Improving Young Workers' Safety Voice; A Three-Part Study
Exploring Safety Voice Interventions

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Abstract

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Abstract: Three studies (and a manipulation check) were conducted using mixed methods to examine an intervention to improve young workers' confidence and willingness to voice safety concerns at work. Study One involved semi-structured interviews with young people (N = 21) who personally experienced or witnessed an incident or near miss at work. These interviews (in addition to the literature) then guided the development of a four-step safety voice intervention (CARD). This intervention was tested in Study 2 and compared with a popular training tool currently used to teach young people their workplace Rights in an on-line questionnaire format (N=236). Only a univariate main effect was noted between the *CARD* safety voice intervention and young worker's confidence in voicing safety concerns (multivariate effects were not significant). In Study 3, CARD was compared with Safety Specific Transformational Leadership and a Job Requirement to Voice, after a manipulation check (N=137) to ensure the intervention was working as intended. Several significant three-way interactions were found in this final study (N=360). CARD was found to have a significant effect on young workers' confidence to voice safety concerns (i.e., lowered perceived risk to Job Security, and improved Probability of Success and perceptions of Safety Climate) compared to the control group, but only when Safety Specific Transformational Leadership and the Job Requirement to Voice were absent. Findings from this study may have organizational and public policy implications.

April 8, 2020

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Chapter 1

Overview

Imagine you are the co-pilot of a commercial passenger plane and you have been trained to identify and report safety concerns. For example, when instruments indicate that the wings or engines of your plane have ice build-ups that could jeopardize everyone's safety. Now read the transcript below from the cockpit of Air Florida Flight 90 leaving a Washington airport during a heavy snowstorm (in 1980). The initial numbers mentioned by the pilot are the airspeed [in knots] required for take-off:

> 15:59:51 (Pilot) Really cold here, real cold.
> 15:59:58 (Co-pilot) God, look at that thing. That don't seem right, does it? Ah, that's not right? [re: instruments indicating engine thrust needed for take-off]
> 16:00:09 (Pilot) Yes it is, there's eighty [airspeed].
> 16:00:10 (Co-pilot) Naw, I don't think that's right. Ah, maybe it is?
> 16:00:21 (Pilot) Hundred and twenty [airspeed].
> 16:00:23 (Co-pilot) I don't know?
> 16:00:39 (Sound of stickshaker starts and continues until impact; Indicating a stall condition – the plane is falling from the sky)
> 16:00:45 (Pilot) Forward, forward, easy. We only want five hundred (climb rate - feet per minute).
> 16:00:48 (Pilot) Come on forward....forward, just barely climb.
> 16:00:59 (Pilot) Stalling, we're falling!
> 16:01:00 (Co-pilot) Larry, we're going down, Larry....
> 16:01:01 (Pilot) I know it!
> 16:01:01 (Sound of impact)
> (National Transport Safety Board, 1982, p.105-133)

Despite years of training and experience, the co-pilot hesitated, questioned himself, was not assertive and did not demand an aborted flight; a choice that (along with other factors) doomed the flight to crash, causing the death of 78 people (passengers, crew and those on the ground) including the pilot and co-pilot. Although an extreme example, the Air Florida Flight 90 incident is a good example of how difficult it can be to voice safety concerns, even when trained, and even when lives (including one's own) depend on it.

The National Transport Safety Board reached the following conclusion regarding the actions of the co-pilot contributing to the crash above:

> "With regard to the first officer [co-pilot], while he clearly expressed his view that something was not right during the take-off roll, his comments were not assertive. Had he been more assertive in stating his opinion that the take-off should be rejected, the captain might have been prompted to take positive action" (National Transport Safety Board, 1982, p. 68).

For many years now, commercial airlines have recognized that voicing safety concerns is critical to safety outcomes. Most commercial pilots and co-pilots are now trained annually, as part of Crew Resource Management training, in *how* to voice safety concerns, as well as how to receive such concerns.

In contrast, no mandated training exists for employees in 'normal' organizations. Voicing health and safety concerns therefore is often perceived (accurately or inaccurately) as a risk to one's job security, career stability, and/or relationships with coworkers, supervisors and others (Ashford et al., 1998; Milliken et al., 2003; Roberts & O'Reilly, 1974). Consequently, many people are silenced by fear (Gephart, et al., 2009). The purpose of this multi-study research project is to investigate and test a safety voice intervention particularly in young workers[1]. The goal is to enhance young workers' confidence and willingness to voice safety concerns in normal (i.e., non-mission critical) organizations, and ultimately to reduce near-misses, injuries, and fatalities.

The International Labor Organization estimates that "Every day, [globally] 6,300 people die as a result of occupational accidents or work-related diseases – more than 2.3

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[1] Although age ranges vary, young workers are between 15 and 24 years of age and paid an hourly wage or salary in the formal labor market. Wage and salary, is differentiated from those employed in 'gig', piece work, or on-line contracts (e.g., completing surveys for remuneration) and/or crowdsourced work.

million deaths per year. 317 million accidents occur on the job annually" (ILO, 2017). According to the U.S. Occupational Safety and Health Administration (OSHA, 2017), on average there are 12 workplace fatalities per day in the United States (approx. 4380). For young workers, Miara, et al., (2003) report "200,000 workplace injuries to 14 to 17 year-olds every year [in the USA]" (p. 30).

In Canada, the Association of Workers' Compensation Boards of Canada (AWCBC, 2015), reports 852 workplace deaths per year. In addition to these fatalities, there were 232,629 (accepted) claims for lost time due to work-related injury or disease. The number of Canadians impacted is substantial; Statistics Canada (2018) reports approximately 57% of all young persons in Canada (2,450,200) were employed. With the AWCBC (2018) reporting 52,488 lost time claims for workers 15-24 years of age. It should be noted that AWCBC statistics do not include unreported and unaccepted claims.

Returning to the airline example, if voicing by commercial pilots is difficult despite all their experience and training in a safety conscious (i.e., high reliability) industry, imagine the difficulty for young workers in more 'normal organizations' who, lacking life and work experience, may feel powerless to voice safety problems (Tucker & Turner, 2013). Lacking training, some young workers may also confuse 'speaking up' *(i.e., voicing)* with "talking back" *(i.e., disrespect;* Workers' Compensation Board of Nova Scotia, 2012, italics added), or see voicing safety concerns as conveying dissent (Detert & Burris, 2007). Whether due to inability, lack of confidence, or other factors, an unwillingness to voice safety concerns is disconcerting especially with young workers who are at greater risk than older workers for experiencing workplace injuries (Breslin & Smith, 2005; Salminen, 2004). The need to reduce workplace injuries for youth is even

more important when we consider that such injuries will have longer-term negative consequences (Koehoorn, et al., 2008).

Given that health and safety interventions begin with voicing safety concerns, improving young workers' confidence and willingness to voice is likely an essential first step for improving their safety outcomes. The sheer magnitude of occupational injuries, diseases, and fatalities (e.g., in comparison to aviation industry injuries and deaths[2]) in normal organizations suggests there is room for improvement in teaching people to voice safety concerns. Teaching people that they have legal rights (in many jurisdictions at least; Gray, 2009) to know about risks on the job, to participate in safety at work, and to refuse unsafe work is important. However, research by Parker, et al. (2001) suggests that communication *quality* is also an important factor in designing safer workplaces. That is, not only do employees need to know their rights, they need to know *how* to voice their safety concerns. Due to a combination of unique risks and long-term consequences faced by young workers, they appear to be a particularly good starting point for exploring a safety voice training intervention.

Although we may never know the precise numbers of workplace fatalities, injuries and diseases that could be prevented by individuals voicing safety concerns, research does suggest that 'collective voice' (e.g., voice via union representation) can reduce such occurrences (Barling, et al., 2003; Crosby, 2016; Oka, 2015). Additionally, *information sharing/communication* is one of the ten top work practices Barling and Zacharatos (1999) argue leads to greater workplace safety. Other factors include

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[2] According to the Aviation Safety Network (ASN), 325 deaths could be attributed to global air travel in 2016, the second safest year on record, down from 560 in 2015.

transformational leadership, self-managing teams and decentralized decision making, employment security, high-quality jobs, reduced status distinctions, measurement of appropriate behaviours, compensation contingent on safety performance, selective hiring, and extensive training.

Most if not all safety training and awareness programs consider employees to be pivotal in improving safety or reducing hazards on the job. Tremendous effort is devoted to educating workers to know their rights, follow safety protocols, work in a safe manner, utilize checklists, recognize near misses, and/or voice safety concerns (Chin et al., 2010; Lavack et al., 2007; Workers' Compensation Board of Nova Scotia, 2012). However, it seems some well-intentioned training and awareness programs are based on certain assumptions; For example, that workers are equally capable of, confident in, and/or willing to voice safety concerns (Power & Baqee, 2010), and/or supervisors will behave as rational actors, otherwise receptive to employee voice. Consequently, an important part of improving workplace safety through communication would seem to be improving employees' confidence and willingness to voice safety concerns. Beyond training young workers, supervisors and managers could also be trained in being receptive to voiced safety concerns (although supervisor training was not the focus of this research initiative).

The focus of this research was on improving safety voice in young workers. In their review of the Canadian occupational safety high school curriculum, Chin et al. (2010) noted that "none of the programs address the social, economic, and pragmatic consequences that hinder a young worker's ability to [voice concerns]" (p. 578). While some Workers' Compensation Boards and Worker Safety Campaigns acknowledge

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underlying complexities for young workers voicing safety concerns to those in authority (e.g., supervisors, managers), rarely do such programs offer detailed suggestions to aid young workers in *how* to voice their concerns.

Safe Work Manitoba, a 'public agency dedicated to the prevention of workplace injury and illness' is one exception: Safe Work Manitoba (2011) published a resource manual that provided workers with "some tips for how you can use your voice to help protect your safety and the safety of others at your workplace" (Appendix A). In it, workers can read about 14 tips for speaking with managers as well as co-workers about their safety concerns. Developed in consultation with the Workers Compensation Board of Manitoba, the voice tip sheet appears to directly address a shortcoming in safety training and safety awareness programs (i.e., how to voice safety concerns).

However, telephone conversations with employees at Safe Work Manitoba and the Workers Compensation Board of Manitoba suggest that it is unclear whether the content of this voice tip information/resource was derived from or supported by evidence-based research. Further, the tips seem to be based on several assumptions: i) that individuals will be able to remember and recall one or all of the tips at the time of their safety concern; ii) that the tips will be appropriate/applicable regardless of industry, production pressures, job security (e.g., contract or permanent) and/or relationship (friendly or not) with their manager (i.e., context). Further, the voice tip sheet does not seem to provide guidance if, for example, young workers are in novel circumstances/contexts, lack confidence to voice, and/or face resistance (real or imagined) to voicing safety concerns. Although the ability to memorize a safety voice intervention could be enhanced through the use of an acronym or mnemonic device (e.g.,

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like the often-repeated fire safety mantra 'Stop, Drop, Roll' used for fire safety in North

America) - At a minimum, research to test the efficacy of such interventions would seem

to be essential (Shannon, et al., 1999). For such evidence may be critical in aiding young

workers in voicing safety concerns in the midst of novel or dynamic events, and/or with

less desirable worker/supervisor interactions (i.e., across contexts). In this research

project, an intervention for improving safety voice would be empirically developed and

tested across several studies, using different methods.

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Literature Review

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Voice and Safety Voice

According to Hirschman (1970), individuals working in an organization typically

prefer to engage in "change [voice] rather than escape from an objectionable state of

affairs" (p. 30)[3]. Researchers interested in safety have since modified Hirschman's

typology (Leck & Saunders, 1992; Tucker & Turner, 2013) and explored the notion of

'safety voice' (Hofmann & Morgeson, 1999; Hofmann, et al., 2003). Tucker, et al.

(2008) define *safety voice* as, "any individual communication directed at improving

safety conditions" (p. 319). Safety voice may also be understood as "a proactive

response that may reduce future injuries by alerting others who have the chance to change

or be heedful of dangerous work" (Tucker & Turner, 2014, p. 530).

Several factors are thought to enhance safety in the workplace such as,

participation in safety meetings, encouraging safe work practices and voicing of safety

concerns (Mullen, 2005). It is important to note, that while "[s]afety programs often rely

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[3] Acknowledging that certain forms of commitment may alter exit intentions (e.g.,
affective, normative, or continuance commitment; Allen & Meyer, 1996).

on workers' participation and willingness to identify safety concerns" (Mullen, 2005, p. 273; Montgomery & Kelloway, 2001), voicing of safety concerns is ultimately both discretionary and voluntary (Zohar, 1980; 2000). Therefore, determining what factors inhibit or enhance employees' willingness to voice safety concerns is a topic of interest (Tucker & Turner, 2014; Zohar, 2000).

