-1psum-appr.pdf>.

Antonsen, S. (2009). Safety culture and the issue of power. *Safety Science*, 47(2), 183–191. <https://doi.org/10.1016/j.ssci.2008.02.004>.

Atwater, L., & Yammarino, F. (1997). Self–other rating agreement. In G. R. Ferris (Ed.), *Research in personnel and human resources management* (pp. 121–174). JAI Press.

Barbuto, J., Fritz, S., Matkin, G., & Marx, D. (2007). Effects of gender, education, and age upon leaders' use of influence tactics and full range leadership behaviors. *Sex Roles*, 56(1), 71–83. <https://doi.org/10.1007/s11199-006-9152-6>.

Blickle, G. (2003). Convergence of agents' and targets' reports on Intraorganizational Influence attempts. *European Journal of Psychological Assessment*, 19(1), 40–53. <https://doi.org/10.1027//1015-5759.19.1.40>.

Bofinger, C., Hayes, J., Bearman, C., & Viner, D. (2015). *OHS risk and decision-making. The core body of knowledge for OHS generalists*. Tullamarine, VIC: Safety Institute of Australia.

Borys, D. (2014). *The value proposition for the health and safety professional*. Retrieved from: https://inshpo.org/docs/INSHPO_OSH_prof_lit_review_online_0914.pdf.

Borys, D. (2019). Organisational culture: A search for meaning. In *the core body of knowledge for generalist OHS professionals*. Tullamarine, VIC: Australian Institute of Health and Safety.

Bower, M. (1966). *The will to manage: Corporate success through programmed management*. New York: McGraw-Hill.

Bunner, J., Prem, R., & Korunka, C. (2019). How do safety engineers improve their job performance? The roles of influence tactics, expert power, and management support. *Employee Relations: The International Journal*, 42(2), 381–397. <https://doi.org/10.1108/ER-04-2018-0120>.

Burstyn, I., Jonasi, L., & Wild, T. C. (2010). Obtaining compliance with occupational health and safety regulations: A multilevel study using self-determination theory. *International Journal of Environmental Health Research*, 20(4), 271–287. <https://doi.org/10.1080/09603121003663461>.

Cable, D. M., & Judge, T. A. (2003). Managers' upward influence tactic strategies: The role of manager personality and supervisor leadership style. *Journal of Organizational Behavior*, 24(2), 197–214. <https://doi.org/10.1002/job.183>.

Carrillo, R. A. (2010). Positive safety culture: How to create, lead and maintain. *Professional Safety*, 55(5), 47–54.

Chang, S., Chen, D., & Wu, T. (2012). Developing a competency model for safety professionals: Correlations between competency and safety functions. *Journal of Safety Research*, 43(5–6), 339–350. <https://doi.org/10.1016/j.jsr.2012.10.009>.

Clarke, N., Alshenaf, N., & Garavan, T. (2019). Upward influence tactics and their effects on job performance ratings and flexible working arrangements: The mediating roles of mutual recognition respect and mutual appraisal respect. *Human Resource Management*, 58(4), 397–416. <https://doi.org/10.1002/hrm.21967>.

Clarke, S., & Ward, K. (2006). The role of leader influence tactics and safety climate in engaging employees' safety participation. *Risk Analysis*, 26(5), 1175–1185. <https://doi.org/10.1111/j.1539-6924.2006.00824.x>.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. (2003). *Applied multiple regression/correlation for the behavioral sciences*. Mahwah, New Jersey: Lawrence Erlbaum Associates.

Conchie, S. M., & Burns, C. (2009). Improving occupational safety: Using a trusted information source to communicate about risk. *Journal of Risk Research*, 12(1), 13–25. <https://doi.org/10.1080/13669870802433749>.

Daudigeos, T. (2013). In their profession's service: How staff professionals exert influence in their organization. *Journal of Management Studies*, 50(5), 722–749. <https://doi.org/10.1111/joms.12021>.

Deci, E., & Ryan, R. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.

DeJoy, D. (1994). Managing safety in the workplace: An attribution theory analysis and model. *Journal of Safety Research*, 25(1), 3–17. [https://doi.org/10.1016/0022-4375\(94\)90003-5](https://doi.org/10.1016/0022-4375(94)90003-5).