Although voice has been defined as discretionary, upward-directed verbal behaviour by an individual for the benefit of an *organization* (Detert & Burris, 2007; italics added), this definition may be too restrictive. While voicing safety concerns to management can represent value for an organization - potentially impacting "social and economic costs, such as injuries [i.e., claims], poor employee morale, and lost productivity" (Mullen, 2005, p. 273) - upward voice can also protect those voicing their concerns and/or the safety of coworkers. In contrast, silence related to safety issues, or ignored employee voice may lead to exit from an organization (Bashshur & Oc, 2015), neglect (Farrell, 1983), or a continuance of unreported safety concerns (Kelloway, et al., 2006), injuries and/or fatalities.

Although voicing safety concerns may be the correct thing to do, with personal, team, and organizational benefits, many employees remain hesitant to voice safety concerns. *Contextual factors* and *implicit voice* theories are the primary explanations in the literature for why employees are unwilling to voice safety concerns in their workplaces (Detert & Edmondson, 2011); each theory would be discussed in turn.

Contextual Factors and Voice

Contextual factors theory assumes that various external (or contextual) factors inhibit or enhance an individual's willingness to voice, including: safety climate (Smith,

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et al., 2016), leadership style, leader's receptivity to ideas (Detert & Burris, 2007; Engemann & Scott, 2020), type of voice (i.e., challenging/prohibitive or supportive/promotive; Liang, et al., 2012), loyalty (to the leader and/or organization; Luchak, 2003), and employees' voice quality and voice strategy (Walumbwa & Schaubroeck, 2009; Whiting, 2012). For individuals contemplating voicing, contextual factors influence perceptions of the likelihood of success and the degree of risk involved (including risk to personal image; Mullen, 2005); All are important elements of a 'calculus of voice' (Ashford et al., 1998; Ashford & Barton, 2007; Klaas et al., 2012). This calculus becomes more troublesome if one considers that many individuals are motivated not by the chances of success, but by a fear of failure (Weiner, 1972). Employees (young and old), may feel they will be viewed as "troublemakers and can receive lower performance ratings from supervisors" (Bashshur & Oc, 2015, p. 1537) if they engage in voice, or they may receive punishment for challenging the objectives of managers (Seibert et al., 2001). For Bashshur & Oc (2015), given that voice directed at mangers can be risky, "subordinates will self-censor, vet, or *more carefully form their suggestions before actually voicing them* to their managers" (p. 1541; italics added). While some employees may have the skills and abilities to express their concerns more carefully, unfortunately, others may not. The contextual factors literature seems to assume that all individuals are equally adept at voicing concerns should they choose to do so. However, perceived success in voicing safety concerns may be an important consideration for young workers' in their assessment of contextual risk. This is an issue implicit voice theory confronts.

Implicit Voice Theory (Cognitive Scripts)

While acknowledging that contextual factors influence the likelihood of success and/or risk when voicing safety concerns, implicit voice theory also suggests that individuals possess implicit theories (or cognitive scripts) that shape (a priori) *perceptions* of contextual factors (Detert & Edmonston, 2011). Essentially, implicit voice theories are the stories individuals tell themselves about contextual factors (Chiu, et al., 1997); Stories for example, about the receptivity of their boss and/or the likelihood of being fired as a result of voicing safety concerns. Consequently, even in situations with a receptive manager, individuals may be "unwilling to raise safety issues with management partly because they were apprehensive about how their manager would react" (Mullen, 2004, p. 273; 2005).

According to Detert and Edmondson (2011), *cognitive scripts* are formed over time, immediately, and vicariously through family, schools, social networks (friends), previous work experience, exposure to media and attributions ascribed to 'successful' outcomes - scripts are learned. Consequently, it may be possible (although difficult) to interrupt or alter these scripts by, i) providing communication and assertiveness training specifically geared to improving safety voice, and ii) through recurring successful experiences over time.

Regardless of actual contextual factors, if employees perceive their chances of success to be low and/or the risk too great from voicing safety concerns, they will likely remain silent about impending and/or (re)occurring issues. For management, such silence may be difficult to differentiate from implied endorsement of current practices,

contextual factors inhibiting employees' voice, employees being unable to recognize safety issues due to insufficient training, or other factors (Knoll, et al., 2016).

Supporters of implicit voice theory acknowledge that people learn and develop implicit scripts from (un)successful trials and (un)desirable outcomes (i.e., objective contextual factors). Consequently, even if an employee was willing to challenge their implicit voice assumptions, contextual factors such as an unresponsive boss or vicarious lessons learned from others who have been punished or terminated for similar behaviour, can compel individuals to retain their scripts and behaviour. Thus, contextual factors must also be acknowledged: "For organizations interested in increasing the number of safety issues that are identified by employees, understanding that favourable contextual factors play an important role in increasing the likelihood that employees will raise safety issues is extremely valuable" (Mullen, 2005, p. 280).

Rather than competing theories, contextual factors and implicit voice theories appear to complement each other. Beyond merely arguing for individual differences in voice, recognizing that both theories are important can help refine training efforts to target both objective constraints (e.g., policies and procedures, leadership) while also rectifying the interpretations of contextual factors (e.g., via communication skills). We will now turn to ways this might be done.

How Individuals Voice Safety Concerns

Dyck and Starke (1999) previously acknowledged a need to train/teach voice skills. Given individuals' abilities vary across different physical and cognitive tasks, it seems unlikely that individuals would be equal in their adeptness to voice. Detert and Burris (2007) for example, suggest that "...employees at all levels are likely to need

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training in both the delivery and ... in communicating the rationale for (non)action in response to voice…". While top management's openness to voiced safety concerns can impact employees' willingness to voice (Mullen, 2005). Based on the communication literature, even if leaders/employers strive to create opportunities, conditions, and contexts for employees to voice concerns in the workplace, *how* people voice their concerns would still seem to be an important consideration (Ambady, et al., 2002; Fragale, 2006; Norton, 1978; Ridgeway, 1987; Tiedens, 2001).

In the conflict literature, *how* conflict is expressed is an important focus (Weingart, et al., 2015). Within the persuasion literature, *how* a message is conveyed can be as important as the content of the message (Petty & Cacioppo, 1986). Within the construct of 'issue selling', there is further impetus to examine *how* employees voice. Issue selling is defined as, "a voluntary, discretionary set of behaviours by which organizational members attempt to influence the organizational agenda by getting those above them to pay attention to issues of particular importance to them[selves]" (Dutton & Ashford, 1993, p. 23). If employees' confidence and willingness to voice safety concerns can be thought of as 'issue selling', we may want to explore how workers communicate (sell) safety concerns. A few researchers acknowledge the dearth of research examining how people voice (Chamberlin, et al., 2016; Morrison, 2011). Consequently, the development and delivery of a training intervention focused on *how* young workers voice safety concerns seems relevant and necessary.

The above being said, training young workers in how to voice their safety concerns does not guarantee young workers *will* voice their safety concerns. In keeping with Bandura's research (1993), knowledge in isolation may not determine if an

individual is willing to engage in a behaviour. That is, the link between knowledge/skills training and action (i.e., voicing of safety concerns) is not likely to be direct. For example, researchers have suggested that among individuals with comparable skills, individuals with higher levels of self-efficacy (or confidence) are more likely to engage in learned behaviours than individuals with lower levels of self-efficacy (Bouffard-Bouchard, 1990; Bouffard-Bouchard, et al., 1991). Self-efficacy is defined as the perceived ability to exert personal control over behaviours (Bandura, 1993; Maibach & Murphy, 1995), and is required for enacted behaviour (Vuori et al., 2012). If we are willing to accept that contextual factors can shape individual's learning, behaviour, and perhaps personality (e.g., learned helplessness; Seligman, 1972), it seems reasonable to assume that self-efficacy with regards to voicing safety concerns may also be improved or altered through training. Based on Crew Resource Management training and other similar training programs, employees introduced to methods for upward voicing of concerns are believed to be more likely to *apply* these skills in their workplaces. Thus, young worker confidence (i.e., their self-efficacy) with regards to voicing safety concerns may be improved with training, as well as with repetition and practice.

Crew Resource Management (CRM)

Training programs across high reliability sectors typically include some form of voice training (e.g., the military, civil aviation, and healthcare). Many of us who travel by commercial airlines are (perhaps unknowingly) beneficiaries of such training. As part of Transport Canada's regulatory requirements, commercial airlines (i.e., pilots, co-pilots, crew, and ground crew of major airlines) must receive annual government training/testing

in Crew Resource Management (CRM) skills, in an ongoing effort to reduce errors and accidents.

Crew Resource Management was co-developed in 1977 with American aviation psychologist John Lauber. Lauber (1984) defined CRM as "using all available sources — information, equipment and people — to achieve safe and efficient flight operations" (p. 20) (Cooper, et al., 1980). Although there does not appear to be a standard format, CRM training typically includes formalized methods for encouraging or enhancing voice (e.g., communication and assertiveness training). Aircrews are required to voice safety concerns to the pilot-in-command (e.g., of a plane) and taught how to do so; the pilot-in-command is trained to be receptive to this voicing (e.g., by co-pilots or other members of the crew) and to respond appropriately.

Crew Resource Management, or derivations of CRM, are also currently provided as part of radiation oncology training (Doss, et al., 2013); pharmaceutical education (Schwartz & Hobbs, 2014); broader medical education (Chan, et al., 2016); and ICU/surgery/trauma/resuscitation training (Haerkens, et al., 2012; Hughes, et al., 2014; Tapson, et al., 2011). In addition, offshore oil production (Rhona, 1995), as well as other 'mission critical' environments, sectors, or industries such as nuclear power plants include such training. Many of the organizations (sectors/industries) mentioned above are known as 'mission critical' or 'high reliability' organizations (HRO). According to Yip & Farmer (2000):

> "*High reliability* is based on the response to the question 'How many times could this operation [whatever you are doing] have failed with catastrophic results…? If the answer is 'repeatedly', the organization qualifies for membership in the 'high reliability' group. In other words, 'high reliability' is to successfully engage in high-risk endeavors and have a low incidence of adverse events" (p.258).

Organizations that do not fit within this definition might be considered 'normal' organizations. This is not to imply that normal organizations are without hazards, risks, and/or health and safety concerns. However, it is common to separate organizations in this manner in the literature. Voice training is much more common in HRO's because of obvious links to safety outcomes. One goal of this thesis however, is to see if similar mechanisms could be used to encourage voice in more 'normal' organizations (i.e., by training people *how* to voice).

Other Voice Training in the Literature

Crew Resource Management training is not the only training addressing how to voice in organizations. The 'Giving Voice to Values' program (GVV; Gentile, 2010; 2013) is premised on a belief that people can be taught how to voice concerns related to ethics and values in organizations, by providing individuals with the skills needed to voice (or act on) their values:

> "[GVV]…offers a framework and set of insights and tools that will…equip individual[s]… with the skills, the scripts, and the confidence to act on their most deeply held values in the workplace. The main idea behind GVV is the observation that a focus on awareness of ethical issues and on analysis of what the right thing to do may be is insufficient. Precious little time is spent on action-that is, *developing the 'scripts'* and implementation plans for responding to the commonly heard 'reasons and rationalizations' for questionable practices, and *actually practicing the delivery of those scripts*" (Gentile, 2010, p. v; *italics added*).

Paralleling the notion of a 'calculus of voice', GVV training assumes that most employees and managers *want* to voice their values, but individuals also want "a reasonable chance of doing so effectively and successfully…[the GVV] pedagogy and curriculum are about raising those odds" (GVV, 2016). Unfortunately, even though GVV has been considered a "successful initiative" (Gonzalez-Padron, et al., 2012), at this

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point in time, no empirical support for its efficacy was found; that is, no measurable changes in self-reported confidence and willingness to voice (or actual voicing incidents) seem to be reported in the literature.

The safety voice intervention being proposed begins with a similar assumption to the GVV program. Paraphrasing GVV, people (specifically young workers) want to work safely and work in a safe workplace, but individuals facing perceived and/or contextual barriers also want to feel they have a reasonable chance of positively influencing changes if they do voice, while also lowering any risk associated with voicing concerns before doing so. Consequently, issues around confidence (i.e., efficacy) in voicing are still important (e.g., Mullen, 2005).

Theoretical and Practical Contribution

Currently, safety training and awareness programs do encourage young workers to voice (Chin et al., 2010; Lavack et al., 2007). However, as previously noted, many of these programs (for normal organizations) do not explicitly train workers *how* to voice. Therefore, a theoretical contribution of this research is in using an evidence-based approach to develop and test a safety voice intervention to improve young workers' confidence and willingness to voice safety concerns in normal organizations. From a public policy perspective, comparing this safety voice intervention to other safety training initiatives (e.g., Rights training) is also important. Currently, 'Know your Rights' campaigns and training materials are provided and available to young persons in Canada (e.g., Canadian Centre for Occupational Health and Safety). However, as stated by Tucker (2010) "proponents of these kinds of approaches… [e.g., 'know your rights' campaigns] …claim positive results in reducing injuries…however, the programs have

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yet to be independently and systematically evaluated" (p. 5). Both a *Safety Voice* and a

Rights intervention will be tested in the studies that follow.