DeJoy, D. M., Della, L. J., Vandenberg, R. J., & Wilson, M. G. (2010). Making work safer: Testing a model of social exchange and safety management. *Journal of Safety Research*, 41(2), 163–171. <https://doi.org/10.1016/j.jsr.2010.02.001>.

Dekker, S. W. A. (2017). *The Safety Anarchist: Relying on human expertise and innovation, reducing bureaucracy and compliance* (1st ed.). New York: Routledge.

Dekker, S. W. A. (2014). The bureaucratization of safety. *Safety Science*, 70(C), 348–357. <https://doi.org/10.1016/j.ssci.2014.07.015>.

Dekker, S. W. A., & Nyce, J. M. (2014). There is safety in power, or power in safety. *Safety Science*, 67, 44–49. <https://doi.org/10.1016/j.ssci.2013.10.013>.

Dekker, Sidney W.A., & Tooma, Michael. (2021). A capacity index to replace flawed incident-based metrics for worker safety. *International Labour Review*, International labour review. 2021-05-17.

DeVellis, R. F. (2012). *Scale development: theory and applications (3rd ed.)*. Thousand Oaks, California: SAGE.

Dinh, J. E., Lord, R. G., Gardner, W. L., Meuser, J. D., Liden, R. C., & Hu, J. (2014). Leadership theory and research in the new millennium: Current theoretical trends and changing perspectives. *The Leadership Quarterly*, 25(1), 36–62.

Epitropaki, O., & Martin, R. (2012). Transformational–transactional leadership and upward influence: The role of relative leader–member exchanges and perceived organizational support. *The Leadership Quarterly*. <https://doi.org/10.1016/j.leaqua.2012.11.007>.

Falbe, C. M., & Yukl, G. (1992). Consequences for managers of using single influence tactics and combinations of tactics. *Academy of Management Journal*, 35(3), 638–652. <https://doi.org/10.2307/256490>.

Fiske, S. T., & Taylor, S. E. (1991). *Social cognition* (2nd ed.). New York: McGraw-Hill.

Fleener, J. W., Smither, J. W., Atwater, L. E., Braddy, P. W., & Sturm, R. E. (2010). Self–other rating agreement in leadership: A review. *The Leadership Quarterly*, 21(6), 1005–1034. <https://doi.org/10.1016/j.leaqua.2010.10.006>.

Fornell, C., & Larcker, D. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39.

Foste, E. A., & Botero, I. C. (2012). Personal reputation: Effects of upward communication on impressions about new employees. *Management Communication Quarterly*, 26(1), 48–73. <https://doi.org/10.1177/0893318911411039>.