Chapter 2

Study 1: Development of a Safety Voice Intervention

To begin to develop a safety voice intervention for normal organizations, existing Crew Resource Management (CRM) and Ethics voice training programs were considered as a foundation. CRM training, although varied across programs, organizations, and sectors/industries, typically has four recurrent themes: i) Communication; ii) Assertiveness; iii) Leadership; and iv) Situational Awareness. Given that the safety voice intervention being developed is aimed at improving young workers' confidence and willingness to voice safety concerns the communication and assertiveness components from CRM seem most pertinent for current purposes (as opposed to Leadership and Situational Awareness that have more to do with factors outside an individual's control):

Communication Training

One component of CRM training is the 'Situation, Background, Assessment and Recommendation' (SBAR) communication method (Tews, et al., 2012), used in some hospitals and adapted from a similar CRM model used in the U.S. Navy; developed further by Michael Leonard and his colleagues at Kaiser Permanente (hospital) of Colorado (Pronk, 2008). Managers at Kaiser Permanente administered a safety attitudes questionnaire, which identified that nurse and physician perceptions of teamwork differed significantly. Nurses viewed the patient care process as much *less* collaborative than did physicians. Consequently, management at Kaiser Permanente believed there was a need to improve communication between health care providers (i.e., nurses and doctors) and subsequently used the SBAR communication training in their hospital. The detailed elements of SBAR communication training are:

"Situation: quick and to the point statement of the problem; provides a context of the issue; captures the attention.
Background: describes pertinent history; describes how we got to this point; draws a picture for the listener(s).
Assessment: provides a point of view of what you think is happening; describes your position based on the background provided; provides clarity of the issue for the listener(s); lists key questions; engages everyone.
Recommendation: what you want from others-what actions are you asking for?: contains time frames and deadlines; is also specific and clear"
(Haig, et al., 2006).

Unfortunately, SBAR training seems to assume that workers will not experience stress or strain when contemplating engaging in this communication or perhaps that workers are trained to cope with the stress when they do. In contrast, young workers (in normal organizations) will likely not have similar training to nurses or doctors. Consequently, there may be reason to suspect that anticipatory stress/strain (for those contemplating voicing concerns to a supervisor) or strain caused by experiencing a health and safety incident, may result in the need for an additional step in normal organizations (i.e., at least a *pause* before proceeding to the first step of SBAR).

Assertiveness Training

There are various forms of assertiveness training across CRM programs some of which use "critical language derived from a *CUS* model – that is, 'I am **C**oncerned', 'I feel **U**ncomfortable' and 'it is not **S**afe' (p.110). Chan et al.'s (2016) 5-Step Assertiveness training for example, is one model used in hospital settings (to improve patient safety). Their steps include:

1) Getting a person's attention
2) Expressing concern
3) Stating the problem
4) Proposing action
5) Reaching a decision

This assertiveness training seems to assume that others (i.e., coworkers and supervisors) are not aware of a situation, hence the need to '[get] a person's attention'. Although the first and last steps are perhaps less relevant for present purposes (also there are no instructions on exactly how to get people's attention) it is important to remember that the above 5-step assertiveness training is intended to improve *patient* safety/outcomes and reach medical decisions so some adaptation will be necessary for more typical organizations, particularly those employing young workers. This being said, steps 2-4 do seem relevant for present purposes.

Voicing Ethical Concerns

Chaleff (2015) proposed a four-step model for voicing ethical concerns. He has done extensive work on followership and is a consultant for NASA, Ernst & Young, U.S. Navy, Georgetown University and the University of Wisconsin. Chaleff's model focuses on individual cognitive processes (e.g., "experience the dissonance" and "buying time for higher order thinking to kick in") and for this reason, the model seems particularly applicable to individual workers contemplating voicing safety concerns in normal organizations (where coping with this type of stress would not normally be addressed):

1) Pause or 'Blink' (allow yourself time to register the request; experience the dissonance; slow down the action).
2) Process or 'Think' (buy time for higher order thinking to kick in; examine values and long term risk; ask questions; do not be bought off with promises that violations will be corrected later).
3) Engage leader with 'Choice' (help him/her see the costs and offer alternatives).
4) Resist or 'Voice' (if you cannot stop your leader - refuse to join him/her; accept the short-term consequences & appreciate the long-term consequences you most likely avoided).

While Chaleff's model seems compelling, again there is a lack of empirical support in the academic literature for the efficacy of this model.

Some degree of similarity or overlap can be found between these various models of voice (Haig, et al.'s Communications training, Chan et al.'s Assertiveness, and Chaleff's model), suggesting that a combination of models might best influence young workers' confidence and willingness to voice safety concerns. While each model could be tested separately, for present purposes a unique safety voice training intervention will be derived by combining these models. The following draft script (e.g., SQAC) was based on pertinent elements from each model, tailored to fit young workers in normal organizations:

Draft Safety Voice Intervention (abbreviated to S.Q.A.C.)

"Knowing _how_ you should voice safety concerns is important…
1) Stop: You are not a robot! You do not have to do unsafe work. Is it unsafe for you or others? Your health and life are at stake.
2) Question: Be intelligent! It's not stupid to ask questions about safety. Ask lots of questions (about the job, the dangers, need for training, proper procedures, etc.). What is the cost to you, others, and the company of an injury or fatality? (You may feel nervous asking such questions– that's ok).
3) Alternatives: Create alternatives! Help others imagine safer alternatives. Offer creative ideas for working safely and avoiding loss, injuries, or fatalities. Create a verbal picture of the total costs (to profit, career and life) of unsafe work practices for others.
4) Choice: Gut check time! If your safety concerns are not addressed, make a (potentially lifesaving) choice! Clearly state your objections/concerns; refuse to participate; and seek out support for your choice."

The 'SQAC' safety voice intervention above is intended to be a starting point based on the literature which will be refined through empirical examination. In Study One, young workers with experience in safety incidents will be interviewed to improve the model. In study two, the above SQAC safety voice intervention script would be used

to create and test a safety voice intervention (training) video. In study three, the intention was to test this safety voice intervention in a workplace simulation (i.e., using vignettes).

Interviews with Young Workers Who Witnessed or Experienced
a Health and Safety Incident or Near-Miss

Although the draft SQAC safety voice intervention was deductively derived from existing Crew Resource Management (i.e., communication and assertiveness) and Ethics voice training/programs in the literature, Study One involved a qualitative analysis of one-to-one, in-person, interviews with 21 young workers who had personally witnessed or experienced a workplace health and safety incident. The intention of these interviews was i) to better understand what these young workers thought about voicing safety concerns, and ii) to learn what they thought about the (draft, SQAC) safety voice intervention, so as to enhance and refine it.

To reiterate, the central aim of interviewing these young workers was not to inductively generate a new (grounded) theory, but to enhance and inform the draft SQAC safety voice intervention previously deductively derived from the literature. Therefore, it was not desirable to avoid prior evidence surrounding this topic, as this would not enable building on what others have already developed. However, the interviews did help ensure that the draft SQAC safety voice intervention was adequately comprehensive, and hopefully would be better received by participants in subsequent studies. The decision to conduct interviews with young workers proved to be invaluable and reshaped several aspects of the SQAC safety voice intervention.

Method

Participants

Study One involved semi-structured interviews with young workers who had personally witnessed or experienced at least one workplace health and safety incident or near miss (see Appendix C for interview questions).

Participants were employed in a variety of industries and settings including: an art gallery, construction, laboratory, recreation/pool, veterinary clinic, freight forwarding, with several participants working in retail or restaurants. Those who participated were between 18-25 years of age and were recruited through a variety of means, including: Kijiji (an on-line classified/advertisement website), hard copy posters on bulletin boards at three east coast Canadian universities, and email invitations to instructors at these universities (recruitment script in Appendix B).

All participant interviews were audio recorded as MP3 digital files, then these files were imported into Nvivo (a qualitative data analysis software) as an MP3 audio recording. Data extracts were coded directly from audio into themes.

After sending an email requesting more information about this study, potential participants were emailed an 'Informed Consent Form' to which they were to reply 'I agree' if they read and agreed to participate. Those who agreed were sent a follow up email arranging a specific time and location for the interview.

Interviews were conducted during weekdays, between 9 am to 5 pm, in a meeting room in the Business Department on the campus of one of the above universities. Remuneration was provided to each participant in the form of a twenty-dollar CDN$

restaurant gift certificate. Interviews lasted approximately 30 minutes and a debrief form (Appendix D) was provided to each participant at the conclusion of the interview.

Recruitment of participants ended when a theoretical/contrast saturation point was reached. Saturation was determined by following published research on how to determine a saturation point (Fusch & Ness, 2015; Mason, 2010), specifically when new themes were not being developed through further interviews. This resulted in 21 interviews.

Thematic Analysis

The qualitative approach chosen may best be described as a thematic analysis. Thematic analysis accepts that engagement with the literature not only informs the questions asked of participants but helps sensitize the researcher to more subtle aspects of the data (Maguire & Delahunt, 2017; Tuckett, 2005). As an example, during interviews, the researcher began to recognize how participant's implicit scripts (i.e., those imagined barriers to voicing concerns to supervisors) were being employed without evidence or experience to support these assumed barriers. If we accept that "researchers cannot free themselves of their theoretical and epistemological commitments, and data are not coded in an epistemological vacuum" (Braun & Clarke, 2006, p. 12), the theoretical position/epistemology employed will be that of essentialist or realist. That is, a predominantly straight forward relationship was assumed between experience, meaning and language (as verbally conveyed by participants). Following established norms (Frith & Gleeson, 2004; Patton, 1990), themes were identified at the semantic or explicit level (vs. latent), with data analysis progressing from coding to organizing into themes, then to interpretation. Given "[a] theme captures something important about the data in relation

to the research question and represents some level of patterned response or meaning within the data set" (Braun & Clarke, 2006, p. 10). Themes were generated through questions surrounding the broader research interest (i.e., how to improve young workers' confidence and willingness to voice safety concerns) - (see Appendix C for interview questions).

Participant responses were initially sorted by the questions asked. However, on many occasions participant's responses were more suited to inclusion in previous, subsequent, or indirectly related questions; not unusual given "themes are abstract (and often fuzzy) constructs the investigators identify before, during, and after analysis" (Ryan & Bernard, 2000, p. 780). Subsequent analysis involved grouping/sorting the data into more specific themes (i.e., issues of potential interest and patterns of meaning) that would inform the broader research topic. Some themes remained a straight-forward collection of participant responses (to questions), while others were created as a result of new or unique participant responses, with still more themes created during the interpretation phase.

When it comes to the actual coding process, one theme may contain data items from one or more participants. That is to say, themes could be populated by multiple coded comments by one participant or one coded comment by many participants. The relative importance or degree to which one theme was more crucial (e.g., mentioned more often) than another was not a central issue. Although it should be noted this interpretation/process is contested: "more debate needs to occur about how and why we might represent the prevalence of themes in the data, and, indeed, whether, if, and why prevalence is particularly important" (Braun & Clarke, 2006, p. 11). However,

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frequency/prevalence in thematic analysis may not be a reliable indicator of importance. This further illustrates a need for a subjective relativist approach as themes having a few or only one item (coded response) matched existing research variables (i.e., previously empirically identified in the literature as being significant). According to Braun & Clarke (2006, p. 13) a theme "may include, speak to, or expand on something approximating [a previous theorist's] original theme". Beyond quantitative and/or qualitative validation of existing findings, several themes were identified as potential new insights for future research[4].

Results

Study One had two goals: 1) to refine the pilot safety voice intervention based on the literature (i.e., S.Q.A.C.); and 2) to identify any themes or insights that may have been missed in the literature review by speaking to young people who had actually witnessed or been involved in a workplace incident or near miss. In the next section we will discuss the questions used to prompt discussion and the themes arising from each:

What prevented you from voicing?

Participants in Study One had to have experienced or witnessed a workplace health and safety incident. Consequently, those participants who reported not voicing their safety concerns before or after a safety incident, were asked 'What prevented you from voicing safety concerns'? The following themes resulted: Severity, some participants believed no voice was needed because the incident and/or subsequent injury

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[4] Other insights not directly related to the safety voice intervention being developed and tested may be found in the final/overall research discussion section.

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was 'minor', 'insignificant' and/or they 'did not want to waste the boss's time'; <u>Diffusion of responsibility</u> or bystander effect was another theme (e.g., 'there was a lot of people there'); In some cases, <u>self-interest</u> influenced voicing decisions; 'I was not at personal risk', 'they were not my friend', '[the victim] did not voice, so why should I'. There was also blatant <u>blaming of victims</u>; 'it was [the victim's] fault' (e.g., 'clumsy', 'lacked training', 'new on the job', 'they needed to be more careful'). Some claimed a lack of <u>age/maturity/experience</u> prevented them from voicing concerns (e.g., 'now I am older, I would voice' or 'I was just new on the job'). That severity, diffusion of responsibility, self-interest, blaming the victim, and/or age/immaturity/inexperience each influenced a young worker's voice behaviour has been established in the literature. Other factors inhibiting participant's voice were: a belief in the <u>omniscience of managers</u> (e.g., 'the boss already knows about …' and 'the boss is likely already doing something or has chosen not to…'); a <u>belief that safety regulations</u> would protect employees (e.g., 'there are high safety standards in Canada', 'they wouldn't have us working in unsafe workplaces/conditions'). Many of these themes echo findings from the literature.