- Fruhen, L. S., Mearns, K. J., Flin, R., & Kirwan, B. (2014). Skills, knowledge and senior managers' demonstrations of safety commitment. *Safety Science*, 69, 29–36. <https://doi.org/10.1016/j.ssci.2013.08.024>.
- Furst, S. A., & Cable, D. M. (2008). Employee resistance to organizational change: Managerial influence tactics and leader–member exchange. *Journal of Applied Psychology*, 93(2), 453–462. <https://doi.org/10.1037/0021-9010.93.2.453>.
- Gattiker, T., & Carter, C. (2010). Understanding project champions' ability to gain intra-organizational commitment for environmental projects. *Journal of Operations Management*, 28(1), 72. <https://doi.org/10.1016/j.jom.2009.09.001>.
- Geertshuis, S. A., Cooper-Thomas, H. D., & Price, M. (2013). Appraisals of self and situation as determinants of upward influencing tactics. *Journal of Applied Social Psychology*, 43(8), 1563–1577. <https://doi.org/10.1111/jasp.12106>.
- Gibson, L. (2012). *An experimental investigation of collaboration and apprising on target commitment in upward influence attempts*. New Mexico State University.
- Gibson, L., & Chavez, C. (2017). Learning how to influence others: A training module and experiential exercise. *Organization Management Journal*, 14(2), 57–75.
- Goleman, D., Boyatzis, R., & McKee, A. (2004). *Primal leadership: Learning to lead with emotional intelligence*. Boston: Harvard Business School Press.
- Guennoc, F., Chauvin, C., & Le Coze, J. (2019). The activities of occupational health and safety specialists in a high-risk industry. *Safety Science*, 112, 71–80. <https://doi.org/10.1016/j.ssci.2018.10.004>.
- Hale, A., Borys, D., & Adams, M. (2015). Safety regulation: The lessons of workplace safety rule management for managing the regulatory burden. *Safety Science*, 71, 112–122. <https://doi.org/10.1016/j.ssci.2013.11.012>.
- Hale, A. (1995). Occupational health and safety professionals and management: Identity, marriage, servitude or supervision? *Safety Science*, 20(2–3), 233–245. [https://doi.org/10.1016/0925-7535\(95\)00026-D](https://doi.org/10.1016/0925-7535(95)00026-D).
- Hale, A., Guldenmund, F., van Loenhout, P., & Oh, J. (2010). Evaluating safety management and culture interventions to improve safety: Effective intervention strategies. *Safety Science*, 48(8), 1026–1035. <https://doi.org/10.1016/j.ssci.2009.05.006>.
- Hale, A., & Swuste, P. (1998). Safety rules: Procedural freedom or action constraint? *Safety Science*, 29(3), 163–177. [https://doi.org/10.1016/S0925-7535\(98\)00020-4](https://doi.org/10.1016/S0925-7535(98)00020-4).
- Hasle, P., & Sørensen, O. (2011). When health and safety interventions meet real-life challenges. *Policy and Practice in Health and Safety*, 9(1), 3–16. <https://doi.org/10.1080/14774003.2011.11667753>.
- Higgins, C. A., Judge, T. A., & Ferris, G. R. (2003). Influence tactics and work outcomes: A meta-analysis. *Journal of Organizational Behavior*, 24(1), 89–106. <https://doi.org/10.1002/job.181>.
- Hudson, P. (2001). Safety management and safety culture: The long, hard and winding road. In W. Pearse, C. Gallagher & L. Bluff (Eds.), *Occupational health & safety management systems: Proceedings of the first national conference* (pp.3-32), Melbourne, VIC:WorkCover NSW.
- Johnstone, R., & Tooma, M. (2012). *Work health and safety regulation in Australia: The Model Act*. Annandale, N.S.W: Federation Press.
- International Network of Safety and Health Practitioner Organisations (2017). The occupational health and safety professional capability framework: A global framework for practice. International Network of Safety and Health Practitioner Organisations. Park Ridge, IL, USA.
- Kim, T., & Gausdal, A. (2020). Leaders' influence tactics for safety: An exploratory study in the maritime context. *Safety*, 6, 8. <https://doi.org/10.3390/safety6010008>.
- Kipnis, D., Schmidt, S. M., & Wilkinson, I. (1980). Intraorganizational influence tactics: Explorations in getting one's way. *Journal of Applied Psychology*, 65(4), 440–452. <https://doi.org/10.1037/0021-9010.65.4.440>.
- Klimoski, R., & Donohue, L. (2001). *Person perception in organizations: An overview of the field*. In M. London (Ed.), *How people evaluate other in organizations* (pp. 5–43). New York: Lawrence Erlbaum Associates.
- Krone, K. J. (1992). A comparison of organizational, structural, and relationship effects on subordinates' upward influence choices. *Communication Quarterly*, 40(1), 1–15. <https://doi.org/10.1080/01463379209369816>.
- Lee, S., Han, S., Cheong, M., Kim, S. L., & Yun, S. (2017). How do I get my way? A meta-analytic review of research on influence tactics. *The Leadership Quarterly*, 28(1), 210–228. <https://doi.org/10.1016/j.leaqua.2016.11.001>.
- Madigan, C., Way, K., Capra, M., & Johnstone, K. (2020). Influencing organizational decision-makers – What influence tactics are OHS professionals using? *Safety Science*, 121, 496–506. <https://doi.org/10.1016/j.ssci.2019.09.028>.
- Madigan, C., Johnstone, K., Way, K., & Capra, M. (2021). How do safety professionals' influence managers within organizations? – A critical incident approach. *Safety Science*, 144, Safety science, 2021-12, Vol.144.
- Mayer, R., Davis, J., & Schoorman, F. (1995). An integrative model of organizational trust. *The Academy of Management Review*, 20(3), 709. <https://doi.org/10.2307/258792>.
- Mearns, K. J., & Reader, T. (2008). Organizational support and safety outcomes: An un-investigated relationship? *Safety Science*, 46(3), 388–397. <https://doi.org/10.1016/j.ssci.2007.05.002>.
- Olsen, K. (2012). Occupational health and safety professionals strategies to improve working environment and their self-assessed impact. *Work*, 41(Suppl 1), 2625–2632. <https://doi.org/10.3233/WOR-2012-0506-2625>.
- Palan, S., & Schitter, C. (2018). Prolific.ac - A subject pool for online experiments. *Journal of behavioral and experimental finance*, 17, 22–27. <https://doi.org/10.1016/j.jbef.2017.12.004>.
- Peer, E., Brandimarte, L., Samat, S., & Acquisti, A. (2017). Beyond the Turk: Alternative platforms for crowdsourcing behavioral research. *Journal of Experimental Social Psychology*, 70, 153–163. <https://doi.org/10.1016/j.jesp.2017.01.006>.
- Peters, R. G., Covelto, V. T., & McCallum, D. B. (1997). The determinants of trust and credibility in environmental risk communication: An empirical study. *Risk Analysis*, 17(1), 43–54. <https://doi.org/10.1111/j.1539-6924.1997.tb00842.x>.
- Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management*, 12(4), 531–544. <https://doi.org/10.1177/014920638601200408>.
- Podsakoff, P., Mackenzie, S., Lee, J., Podsakoff, N., & Zedeck, S. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903.
- Provan, D. J., Dekker, S. W. A., & Rae, A. J. (2017). Bureaucracy, influence and beliefs: A literature review of the factors shaping the role of a safety professional. *Safety Science*, 98, 98–112. <https://doi.org/10.1016/j.ssci.2017.06.006>.
- Provan, D., Dekker, S., & Rae, A. (2018). Benefactor or burden: Exploring the professional identity of safety professionals. *Journal of Safety Research*, 66, 21–32.
- Pryor, P. (2014). *Towards an understanding of the strategic influence of the OHS professional*. Federation University.
- Pryor, P. (2010). OHS Professionals: Are personal and professional characteristics linked to strategic influence? *Journal of Health, Safety, and Environment*, 26(1), 21–33.
- Pryor, P., Hale, A., & Hudson, D. (2019). Development of a global framework for OHS professional practice. *Safety Science*, 117, 404–416. <https://doi.org/10.1016/j.ssci.2019.04.033>.
- Rao, A., Schmidt, S., & Murray, L. (1995). Upward impression management: Goals, influence strategies, and consequences. *Human Relations*, 48(2), 147–167.
- Reiman, T., & Pietikäinen, E. (2014). *The role of safety professionals in organizations – developing and testing a framework of competing safety management principles*. Honolulu, Hawaii: Probabilistic Safety Assessment and Management PSAM.
- Ross, L. (1977). The intuitive psychologist and his shortcomings: Distortions in the attribution process. *Advances in Experimental Social Psychology*, 10, 173–220.
- Schein, E. (2010). *Organizational culture and leadership* (4th ed.). San Francisco: Jossey-Bass.
- Schilt, W., & Locke, A. (1982). A study of upward influence in organizations. *Administrative science quarterly*, 27(2), 304–316. <https://doi.org/10.2307/2392305>.
- Sparrowe, R., Soetjito, B., & Kraimer, M. (2006). Do leaders' influence tactics relate to members' helping behavior? It depends on the quality of the relationship. *Academy of Management Journal*, 49(6), 1194–1208. <https://doi.org/10.5465/AMJ.2006.23478645>.
- Stalnaker, K. (1999). How's your credibility? *Professional Safety*, 44(8), 18–19.
- Steenma, H. (2003). Bases of power, procedural justice and outcomes or mergers: The push and pull factors of influence tactics. *Journal of Collective Negotiations in the Public Sector*, 30(2), 113–134.
- Swuste, P., & Arnoldy, F. (2003). The safety adviser/manager as agent of organisational change: A new challenge to expert training. *Safety Science*, 41(1), 15–27. [https://doi.org/10.1016/S0925-7535\(01\)00050-9](https://doi.org/10.1016/S0925-7535(01)00050-9).
- Tabachnick, B., & Fidell, L. (2013). *Using multivariate statistics* (6th ed.). Boston: Pearson Education.
- Tappura, S., Nenonen, N., & Kivistö-Rahnasto, J. (2017). Managers' viewpoint on factors influencing their commitment to safety: An empirical investigation in five Finnish industrial organisations. *Safety Science*, 96, 52–61. <https://doi.org/10.1016/j.ssci.2017.03.007>.
- Theberge, N., & Neumann, W. P. (2010). Doing 'organizational work': Expanding the conception of professional practice in ergonomics. *Applied Ergonomics*, 42(1), 76–84. <https://doi.org/10.1016/j.apergo.2010.05.002>.
- Walumbwa, F. O., Avolio, B. J., & Zhu, W. (2008). How transformational leadership weaves its influence on individual job performance: The role of identification and efficacy beliefs. *Personnel Psychology*, 61(4), 793–825. <https://doi.org/10.1111/j.1744-6570.2008.00131.x>.
- Wybo, J. L., & Van Wassenhove, W. (2015). Preparing graduate students to be HSE professionals. *Safety Science*, 81, 25–34. <https://doi.org/10.1016/j.ssci.2015.04.006>.
- Xin, K., & Tsui, A. (1996). Different strokes for different folks? Influence tactics by Asian-American and Caucasian-American managers. *The Leadership Quarterly*, 7(1), 109–132.
- Yukl, G. (2013). *Leadership in organizations* (8th ed.). Harlow: Pearson.
- Yukl, G., & Falbe, C. M. (1990). Influence tactics and objectives in upward, downward, and lateral influence attempts. *Journal of Applied Psychology*, 75(2), 132–140. <https://doi.org/10.1037/0021-9010.75.2.132>.
- Yukl, G., Seifert, C. F., & Chavez, C. (2008). Validation of the extended influence behavior questionnaire. *The Leadership Quarterly*, 19(5), 609–621. <https://doi.org/10.1016/j.leaqua.2008.07.006>.
- Zohar, D. (2002). The effects of leadership dimensions, safety climate, and assigned priorities on minor injuries in work groups. *Journal of Organizational Behavior*, 23(1), 75–92.