Additional contextual themes were mentioned, such as <u>subcontracted coworkers</u>. Specifically, participants felt inhibited to voice safety concerns in instances where other persons/workers were not employees (i.e., were co-contractors) of a shared parent company (i.e., 'fissured workplace'; Weil, 2017). In such situations, participants reported feeling ambiguity surrounding who exactly should hear their voiced concerns. Perhaps somewhat related, other participants expressed <u>uncertainty as to the proper authority/recipient</u> to voice safety concerns as a factor inhibiting voice. Specific statements such as, '[I was] physically distant/remote from a manager' with '[I had] no

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immediate supervisor available to voice' and/or '[I was] unclear as to the chain of command'.

Other factors influencing participants' voicing decisions included <u>perceptions of futility</u> and <u>supervisor/manager receptivity</u>. Reasons given for perceptions of futility included: 'my boss lacked power to effect change', 'nothing [structurally] could change', 'my boss would not recognize the incident as a near-miss' or 'my boss would not share a similar view of the incident'. Given these responses came from participants who did *not* voice their safety concerns, we may speculate that implicit scripts (i.e., futility) remained an untested assumption for many participants. Perhaps related to perceptions of futility was <u>manager receptivity</u> to voiced safety concerns, as exemplified by: 'my boss would not be receptive to my [voiced] safety concerns'. Of participants who did not voice their safety concerns, <u>regret</u> was expressed, '[I wish] I had told the manager' and the issue of a '<u>lack of personal confidence</u>' was mentioned.

At a different point in the interviews, participants were asked to speculate about *factors inhibiting or enhancing their intentions to voice in the future*; Participants raised issues around: <u>Age differences</u> and <u>seniority differences</u> between managers and employees; the larger the differences, the less willing they would be to voice safety concerns. Participants also mentioned <u>coworkers as possible factors inhibiting or enhancing</u> their willingness to voice safety concerns. These included: whether there was '<u>co-worker support</u>', if 'co-workers were <u>experiencing similar safety concerns</u>' also 'how many employees felt the same way'. Also, 'fear of alienation from co-workers'; 'fear of not getting along with co-workers'; 'fear of not being liked by co-workers'; 'fear of losing [co-worker] friends'; 'fear of retribution/consequences from co-workers'; 'fear of

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stigma/humiliation from co-workers'; 'desire to avoid conflict with co-workers'; 'not wanting to create a rift with the victim'; 'appearing to be seen as *sucking up to the boss'*; 'fear of looking unknowledgeable or incapable'; and 'fear of being seen as over-reacting' all factored into whether they would voice. Perceived co-worker influences on young workers' voice behaviours also echo findings in the literature and require examination (i.e., fear of risks to personal relationships and personal image).

Several other factors were mentioned as possibly inhibiting or enhancing participants willingness to voice safety concerns, such as: safety culture (i.e., 'presence [or absence] of PPE' and/or 'if safety posters have been posted', and 'team meetings'); 'frequency of safety incidents/accidents'; and if reporting would 'trigger [excessive] paperwork'. Some participants believed (i.e., explicitly stated) that 'relative market demand' for their skills/services (i.e., the likelihood of being hired for a similar job if they lost their current job) would inhibit or enhance their willingness to voice safety concerns. This was exemplified by a participant's rhetorical question: 'would it be difficult to replace me?'. Participants also suggested that fellow employees 'not being treated well' or 'paid a very low wage' along with a fear of 'being fired' (including 'constructive dismissal'), 'wage cut[s]', and '[having your] shifts or breaks switched' as other factors that would dissuade them from voicing safety concerns; again supporting existing research in the literature and suggesting that threats to job security are also important in the calculus of voice.

How did you voice safety concerns?

From participants who *did* voice safety concerns, the following themes emerged; 'friends outside the company encouraged me to voice my concerns' and 'fear that I or

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others could get hurt' were cited as reasons for doing so. Specifically, they mentioned

steps to voicing: 'stated the problem and asked for accommodation [to do a different

job]'; 'asked for new safety gloves [gloves that were not worn out]', 'suggested a

different way of doing the job', and 'told the boss what happened and later, that I was not

happy with her response'.

Some participants recalled their co-workers voicing in the following manner: by

'describing the incident and consequences' (e.g., 'this is going to get someone hurt');

appealing for a change/solution (e.g., 'we need to do something about this'); and/or by

attempting to motivate or goad their manager (e.g., 'if you cared about us, you [would]

fix this issue so we don't get hurt'). In summary, participants who witnessed voice or did

voice themselves seemed to: i) describe the incident, ii) describe the consequences, and

iii) appeal for a change/solution

Describe the best way to voice

In addition to asking participants about their own past experiences voicing safety

concerns, all participants were asked: 'what is the best way to voice safety concerns?'[5]

Responses included: '[s]eek out or voice to a higher authority' and 'speak directly to the

manager'. Some participants also mentioned that it was very important to 'get the boss

alone', 'one-on-one', 'when they're not busy', ask their supervisor, 'do you have time to

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[5] Many participants seemed to interpret the question as 'what is the best order (or steps)
to voice safety concerns?' Alternatively, 'what are the best words/language to use?' This
resulted in some participants responding with what they believed are the right/correct
words to use, in no particular order, and other participants listing a specific order of steps.
Choices had to be made by the primary researcher, whether to select specific words that
were most common or the most often occurring order of steps. During subsequent
analysis, a choice was made to first look for common wording/language, regardless of
order, then to order these according to the most common sequencing of steps.

talk?' Then after being given time, '[to] be brief', 'be respectful of their time'. While

such consideration is commendable, such consideration may only be advisable in non-

emergency situations. Given that a safety voice intervention would need to be applicable

in most situations (including emergencies), waiting to voice only after determining if

there is an appropriate time to speak with a manager, may introduce an additional

variable (with doubt and/or complexity) into the calculus of voice for young workers.

Some other responses for the best method included: 'Gather peer support' or 'voice

together with other employees'. However, because the safety voice intervention being

developed and tested in this study assumes that at least one person (of a group) will speak

to a supervisor, manager or boss, collective or informal voice was not incorporated into

the script.

Consequently, six steps emerged from participant's responses above (illustrated

with direct quotes from some participants):

> 1) <u>Remain calm</u>: 'Remain calm and level headed', 'get your thoughts
> together', 'take a moment to collect your thoughts', 'calm down and think
> rationally', 'stop (put your tools down), perhaps do some other work while
> you wait to talk with your boss', 'think about what you have to say, write it
> down if you need to', 'it may be difficult to get your boss to understand if
> you are raving or not calm', 'get the right information'.
> 2) <u>Describe/explain/state the incident in detail</u>: 'State the details to the
> boss', '[provide a] very-clear and concise explanation of the situation', 'step
> by step', 'with facts', such as 'I have seen this happen'. '[Use] clear
> communication', 'don't let frustrations leak into what you're saying', 'don't
> attack the boss', 'don't be confrontational', 'but be confident'. 'Make the
> dangers known', Identify the incident as 'unsafe' or 'a safety concern', 'list
> why you feel it is a safety issue'.
> 3) <u>Explain possible consequences</u>: 'explain possible consequences', 'what
> are the implications or outcomes', such as 'this is going to get someone
> hurt', 'there could be fines.'
> 4) <u>Ask for things to change</u>: 'Things need to be fixed', 'we need to find a
> safer way' and 'how will you [the boss] change the situation'.

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5) <u>Offer alternatives</u>: 'Determine if there is a safer way to do things', '[offer to do another job you] feel more comfortable with'.
6) <u>Make a choice</u>: No participants explicitly mentioned *making a choice*, but many referred to 'finding another job' rather than continuing to be employed in an unsafe workplace; hence it appears that a choice was made by some even though not explicitly stated.

In sequence: Calm down, Describe the incident in detail, Explain possible future consequences, Ask for specific things to change, Offer alternatives, and Make a Choice.

Reactions to the Draft Safety Voice Intervention (i.e., SQAC)

In the final portion of the semi-structured interviews, participants were asked how they might improve the draft safety voice intervention (a hard copy version of SQAC was presented to participants), responses could be sorted into *likes*, *dislikes*, and *proposed improvements*:

Many <u>participants liked</u> the: 'step by step process [of the draft SQAC safety voice intervention]', that it 'guides people through voicing with clear steps'. Many liked that 'it [the safety voice intervention] was made into an acronym' (e.g., S.Q.A.C.[6]), and several felt that SQAC was 'in line with lifting techniques' and 'fire readiness training used on the job and in primary schools [such as] stop-drop-roll'. Participants also liked being reassured that 'you might feel nervous' when considering voicing safety concerns and that it 'gives time to think'.

In terms of <u>dislikes</u>, one participant conveyed pessimism as to the potential efficacy of the draft safety voice intervention stating, 'it's just words like - *we believe in quality*'; another worried that such training would just 'get lost in the mix of other training'.

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[6] SQAC: derived from **S**top, **Q**uestion, **A**lternatives, **C**hoice

The majority of <u>dislikes</u> of the SQAC safety voice intervention focused on critiquing specific steps as opposed to questioning the purpose or potential efficacy of the draft safety voice intervention. The critiques (paraphrased) have been grouped as follows:

> Having people first come up with an 'alternative' before they actually voice, may result in the person waiting to voice until they think of an alternative. If the aim of developing a safety voice intervention is to increase young worker's confidence and willingness to voice, any aspects of a safety voice intervention that is interpreted as undermining this goal may need to be omitted.

> 'Seek out support for your choice' was unclear to participants. Even though it could be seen as echoing 'gather peer support' (a collective or informal response) previously mentioned by participants and in the literature, others felt it could be viewed by managers as an attempt to 'set up conflict' between employees and a manager.

> Participants were also leery of 'asking questions.' Perhaps due to a lack of experience or a fear of confrontation (thus, 'asking questions' will be omitted from subsequent safety voice interventions for reasons provided below).

<u>Participant recommendations</u> revolved around broadening or improving the application or delivery of the draft safety voice intervention (i.e., either in a classroom or workplace), such as: "it may be best to provide examples or role plays for employees and managers"; "it is important that managers are seen as endorsing voice training, by having managers involved in giving, receiving, practicing voicing training"[7].

During <u>debriefing sessions</u>, all participants were asked if they *had any questions or comments*. Some participants reiterated the importance of voicing safety concerns,

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[7] Participant recommendations for improving a safety voice intervention will be revisited in final discussion section.

stating: 'nothing can be more important than my life', 'a life versus other [possible] benefits trade-off, was not worth it'. Another participant suggested that managers be/become aware of strategic if not economic rationales for listening to employees: 'if your employees are not voicing to you, they are voicing to each other and [in so doing] perhaps not getting their work done'. We will return to this theme later.

As can be seen above, it is conceivable that more or less than four steps could justifiably form a pilot safety voice intervention (i.e., a revised draft safety voice intervention), hence choices were made to balance ease of recall by young workers with comprehensiveness.

Does knowing your *Rights* increase willingness to voice?

Because a central aim of this safety voice intervention research is to explore the factors that increase confidence and willingness to voice safety concerns, participants were also asked if they knew their rights regarding Occupational Health and Safety (OHS) in the workplace. Or, once told of their rights, they were asked if this would influence their voicing of safety concerns. Although many could recall 'right to refuse' few could recall all three. Generally, participants reported feeling 'more willing' or 'emboldened' to voice if they knew their rights, an assertion that will be empirically tested in study two.

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Discussion

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Simplifying, Clarifying Revising the Draft Safety Voice Intervention

Based on participant feedback, it became clear that the wording of the draft safety voice intervention needed to change to be more easily understood. For example, idioms (such as 'gut check time') were eliminated. At the same time, many participants (during

debriefing) mentioned that the draft safety voice intervention 'made more sense once the reasons [or 'back story'] for each step was explained'. Therefore, a concerted effort was made (in changing to the Pilot safety voice intervention used for study two) to provide clearer reasons/explanations and wording for each step.

'Stop' revised to 'Calm Down'

A primary assumption embedded within the theoretically derived draft safety voice intervention was that voicing begins with awareness. That is, a desire or impetus to voice begins the moment a young worker becomes aware of past, present, or future safety issues. Therefore, it is conceivable that a young worker may experience stress or strain, due to witnessing or experiencing a safety incident, anticipating future safety incidents, or voicing safety concerns to a (perhaps unreceptive) supervisor. Participants confirmed these assumptions by reiterating the importance of 'calming down' or 'talking a breath' before beginning to voice concerns to a supervisor. One participant (a self-disclosed visiting/foreign student from the Caribbean) stated that 'stopping' (i.e., physically stopping all work/movement) would likely be culturally interpreted as open defiance, confrontational, and otherwise an affront to their supervisor, and a direct challenge to their supervisor's authority. Another participant stated they found the statement 'you are not a robot' (in the draft SQAC intervention) 'insulting'; their (paraphrased) reasoning was that, if after careful consideration of various factors, an employee decided to continue with their behaviour (or not voice) they should not be considered a robot for doing so.