Cassandra Madigan is a Senior Lecturer in the School of Earth and Environmental Sciences, at The University of Queensland. Cassie has over 30 years of OHS and Human Resources experience having worked in senior positions in large Government organisations. Currently undertaking a PhD, her areas of research include organisational influence, OHS professional practice, OHS graduate capabilities, and teaching and assessment practices.

Dr Kelly Johnstone is an occupational hygienist and occupational health and safety (OHS) generalist with a focus on the protection of worker health. She is a Senior Lecturer in the School of Earth and Environmental Sciences, at The University of Queensland. Kelly has over 20 years of experience in a range of industries, including education, energy, construction, transport, and agriculture. She plays an active role within both the Australian Institute of Health and Safety (AIHS) and the Australian Institute of Occupational Hygienists (AIOH). She is a Certified Chartered Generalist OHS Professional (AIHS) and Certified Occupational Hygienist (COH). Kelly's research interests are in applied projects in OHS management and occupational health hazards, including heat, noise, and hazardous chemicals.

Dr Kirsten Way is Senior Lecturer and Program Director of the Master of Organisational Psychology at The University of Queensland where she conducts research

on safety, the role of supervisors in conflict, psychosocial hazards, occupational stress, fatigue, injury management, and occupational health and wellbeing. Dr. Way is an Organisational Psychologist, Occupational Therapist, and Certified Professional Ergonomist. She has significant safety-related industry expertise having worked as the Director of a private consultancy and having held senior positions for Australian and UK OHS regulatory authorities. She has provided expertise to the Australian and UK Governments to assist in the development of numerous safety-related policy documents and legislative instruments.

Professor Mike Capra is an Emeritus professor of OHS at the University of Queensland. His major OHS interest has been in the potential harmful effects of chemicals in the workplace and he has worked with industry and state emergency services to minimise exposure to toxic chemicals. Prof Capra was a member of a group of academics and OHS professionals who developed the OHS Body of Knowledge in Australia, which is now used in the accreditation of University programs and the certification of OHS Professionals in Australia. He chaired the Australian OHS Education Accreditation Board for the first five years of its operation. He has also been involved in the consultancies and the development and delivery of OHS programs in Mozambique, Vietnam, Malaysia, Singapore, Fiji and Samoa.