As stated previously, the initial intention behind using 'stop' was preventing injury; with an implied message to young workers… 'to avoid injury, *stop* what you are

doing'. However, with the primacy of 'calm down' in participants' responses, and considering participant's other comments (i.e., interpreted as confrontational and/or insulting), the first step of the safety intervention was changed from 'stop' to 'calm down' (e.g., 'calm down and gather your thoughts').

Describe the Situation (Reintroduced)

The second step in the draft safety voice intervention was, 'ask questions' (i.e., about an unsafe incident or situation). However, participants felt that asking for more information (potentially from a dismissive, non-receptive or un-responsive supervisor) in advance of stating a safety problem, could alert supervisors to the potential for (undesirable) voice. In contrast, participants reiterated the importance of clearly describing (historical or possible future) incidents as either step one or step two in a safety voice intervention. Therefore 'ask questions' was removed and replaced with alert your manager 'about the situation'.

'Choice' Retained

A final step (step four) of the draft safety voice intervention was retained. When participants read step four, several participants stated, "yeah, if you have voiced your concerns and the supervisor has done nothing, you have to…" i) 'talk to *their* supervisor', ii) 'refuse to do the task/work', iii) 'quit the job'; iv) 'complain to an outside agency/government department/person'.

Revised Safety Voice Intervention Based on Study 1: *SQAC becomes CARD*

The one-to-one interviews with participants were invaluable and resulted in the following revised (i.e., pilot) safety voice intervention:

1) **Calm Down:** Breathe…While it's perfectly normal to feel nervous, remain calm when voicing concerns to your manager.
2) **Alert Your Manager:** Carefully describe the situation to your manager, including feeling 'Uncomfortable', 'Concerned' or 'Unsafe'; your manager may not know!
3) **Request Change:** What do you want changed? Be specific and clear about what you want changed. Ask the manager for an expected due date for the situation to be changed.
4) **Decision:** Your health and life are too important. Later, if the situation is not changed, make a lifesaving decision!

   Remember, **C**alm down … **A**lert your manager … **R**equest change … **D**ecision … **C.A.R.D.**

In Study Two, the pilot safety voice intervention above (i.e., CARD) would be tested to evaluate and compare it to another intervention (i.e., Rights training) as well as to a control group, as discussed in the next section.

Chapter 3

Study 2: On-line Survey with Pilot Safety Voice Intervention (i.e., CARD)

Study two further explores young workers' confidence and willingness to voice safety concerns. By training young workers in *how* to voice their safety concerns (versus just teaching them their *rights*) the assumption is that young workers may be more willing to voice. The safety voice intervention being tested (CARD from study 1) is based on theories from the literature, current voice training in the field, and insights from the thematic analysis of interviews with young workers who witnessed or experienced a health and safety incident. Consequently, training videos for *CARD* and for *Rights* were created so as to be compared/tested in Study 2.

Video Interventions

In order to compare the *CARD* safety voice intervention to *Rights*, two videos were created. To minimize bias as much as possible, both videos were produced with a similar style, narration and graphics (with no overt or visual representation of gender, race and or ethnicity). The script for the *Rights* video was sourced from an existing public service video produced by the Canadian Centre for Occupational Health and Safety (CCOHS; https://www.youtube.com/watch?v=wfSxen3E7LU). Multiple actors representing a degree of diversity were used to present CCOHC's script; individually the actors stood in front of the camera (conceivably in an empty office room) and spoke about each right. Using live actors to create a comparable video for the CARD intervention would be difficult. For example, except for the information being presented or the script, it would be nearly impossible to replicate the existing video (e.g., even the same actors would be older). Also attempting to match or replicate this existing format

would likely be: i) cost prohibitive, ii) take too long to match/coordinate actors, produce and edit, iii) could still introduce bias into the study that may not be measurable (e.g., an actors' characteristics, etc.). Consequently, the script from the CCOHS's video was transcribed (in Appendix F) and used to create a new Rights video and a separate video was created from the CARD script (from study 1; see Appendix F).

The following were held constant: i) a similar introduction to the established CCOHS Rights video; establishing what agency was presenting the information, ii) repetition of points to be emphasized, and iii) the duration of the video. The videos would become a 'whiteboard' style video presentation, wherein animated words/letters appear to be typed onto the screen in support of the accompanying audio script of each (CARD & Rights) video intervention. The videos were created using *VideoScribe* (https://www.videoscribe.co/en/) an on-line whiteboard video/presentation creation service. By creating 'whiteboard' style videos, issues around gender, race, age, and ethnicity of actors are somewhat[8] avoided. The end product was voice narration in cadence with words from each respective script appearing to be typed (in large readable font) onto a whiteboard, resulting in two approximately 90 second videos. The narration was done by a female and a male sequentially speaking about each point for each of the CARD and Rights videos and reiterating key points of each. The completed videos were saved as MP4 files (digital format) and then uploaded to 'YouTube' (an on-line video sharing service), after doing so a unique URL link was created for each video. The study was conducted on-line and, depending on the condition to which participants were

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[8] The deeper voice is from a young man originally born in Sri Lanka; and the higher pitch voice is from a young woman originally born in Ontario, Canada.

randomly assigned, a link directed participants to either the *CARD* or *Rights* video (or both).

Hypotheses

Hypothesis 1: Participants exposed to the CARD video will have a higher reported confidence (H1a), willingness to voice (H1b), and willingness to identify safety concerns (H1c) compared to the Control Group.

Hypothesis 2: Participants exposed to the Rights video will have a higher reported confidence (H2a) and willingness (H2b) to voice and to identify (H2c) safety concerns compared to the Control Group.

<div align="center">Method</div>

Participants

Participants recruited for Study 2 were between 14 and 25 years of age, worked in paid employment (not provided by or supervised by a family member/relative), and were not self-employed (see Appendix E for recruitment script). The study was conducted on-line through Qualtrics and although the exact participation rate is unknown[9], 237 young people agreed to participate. Participants who met the above criteria were randomly assigned to one of four conditions; i) CARD training, ii) Rights training (i.e., right to know; right to participate; right to refuse), iii) <u>Both</u> CARD & Rights training, or iv) A wait-list control group - who received both CARD and Rights training *after* completing

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[9] Qualtrics screens/omits participants who: i) do not meet the criteria for participation (mentioned above); ii) do not answer attention check questions correctly; and iii) deviate (two standard deviations) from an established mean time for participants to complete this survey.

the questionnaire. Note: all conditions received the second/other training video *after* completing the questionnaire.

Condition One: Participants watched the CARD safety voice intervention video, they were then asked to complete a questionnaire (see Appendix F) containing demographic questions, a knowledge test (attention checks) and various questions measuring participant's perceived confidence and willingness to voice safety concerns. Condition Two: Participants were exposed to the Rights video, then asked to complete the questionnaire. Condition Three: Participants were exposed to both the CARD and Rights videos (approximately 3 minutes in duration); after which they were asked to complete the questionnaire. Condition Four (a wait-list control group): Participants completed the questionnaire; thereafter were exposed to both the CARD & Rights training videos. Participants in all conditions, even if the participant chose to exit the survey early, were presented with a Debriefing script/screen (see Appendix D) before the experiment was concluded.

Measures

Demographics: Age, gender, education, occupation, years of work experience, and experience of being injured at work.

Risk to Job Security: Perceived risk to job security of voicing safety concerns was assessed using DeHellgre, et al.'s, (1999) 3 item measure. For example: 'I would be afraid I may lose my job in the near future' with responses ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Risk to Relationships and Personal Image: Perceived risk to relationships and personal image of voicing safety concerns was assessed using Schwappach & Gehring's

(2014) 7 item measure based on Mullen (2005): For example: 'Good relationships would be damaged' and 'I would be concerned about being labelled as *difficult*' with possible responses being 1 (*strongly disagree*) to 5 (*strongly agree*).

Probability of Success: Probability of success in voicing safety concerns was measured using Mullen's (2005) 3 items scale. Questions included: 'I am confident that I could voice/raise safety issues with a manager', with 1 being (*strongly disagree*) to 5 (*strongly agree*).

Safety Voice Intention: Measured using Tucker and Turner's (2011) 6 item scale. An example included: 'How likely are you to do, speak to co-workers at risk and encourage them to fix safety problems?' with 1 (*very unlikely*) to 5 (*very likely*) as possible responses.

Willingness to Identify Safety Issues: Mullen's (2005) 3 item scale was modified to fit the vignette, for example 'How much effort would you be willing to invest into changing safety issues *at the restaurant*?' Participants could respond with 1 (*none*) to 5 (*a great deal*).

Results

Data Screening

Out of 237 participants who took part in Study 2 one person was omitted because there was an error in their data (i.e., no condition assigned and mostly missing data points). Of the remaining 236 participants, 9 participant's data were omitted because responses to open ended questions were nonsensical (e.g., 'Oh Yeah Yeah') or

inappropriate[10], and 7 participants were omitted as multivariate outliers (using Cooks Distance & Leverage), leaving 220 young workers in the sample. After data cleaning, cell sizes in Conditions 1-4 were: n = 53; n = 55; n = 55; and n = 57 (respectively).

The age range of participants was 14-25, with a mean age of 20.5 years; 44.5% of participants identified as male, 54.1% as female and 1.4% as other. Years of post-secondary education? None = 30.5%; 1 to 2 years = 32.3%; 3 to 4 years = 25.9%; 5 to 6 years = 8.6%; 7 to 8 years = 1.4%; over 8 years = 1.4%. Total paid working experience across all employers/sectors? Under one month = 3.6%; 1 to 3 months = 8.6%; 4 to 6 months = 6.8%; 7 to 9 months = 5.5%; 10 to 11 months = 7.7%; 1 to 2 years = 23.2%; 3 to 4 years = 21.4%; 5 or more years = 23.2%. Participants reported working in: food service 37.3% and 35.5% in retail; 29.5% of all participants reported experiencing at least one workplace accident.

Prior to conducting a multivariate analysis of variance (ANOVA) using IBM SPSS Version 26, a series of correlations were calculated between all demographic, independent, and dependent variables. The homogeneity of variance assumption was tested for all five dependent variables and considered satisfied because none of the Levene's F tests were significant.

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[10] Buchanan & Scofield (2018) explored the percentage of 'low effort' or 'Bot' (i.e., computer software) participants that may be omitted due to such screens.

Table 1

Study 2: Correlations Between Variables (n = 220)

Variables	M (SD)	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	5.00 (1.42)												
2. Sex	1.57 (.523)	.117											
3. Years of Education	2.22 (1.10)	.462**	.144*										
4. Hours Employed Per Week	5.63 (2.43)	.591**	-.001	.276**									
5. Work Experience	5.76 (2.07)	.342**	.101	.078	.324**								
6. Experienced Injury	1.41 (.686)	.042	-.053	-.061	.152*	.147*							
7. Risk to Job Security	2.24 (1.25)	.069	.033	.030	.081	-.123	-.066	(.94)					
8. Risk to Relationships & Person. Image	2.59 (.990)	.034	.025	.066	.085	-.032	.036	.698**	(.89)				
9. Probability of Success	3.99 (.854)	-.097	-.053	-.070	-.124	.022	.042	-.560**	-.583**	(.82)			
10. Safety Voice Intensions	3.90 (.760)	-.030	.041	-.088	-.046	-.044	-.012	-.300**	-.410**	.596**	(.84)		
11. Willingness to Identify Safety Issues	3.32 (.855)	-.019	.059	-.038	.059	.039	-.017	-.211**	-.296**	.378**	.594**	(.89)	
12. Safety Voice (CARD)	.49(.501)	-.090	.063	-.117	-.048	.018	-.148*	.011	-.046	.163*	.045	.000	
13. OH&S Employee Rights (Rights)	.50(.501)	.026	-.078	.021	.041	-.099	.000	.090	.045	-.036	-.022	-.089	.018

Note: Cronbach's alpha (α) scores are shown in parentheses on the diagonal, * *p* < .05, ** *p* < .01. Dependent variables (CARD; Rights) were coded: 1 – present, 0 – absent, resulting in 3 conditions plus one control group/condition.

A 2X2 MANOVA (CARD x Rights; Table 2) was run to test the above hypotheses that the presence of CARD and/or Rights training would be significantly related to the DV's (Risk to relationships and personal image; Risk to job security; Confidence of success in voicing; Willingness to voice; and Willingness to identify safety issues). Despite a lack of significant Multivariate effects, a Univariate main effect was noted between the *CARD* safety voice intervention and Probability of Success in voicing safety issues. Without CARD training, participants had a $M = 3.89$, ($SD = .877$), whereas with CARD training, the perceived probability of successfully voicing was $M = 4.15$, ($SD = .861$), $F(3,216) = 5.98$, $p = .015$, $\eta^2 = .027$: suggesting that Hypothesis 1 was at least partially supported. However, no other main effects or interaction effects were found (see Table 2).

Table 2
Study 2: Tests of Between-Subjects Effects, (n = 220)

Source	Dependent Variable	F	Sig.	Partial η^2	Power
Safety Voice (CARD)	Risk to Relationships and Personal Image	.473	.492	.002	.105
	Risk to Job Security	.018	.893	.000	.052
	Probability of Success	5.980	.015	.027	.682
	Safety Voice Intensions	.455	.501	.002	.103
	Willingness to Identify Safety Issues	.000	.982	.000	.050
OH&S Employee Rights (Rights)	Risk to Relationships and Personal Image	.467	.495	.002	.104
	Risk to Job Security	1.747	.188	.008	.260
	Probability of Success	.326	.569	.002	.088
	Safety Voice Intensions	.107	.743	.000	.062
	Willingness to Identify Safety Issues	1.798	.181	.008	.267
CARD * Rights	Risk to Relationships and Personal Image	.284	.595	.001	.083
	Risk to Job Security	.013	.909	.000	.052
	Probability of Success	.042	.838	.000	.055
	Safety Voice Intensions	.196	.659	.001	.073
	Willingness to Identify Safety Issues	1.932	.166	.009	.283

Note: Computed using alpha = .05. All *F*'s with 3, 216 degrees of freedom.

Discussion

Beyond a weak association between CARD and perceived Confidence to voice, there was a general lack of significant relationships between either of the interventions (CARD and/or Rights) and the dependent variables. This result may be due to a variety of factors. For example, both interventions may simply be inadequate to impact participant's perceptions surrounding voicing of safety concerns. Changing the script and/or steps in CARD may be an option prior to future studies. However, it should be noted that the Rights video/script also did not impact the DV's – and the promotion of Rights could be considered the 'gold standard' in terms of Occupational Health and Safety interventions for encouraging young people to voice safety concerns at work.

The results of Study 2 may raise doubts about the efficacy of existing public service initiatives (e.g., Manitoba's 14 steps to voice safety concerns and/or Rights training) and/or about the interventions designed for this study. While this suggests the need for further evidence-based research into the efficacy of these types of interventions, the delivery mechanism for the interventions in Study 2 may also be questioned: A brief (90 second) one-time, on-line video intervention may simply be inadequate to impact participants rather than a more contextualized workplace training intervention.

Research by Meyer (1991) provides support for this perspective, finding that a minimum of six training sessions are needed to measure a significant effect for improving assertiveness. Perhaps with repeated exposure, similar to public fire awareness campaigns (e.g., 'stop, drop & roll'), future participants could be *primed* to CARD as a safety voice intervention? Although existing and repetitious Rights training/messaging

did not appear to have helped Rights training in this study (assuming participants had been exposed to Rights training in the past).

Another line of research on the efficacy of assertiveness training, Lin, et al., (2004) indicated that common assertiveness training interventions also include "instruction, demonstration, feedback, role-playing…enhancement, homework, panel discussion, relaxation, and self-study education materials, and consist of both individual and group training" (p. 657). Consequently, multi-method training (e.g., group practice, role playing, and lectures) of a safety voice intervention could be necessary to impact participants. Of note, the importance of a multi-method approach to teaching a safety voice intervention was mentioned by participants in Study 1. However, given that this research initiative attempted to find a broadly applicable (e.g., able to be broadcasted) safety voicing intervention that can work across normal organizations (in various contexts), it was decided to go back to the 'drawing board' (so to speak) to find a better way (i.e., method or context) to convey CARD to participants' in Study 3. While the second study tested the CARD safety voice intervention on participants from various workplaces, physical locations, and industries; the CARD safety voice intervention (video) was basically a public service announcement video (able to be broadcast on-line) lacking context or workplace specific consideration. Perhaps, without a context/workplace it lacked fidelity, realism, or consideration of the nuances/complexities of voicing in participant's workplaces? Consequently, it was decided to create a richer context for the CARD safety voice intervention using a vignette in another experimental design. In doing so, participants can be *placed* in a workplace

scenario, so as to contextualize the reception and application of the CARD safety voice intervention.

In addition to the above, based on prior research, and comments made by participants in Study 1 (i.e., interviews with participants who had experienced or witnessed a safety incident), another variable that seems to impact people's willingness to voice involves the *receptivity* of supervisors (something that was not addressed in Study 2). Conceivably a *better* or more receptive supervisor, would be more likely to evoke voice from employees/participants? This was certainly an issue raised in interviews with young workers in Study 1. Safety Specific Transformational Leadership (SSTL) has been found to improve safety outcomes (Barling, et al., 1999), so perhaps SSTL might factor into participant's calculus of voice? Past research has linked SSTL with many positive organizational and safety outcomes (Mullen & Kelloway, 2009), consequently SSTL could be used as a benchmark to compare the impact of CARD on voicing. Finally, going back to what we can learn from high reliability organizations about voicing, many high reliability organizations make voicing safety concerns a job/role requirement (e.g., Crew Resource Management training and administrative policies).

Research has been done on *Role Conceptualization*, that is, the degree to which employees view specific behaviours as part of their role (Chiaburu, et al., 2008; Morrison, 1994). This occurs when "[i]ndividuals with flexible role orientation define their roles broadly and, as such, feel ownership of goals and problems beyond their immediate set of technical tasks, seeing them as "my job" rather as "not my job" (Parker et al., 2006, p. 639). *Feeling* or *thinking* that voice is one's role requirement, would seem to be distinctly different than an explicitly stated job requirement to voice imposed by

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management. In this sense, research does not seem to have explored making the voicing of safety concerns a *job requirement* within normal organizations. This could also be important to participant's calculations of whether to voice in a normal organization. Consequently, the next study contextualized CARD within a vignette about hazardous conditions in a restaurant where Safety Specific Transformational Leadership and Job Requirements are also varied in the vignettes.

Chapter 4

Study 3A: Manipulation Check

Introduction & Literature Review

Study 3 continues to explore young workers' voicing of safety concerns. Given the limited effect of the safety voice intervention (CARD) on the dependent variables in Study 2, decisions were made to make the following changes in Study 3: i) to abandon video as a means for delivering CARD and use a vignette instead, providing a single workplace context (see page 47); ii) to test safety voice as a Job Requirement (see page 48); iii) to add Safety Specific Transformational Leadership (SSTL) to the variables being examined (see page 48 and below for reasoning); and finally iv) to explore how the safety voice intervention (CARD) might interact with the above factors. This would provide an opportunity to benchmark CARD and (voice as a) Job Requirement against an established measure in the literature.

The inclusion of Safety Specific Transformational Leadership ties back to research linking Transformational Leadership to positive health and safety outcomes (Barling et al., 2002; Barling & Zacharatos, 1999; Mullen & Kelloway, 2009) as well as employee safety voice behaviours (Conchie, et al., 2012; Duan, et al., 2017; Detert & Burris, 2007). Safety specific transformational leadership suggests that a supervisor is committed to being a role model with regard to safety (idealized influence), is willing to set a high bar (inspirational motivation), sees the value in each employee (individual consideration), and is willing to question assumptions about safety (intellectual stimulation). All of these behaviours provide support for employees engaging in safety voice behaviour.

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To ensure that the SSTL intervention is perceived as intended by participants in Study 3B, this study (3A) involves a manipulation check with undergraduate students on the vignette used to manipulate Safety Specific Transformational Leadership. Results from this study will determine the nature of the vignette used in Study 3B.

Method

A participant recruitment script (Appendix H) was created for university instructors at one Eastern Canadian University. A second recruitment script (Appendix H) was provided to students (via PowerPoint, paper hand-out, and verbally) during their class-time. Two hundred and sixty-two students in an 'Introduction to Management' course were invited to participate with 137 students signing the consent form and completing the questionnaire (52.3% response rate). Participants were randomly assigned to one of three conditions to pilot the vignettes that would be used in this study. Each condition was an email ostensibly written by a "…restaurant manager responding to health and safety issues", with participants asked to "…rate the manager using the questions below" (on SSTL); the contents of the email were changed depending on the condition in question.

One of three conditions was printed on one side of a 8.5"X11" sheet of paper with a consent form printed on the opposite side, resulting in 1/3 of the copies for each condition (randomly assigned). The three conditions/email scripts (Appendix I) used for the manipulation check were: i) a 'Job Requirement' condition (used as a control) – wherein participants read an email purportedly sent by a manager describing how it will now be a *job requirement* for employee's to report safety incidents to a manager. A job requirement email/script was chosen as a control because it was felt it would be the *least*

likely to be perceived as SSTL; ii) A Transformational Leadership[a] email/script from

Kelloway et al. (2003; a study demonstrating Transformational Leadership can be

conveyed via emails) was modified to address safety concerns in the restaurant vignette;

and iii) A second Transformational Leadership[b] email/script – was designed specifically

for this study by reverse engineering Barling et al.'s (2002) safety specific

transformational leadership scale. Because this last script was created from Barling et

al.'s items, it was expected this script/email would be rated the highest on SSTL

compared to the other scripts/emails. Participants were asked to read the provided email,

then rate the extent to which they felt the manager in the email conveyed safety specific

transformational leadership (as measured by the SSTL scale developed by Barling et al.,

2002; Appendix I).

Results

Homogeneity of Variance was tested using the Levene Statistic and indicated the

assumption of equality of variances had been met. An analysis of variance (ANOVA)

showed a statistically significant difference in perceived safety specific transformational

leadership across the three conditions $F(2,134) = 4.52$, $p = .013$: As predicted, Condition

1 (Control/Job Requirement), $n = 47$, was perceived as the least transformational $M =$

3.71, $SD = .783$; whereas Condition 2 (Transf. Lead.[a]), $n = 44$, had a $M = 3.76$, $SD =$

.601; and Condition 3 (Transf. Lead.[b]), $n = 46$, had a $M = 4.11$, $SD = .656$. A Bonferroni

post-hoc test found significant differences between conditions 1 & 3 ($p = .02$) and

between conditions 2 & 3 ($p = .05$). However, Conditions 1 & 2 were not significantly

different ($p = 1$). With Condition 3 having a significantly higher mean on SSTL, it was

chosen as the SSTL intervention (email) to be used in study three.

Discussion

One surprising finding from the manipulation check was that the Job Requirement

to voice safety concerns email (condition 1) and the first SSTL email (e.g., condition 2)

were not perceived as significantly different. This result was somewhat unexpected

given the Job Requirement email/script was chosen because it was assumed it would <u>not</u>

be considered SSTL. It seems that compelling people to report safety issues (even with

threat of termination) as part of a Job Requirement, is perhaps conveying a commitment

to safety hence somehow being perceived as Transformational Leadership; perhaps a

substitute for leadership (Kerr & Jermier, 1978)? This finding would be revisited in the

following study.

Chapter 5

Study 3B: Overview

The univariate relationship between CARD and participants' perceived confidence to voice safety concerns found in Study 2 suggests that CARD may be able to impact young worker's implicit scripts about safety even with a brief intervention. However, the fidelity of the CARD intervention was likely quite weak given that other contextual factors in the workplace were ignored, and other factors that might impact both context and implicit scripts unaddressed. Consequently, after returning to the literature (reviewed in the first chapter), as well as returning to the interview findings from Study 1, the decision was made to add two additional independent variables in order to see how they might compare with and or interact with CARD in terms of impacting young workers' confidence and willingness to voice safety concerns. As discussed in chapter one, if we recognize that both contextual factors and implicit scripts can constrain or encourage safety voice, manipulating a combination of factors in our experiment (e.g., Job Requirements, Leadership, and/or CARD) may convey a more realistic scenario of what might be happening in a real workplace (e.g., a manager struggling to reduce occupational injuries in their restaurant).

Context: In high reliability organizations voicing safety concerns is considered part of the job. Findings from the manipulation check in Study 2 also suggest that making voice a Job Requirement in normal organizations can actually be perceived as safety leadership (an unexpected finding). Consequently, in Study 3 I wanted to explore what would happen if job requirement to voice is implemented in conjunction with

CARD and how it might impact young worker's confidence and willingness to voice safety concerns.

Implicit Theories/ Cognitive Scripts: The inclusion of Safety Specific Transformational Leadership as another independent variable in Study 3 is based on research linking Transformational Leadership to positive health and safety outcomes (Barling and Zacharatos, 1999; Mullen & Kelloway, 2009), and to employee safety voice behaviours (Conchie, et al., 2012). This study provides an opportunity to test how SSTL might interact with both CARD and voice being a Job Requirement in a normal organization, and whether it could be linked to young workers' confidence and willingness to voice safety concerns.

Safety Climate: Safety Climate, is "a collective construct derived from individuals' shared perceptions of the various ways that safety is valued in the workplace" (Griffin & Curcuruto, 2016, p. 191). According to Griffin & Curcuruto (2016), this construct is supported by "research over the past 35 years", and has been shown to be "an important predictor of safety behavior and safety outcomes such as accidents and injury" (p. 191). Safety climate can play "a significant role in the promotion of employee commitment and involvement in safety" (Clarke, 2006, p. 324). A positive Safety Climate has also been linked with the maintenance of safety participation (Neal, et al, 2000).

Tucker et al., (2008; 2015) and others (Luria, 2015) have explicitly linked Safety Climate to employees' Safety Voice. Consequently, Safety Climate will also be included in exploring participants' implicit theories (cognitive scripts) about their safety voice behaviour. What is being tested here is whether the CARD safety voice intervention

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improves participants' confidence and willingness to voice safety concerns, and perceptions of a positive safety climate can be an important consideration in their calculus to voice.

Hypotheses

Hypothesis 1: CARD will improve participants' confidence and willingness to voice safety concerns (compared to the control group): More specifically, they will perceive less Risk to Job Security (H3a) and Risk to Relationships and Personal Image (H3b), as well as more Safety Specific Transformational Leadership (H3c), better Safety Climate (H3d), Perceived Probability of Success (H3e), Safety Voice Intensions (H3f) and Willingness to Identify Safety Issues (H3g) when CARD is present than when it is absent.

Hypothesis 2: Job Requirement to voice safety concerns will improve participants' confidence and willingness to voice safety concerns (compared to the control group) on each of the DV's above.

Hypothesis 3: SSTL will improve participants' confidence and willingness to voice safety concerns (compared to the control group) on each of the DV's above.

Given that Job Requirement to voice can be perceived as Safety Specific Transformational Leadership (in Study 2 and the manipulation check in Study 3A) it is also anticipated that there will be additive effects when the independent variables are combined:

Hypothesis 4a: the combination of IV's (CARD*JobRequire*SSTL) will improve

participants' confidence and willingness to voice safety concerns. Also, Hypothesis 4b:

that CARD*JobRequire*SSTL combined will produce the highest level of confidence

and willingness to voice safety concerns compared to any one IV.

Method

Participants

Participants for study 3B were recruited through Qualtrics (an online

survey/questionnaire service) using a recruitment script (Appendix K). Potential

participants who agreed to the terms of the Informed Consent Form and clicked/selected

'I agree' were immediately forwarded to the beginning of the study and were paid $2

USD for approximately 15 minutes of their time. Although 360 participants completed

the questionnaire/study, due to several screens, and attention/recall checks carried out

prior to and during data collection, several participants were likely omitted/excluded,

therefore a final participation rate is unknown. Participants were selected for inclusion in

the study if they were, 18 to 25 years of age, currently working in paid employment, the

employment was hourly wage or salary (not including 'gig' or online contract work), and

residents/employees in Canada or the U.S.A.

Participants were first asked to read a vignette describing a restaurant

experiencing several ongoing health and safety issues. The provided vignette described

the health and safety conditions of a restaurant. The participant, prior to reading the

vignette (Appendix, L), was asked to imagine that they (the participant) were the central

character in the vignette. After reading the vignette, participants in all but the control

group (no independent variables/interventions) were provided with one of 7 possible emails written by the restaurant manager (addressing the restaurant's health and safety issues and requesting employees voice their safety concerns). Including the Control Group (no independent variables/intervention) the eight conditions included: CARD; Job Requirement; Job Requirement & CARD; Safety Specific Transformational Leadership (SSTL); CARD & SSTL; Job Requirement & SSTL; CARD & SSTL & Job Requirement variables. Each condition was capped at 45 participants - equal cell sizes - for this between-subjects design. Afterwards, all participants were asked to complete the questionnaire (Appendix, L); upon completing the questionnaire participants were provided with a (on-line) Debrief Form (Appendix, M).

Measures

Along with standard demographic questions, seven validated measures were used to evaluate the effectiveness of the three independent variables (i.e., CARD, Job Requirement to Voice safety Concerns, & SSTL; Appendix L).

Demographics: Age, gender, education, occupation, years of work experience, and experience being injured at work.

Risk to Job Security: Perceived risk to job security of voicing safety concerns used DeHellgre, et al.'s (1999) 3 item measure. Example item: 'I would be afraid I may lose my job in the near future' with responses ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*).

Risk to Relationships and Personal Image: Perceived risk to relationships and personal image of voicing safety concerns was assessed using Schwappach & Gehring's (2014) 7 item measure, based on Mullen (2005). Examples: 'Good relationships would

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be damaged' and 'I would be concerned about being labelled as *difficult*', with possible responses from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*).

Safety-Specific Transformational Leadership (SSTL): Was assessed using Barling et al.'s (2002) 10 item measure. For example: 'Shows determination to maintain a safe work environment *(Idealized influence)*' and 'Encourages me to express my ideas and opinions about safety at work *(Intellectual stimulation)*' with responses ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*).

Safety Climate: Zohar's (1980) Safety Climate Scale was used with responses ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). With two out of 4 items reverse coded. For example: 'It is only a matter of time before I'm involved in an accident at the restaurant'(r).

Probability of Success: Perceived probability of successfully voicing safety concerns used Mullen's (2005) 3 items scale (with 1 = *Strongly Disagree* to 5 = *Strongly Agree*) was used. Questions include: 'I am confident that I could voice/raise safety issues with a manager'.

Safety Voice Intentions: Was measured using Tucker and Turner's (2011) 6 item scale. An example: 'How likely are you to do, speak to co-workers at risk and encourage them to fix safety problems?' with 1 (*Very unlikely*) to 5 (*Very likely*) as possible responses.

Willingness to Identify Safety Issue: Used Mullen's (2005) 3 item scale was used. Question wording was changed to fit the vignette, for example 'How much effort would you be willing to invest into changing safety issues *at the restaurant*?' Participants could respond 1(*None*) to 5 (*A great amount*).

The Vignette

Tucker & Turner's (2011) restaurant vignette (specifically their scenario #6; "*Low quality safety conditions, and no injury*" situation) was chosen[11] as the context for this study for several reasons: i) the vignette was already used in a study with young workers in Manitoba, ii) injuries were portrayed as happening to vignette characters, not the study participant (to avoid inflating participants' likelihood of voicing), iii) it is situated in a restaurant (a common workplace for young workers) and iv) tenure on the job was approximately 30 days (as many workplace injuries occur shortly after being hired).

Data Screening

Participant responses were electronically recorded and stored by Qualtrics then downloaded. A combination of the screening techniques (mentioned above) were likely the reason no missing values were found. Tests for multivariate outliers using Cook's Distance found one case (#172) exceeded the maximum cut-off and could have been omitted, however a decision was made to retain this case to maintain equal cell sizes. Tests of the assumptions of homogeneity of variance-covariance matrices, linearity, and multicollinearity were satisfactory. Reliabilities and correlations for all study variables are presented in Table 3.

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[11] Other Tucker & Turner (2010) vignettes (i.e., 1, 2, 3, 4, 7, & 8) could have been selected, however it was felt that increasing the *severity* of injuries (a variable in some scenarios) may inflate participants' willingness to voice. Scenario #6 was selected vs. #5 (i.e., same scenario but participant portrayed as *personally* experiencing an injury) because it was expected to inflate participants' willingness to voice. Referring to 'perceived risk of injury to oneself', Turner & Tucker (2010) "[i]n most cases, when a hazard was not a serious threat to one's personal safety, it was tolerated" (pg. 15-16).

Relationships between six dependent variables and five demographic characteristics (age, sex, number of hours worked per week, total years working experience & years of post-secondary education) were also examined. Two additional relationships were found: 'Total working experience' was significantly correlated with 'Risk to Job Security' (r = -.144, p = .006), and 'Years of postsecondary education' with 'Risk to Relationships and Personal Image' (r = .108, p = .040); therefore *year of work experience* and *years of education* were used as control variables (covariates) in subsequent analyses.

Results

IBM SPSS Version 26 was used to run a 2X2X2 multivariate analysis of covariance (MANCOVA) with the CARD safety voice intervention (present = 1 or absent = 0) x Job Requirement to Voice Safety Issues (present =1 or absent = 0) x Safety Specific Transformational Leadership (present =1 or absent = 0) to determine the effects of these independent variables on participants' perceptions of: Risk to Job Security; Risk to Relationships and Personal Image; Safety Specific Transformational Leadership (SSTL); Safety Climate; Perceived Probability of Success; Safety Voice Intensions; and Willingness to Identify Safety Issues (Table 4).

Significant three-way interactions were found for five dependent variables: *Risk to Job Security, F*(7, 352) = 4.74, *p* = .03, partial η^2 = .013; *Safety Specific Transformational Leadership (SSTL), F*(7,352) = 6.87, *p* = .009, partial η^2 = .019; *Safety Climate, F* (7,352) = 4.97, *p* = .026, partial η^2 = .014; *Probability of Success, F*(7,352) =

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4.28, $p = .039$, partial $\eta^2 = .012$; and *Willingness to Identify Safety Issues[12]*, $F(7,352) =$

8.53, $p = .004$, partial $\eta^2 = .024$.

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[12] Moving forward the three-way interactions with the DV 'Willingness to Identify Safety Issues' was omitted from consideration. Although the MANCOVA results were significant, the results across various analyses (i.e., MANCOVA, Bonferroni, t-tests) were inconsistent. Consequently, results from the three-way interaction with 'Willingness to Identify Safety Issues' should be interpreted with caution.

Table 3
Study 3b: Correlations Between Variables (n = 360)

Variables	M (SD)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Age	5.07 (2.38)																
2. Sex	1.52 (0.55)	.006															
3. Years of Education	2.57 (1.81)	.141**	-.040														
4. Hours Employed Per Week	6.55 (2.08)	.306**	.074	.057													
5. Work Experience	5.79 (2.09)	.270**	-.040	.034	.193**												
6. Experienced Injury	1.39 (0.68)	-.047	-.067	-.063	.008	.022											
7. Risk to Job Security	2.29 (1.23)	-.016	-.004	.061	-.023	-.144**	.078	(.93)									
8. Risk to Relation. & Person. Image	2.68 (1.13)	.049	-.069	.108*	.054	-.027	.074	.659**	(.93)								
9. Safety Specific Transform.Leader.	3.48 (1.08)	-.089	.043	-.004	.001	.022	.030	-.368**	-.398**	(.94)							
10. Global Transformational Leader.	3.53 (1.16)	-.059	.016	.057	.021	.015	.050	-.361**	-.371**	.858**	(.95)						
11. Safety Climate	2.91 (0.93)	-.082	.030	-.011	-.016	.026	.045	-.283**	-.346**	.686**	.675**	(.61)					
12. Prob. of Success	3.79 (1.09)	-.080	.000	.009	-.037	.042	-.047	-.570**	-.578**	.676**	.674**	.532**	(.89)				
13. Safety Voice Intensions	3.89 (0.82)	-.015	.035	-.005	-.018	.041	-.025	-.402**	-.422**	.420**	.401**	.273**	.590**	(.87)			
14. Willing to Ident. Safety Issues	3.65 (0.94)	-.042	.033	.068	-.026	.053	.038	-.233**	-.285**	.269**	.292**	.144**	.409**	.596**	(.90)		
15. Safety Voice (CARD)	0.50 (0.50)	-.028	.071	.014	-.052	-.076	.029	.001	-.099	.137**	.133*	.071	.057	.046	-.016	.000	
16. Leadership (SSTL)	0.50 (0.50)	-.016	-.081	.019	-.063	.012	-.062	-.168**	-.126*	.219**	.174**	.105*	.101	.016	.000	.000	
17. Job Requirement (JobReq)	0.50 (0.50)	-.079	-.071	-.057	-.079	.004	.045	-.079	-.062	.146**	.103	.117*	.127*	.082	-.002	.000	.000

Note: Cronbach's alpha (α) scores are shown in parentheses on the diagonal, * $p < .05$, ** $p < .01$. Independent variables (CARD; Safety Specific Transformational Leadership & Job Requirement) were coded: 1 – present, 0 – absent, resulting in 7 conditions plus one control group/condition.

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Table 4
Study 3b: Tests of Between-Subjects Effects (n = 360)

Source	Dependent Variable	F	Sig.	Partial η^2	Power
Safety Voice Intervention (CARD)	Risk to Job Security	.059	.808	.000	.057
	Risk to Relationships and Personal Image	3.998	.046	.011	.514
	Safety Specific Transformational Leadership	7.962	.005	.022	.803
	Safety Climate	2.076	.151	.006	.301
	Probability of Success	1.371	.242	.004	.215
	Safety Voice Intensions	.868	.352	.002	.153
	Willingness to Identify Safety Issues	.048	.827	.000	.055
Safety Specific Transformational Leadership (SSTL)	Risk to Job Security	10.687	.001	.030	.903
	Risk to Relationships and Personal Image	6.024	.015	.017	.687
	Safety Specific Transformational Leadership	19.362	.000	.052	.992
	Safety Climate	4.088	.044	.012	.523
	Probability of Success	3.717	.055	.011	.485
	Safety Voice Intensions	.090	.764	.000	.060
	Willingness to Identify Safety Issues	.001	.973	.000	.050
Job Requirement (JobReq)	Risk to Job Security	2.086	.150	.006	.302
	Risk to Relationships and Personal Image	1.119	.291	.003	.184
	Safety Specific Transformational Leadership	8.408	.004	.023	.824
	Safety Climate	4.977	.026	.014	.604
	Probability of Success	5.883	.016	.017	.677
	Safety Voice Intensions	2.348	.126	.007	.333
	Willingness to Identify Safety Issues	.000	.988	.000	.050
CARD * SSTL	Risk to Job Security	.013	.909	.000	.051
	Risk to Relationships and Personal Image	1.418	.235	.004	.221
	Safety Specific Transformational Leadership	1.357	.245	.004	.213
	Safety Climate	.454	.501	.001	.103
	Probability of Success	.602	.438	.002	.121
	Safety Voice Intensions	.094	.759	.000	.061
	Willingness to Identify Safety Issues	.742	.390	.002	.138
CARD * JobReq	Risk to Job Security	2.519	.113	.007	.353
	Risk to Relationships and Personal Image	.229	.633	.001	.076
	Safety Specific Transformational Leadership	6.577	.011	.018	.725
	Safety Climate	4.553	.034	.013	.567
	Probability of Success	.396	.530	.001	.096
	Safety Voice Intensions	.015	.901	.000	.052
	Willingness to Identify Safety Issues	.091	.763	.000	.060
SSTL * JobReq	Risk to Job Security	.314	.576	.001	.086
	Risk to Relationships and Personal Image	.325	.569	.001	.088
	Safety Specific Transformational Leadership	3.880	.050	.011	.502
	Safety Climate	.100	.752	.000	.061
	Probability of Success	.162	.687	.000	.069
	Safety Voice Intensions	.018	.895	.000	.052
	Willingness to Identify Safety Issues	.099	.753	.000	.061
CARD * SSTL * JobReq	Risk to Job Security	4.735	.030	.013	.583
	Risk to Relationships and Image	3.800	.052	.011	.494
	Safety Specific Transformational Leadership	6.866	.009	.019	.743
	Safety Climate	4.968	.026	.014	.604
	Probability of Success	4.276	.039	.012	.541
	Safety Voice Intensions	.506	.477	.001	.109
	Willingness to Identify Safety Issues	8.531	.004	.024	.830

Note: Computed using alpha = .05. Covariates: 'Years of Education' with 'Risk to Relationship and Image' $F = 5.51, p = .019$; 'Years of Work Experience' with 'Risk to Job Security' $F = 9.41, p = .002$. All F's with 7, 352 degrees of freedom.

To interpret the three-way interactions and better understand the impact of the CARD intervention (present =1 or absent = 0) within different contexts (i.e., with and without SSTL and/or job requirements), simple effects were examined using *t*-tests (see Table 5).

Table 5
Study 3b: Interpreting 3-Way Interactions (t-tests; cell sizes n = 45)

	Safety Specific Transformational Leadership (Independent Variable)							
	NO				YES			
	Job Requirement (Independent Variable)							
	NO		YES		NO		YES	
	CARD (Independent Variable)							
Dependent	NO	YES	NO	YES	NO	YES	NO	YES
Variables	Cond.8	Cond.1	Cond.2	Cond.3	Cond.4	Cond.5	Cond.6	Cond.7
Risk to Job Secur.	2.85	2.43*	2.16	2.53	2.10	2.16	2.04	2.03
SSTL	2.49	3.46**	3.57	3.45	3.58	3.75	3.68	3.85
Safety Climate	2.41	3.02*	3.01	2.81	2.86	2.92	3.09	3.16
Prob. of Success	3.26	3.76*	3.88	3.81	3.85	3.73	3.91	4.10

Mean Scores, with two-tailed $p < .05$ = * ; $p < .001$ = ** Mean difference between also found between Condition 5 and Condition 4 p < .05. Key: Condition 1 = CARD; Condition 2 = Job Requirement; Condition 3 = CARD*Job Requirement; Condition 4 = Safety Specific Transformational Leadership (SSTL); Condition 5 = CARD*SSTL; Condition 6 = SSTL*Job Requirement; Condition 7 = CARD*Job Requirement*SSTL; Condition 8 = Control Group (no interventions/independent variables).

The CARD safety voice intervention decreases Risk to Job Security ($M = 2.43$, $SD = 1.18$, $p < .05$ versus the Control condition ($M = 2.85$, $SD = 1.31$) and increases perceptions of SSTL ($M = 3.46$, $SD = 1.11$, $p < .001$) compared to the Control condition ($M = 2.49$, $SD = 1.09$) and Safety Climate ($M = 3.02$, $SD = .962$, $p < .05$) versus the Control group ($M = 2.41$, $SD = 1.06$) and perceived Probability of Success ($M = 3.76$, $SD = 1.22$, $p < .05$) with the Control group $M = 3.26$, $SD = 1.01$) but only when there is no Job Requirement to voice and no SSTL. That is, in the absence of SSTL and Job Requirement to voice, CARD seems to have the most impact. However, if SSTL and Job

Requirement are present, CARD has a limited (i.e., insignificant) impact on the DVs of interest. These results support parts of Hypothesis 1, in that CARD did improve participants' perceptions of: Safety Climate (H3d), Probability of Success (H3e), and reduced Risk to Job Security from voicing safety concerns (H3a) over the control condition. However, the results did not support the remaining aspect of Hypotheses 1; specifically, that CARD (alone) would improve participants' Risk to Relationship and Personal Image (H3b), Willingness to Identify Safety Issues (H3g) and/or Safety Voice Intentions (H3f) over the control condition.

For hypothesis 2, that Job Requirement (alone) would improve confidence to voice safety concerns was supported, but willingness was not compared to the control group.

Hypothesis 3 was supported, specifically Safety Specific Transformational Leadership would improve confidence to voice safety issues over the control group. However, the second part of the Hypothesis, that SSTL alone would improve Willingness to Voice Safety Concerns over the control group was not supported.

The hypothesis that CARD would be additive (with Job Requirement and SSTL) so as to produce an improved confidence to voice safety concerns over the control group was supported.

However, the Hypothesis that CARD would be additive (with Job Requirement and SSTL) so as to produce the highest level of Confidence or Willingness to voice safety concerns was not supported.

In addition to interpreting three-way interactions, post-hoc comparisons were made (i.e., IV's compared to the control group) and significant mean differences were

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found for all three independent variables with four dependent variables (i.e., Risk to Job Security, SSTL, Safety Climate and Probability of Success; see Table 6).

Table 6
Study 3b: Post-hoc Comparisons to Control Group (t-tests; cell sizes n = 45)

	Safety Specific Transformational Leadership (Independent Variable)							
	NO				YES			
	Job Requirement (Independent Variable)							
	NO		YES		NO		YES	
	CARD (Independent Variable)							
Dependent	NO	YES	NO	YES	NO	YES	NO	YES
Variables	Cond.8	Cond.1	Cond.2	Cond.3	Cond.4	Cond.5	Cond.6	Cond.7
Risk to Job Secur.	2.85	2.43*	2.16*	2.53	2.10*	2.16	2.04	2.03*
SSTL	2.49	3.46**	3.57**	3.45	3.58**	3.75	3.68	3.85**
Safety Climate	2.41	3.02*	3.01*	2.81	2.86*	2.92	3.09	3.16*
Prob. of Success	3.26	3.76*	3.88*	3.81	3.85*	3.73	3.91	4.10*

Mean Scores, with two-tailed $p < .05$ = * ; $p < .001$ = ** Key: Condition 1 = CARD; Condition 2 = Job Requirement; Condition 3 = CARD*Job Requirement; Condition 4 = Safety Specific Transformational Leadership (SSTL); Condition 5 = CARD*SSTL; Condition 6 = SSTL*Job Requirement; Condition 7 = CARD*Job Requirement*SSTL; Condition 8 = Control Group (no interventions/independent variables).

The post-hoc comparisons suggest that both CARD or Job Requirement to voice safety concerns may be perceived as Safety Specific Transformational Leadership. That is, each can substitute for the other across many dependent variables. The organizational and public policy implications of these findings will be discussed in the next section.

Discussion

Based on the results from Study 3, an email including CARD can have a statistically significant impact on participants' confidence to voice safety concerns in a normal organization (e.g., lower perceived risk & improved perceived probability of success), as well as improve perceptions of Safety Climate. That is, using only CARD, managers (including those low on SSTL) may be able to increase employees' confidence to voice even in organizations that do not make voicing safety issues a Job Requirement.

Further, the effects of the CARD intervention were found without the benefit of a larger and/or on-site multi-method training program, such as Assertiveness Training within an annual Crew Resource Management training program (i.e., without longer or repetitive exposure to the CARD intervention).

The interchangeability of CARD with SSTL is also encouraging. If a management team is not (or cannot easily/quickly become) Safety Specific Transformational Leaders, CARD (i.e., providing guidance on how to voice) may be used to enhance employee's confidence to voice and perceptions of Safety Climate.

In addition, Job Requirement to voice safety concerns may also be perceived as SSTL[13]. This supports a similar finding from the manipulation check (for Study 3). That is, participants seem to perceive an administratively mandated Job Requirement to voice safety concerns as Safety Specific Transformational Leadership. For organizations unwilling to advise or train their young workers in how to voice safety concerns, they could consider making the voicing of safety concerns a Job Requirement. However, it could also be argued that a manager compelling employees to voice safety concerns is reiterating or reinforcing the expectations imbedded within the internal responsibility system. Employees may view such a requirement as promoting a positive safety culture. Although an existing safety culture (i.e., positive or negative) may also alter employee's perceptions of job requirements. For example, in a negative culture (e.g. with high management by exception), voicing safety concerns may involve increased personal risk

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[13] Given few two-way interactions (in the MANCOVA) each IV, appears to *displace* another or counteract another IV. However, when all three are combined, the results appear to mirror those of CARD or Job Requirement alone.

to career and friendships, thus a requirement to voice safety concerns may result in employees feeling a double bind (damned if they do voice and damned if they don't voice). Further research is required to explore context (e.g., with a positive or negative safety culture) before we can advocate for the use of job-requirements to improve safety voice across the board.

Nonetheless that CARD or Job Requirement may be perceived as SSTL behaviour is somewhat unexpected. One explanation may be found in Bycio, et al.'s (1995) assessment of Bass's (1985) Transactional and Transformational Leadership; While Bycio et al. found support for a five-factor representation of Transformational Leadership, they claim that a "two factor, Active-Passive model was also tenable" (p. 468). Suggesting that some actions by managers (e.g., the restaurant manager in the vignette) may be perceived as SSTL or as *Active* leadership. While this interpretation would seem to explain significant main effects between the IVs, CARD and Job Requirement, and the DV Safety Specific Transformational Leadership, it is unclear how Active vs. Passive leadership aids in interpreting the three-way interactions. That is, if all the IVs are perceived as SSTL or Active leadership, why when combined (i.e., interaction of CARD*SSTL*Job Req.) are some DVs impacted to a lesser degree than one independent variable (e.g., SSTL)? No doubt future research will be required to adequately address some of these questions.

Another explanation could involve Kerr & Jermier's (1978) 'Leadership Substitutes' argument, whereby actions (e.g., organization policies) could be used by managers and subsequently interpreted by employees, as substitutes for leadership. In the restaurant vignette, providing employees with a policy on how to voice safety concerns

(i.e., CARD) or making voicing of safety concerns a Job Requirement, may have been interpreted as a substitute for leadership. Although Howell & Dorfman (1981), Howell, et al., (1990), and Dionne, et al, (2002; 2005) have questioned the leadership substitute model, some have found it to help explain how organizational context issues (e.g., role autonomy) can influence organizational outcomes/perspectives. As Podsakoff, et al., (1996) stated, "transformational leader behaviors and substitutes for leadership each had unique effects on follower criterion variables" (p. 259).

That transformational leadership and or passive leadership can have divergent effects on employee safety is not novel in the safety literature (Kelloway, et al., 2006). There is, in the case of CARD, Job Requirement and SSTL, reason to suspect that some interaction effects (moderation, mediation, or suppression) are occurring (Duan, et al., 2017). Moderators and mediators could include *trust* (Conchie & Donald, 2009; Conchie, et al., 2012) in the leader and/ or perceived *receptivity* of the leader to voiced safety concerns, or job autonomy (Svendsen, et al., 2018). Perhaps as the Leadership Substitute literature suggests, other actions may be perceived as Transformational, but what and how they are combined can produce results that are not necessarily additive.

These findings could have implications for various workplaces, specifically in their ability and willingness to i) train all the managers and supervisors to be transformational leaders, and/or ii) In their hesitance to make voicing safety concerns a Job Requirement. That CARD reduces (some) perceived Risks, while improving perceptions of Safety Climate and participant's Probability of Successfully voicing safety concerns, is both encouraging and reason for further research.

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With this in mind, future research may seek to explore: i) If another safety voice intervention (e.g., assertiveness training from crew resource management programs) would be more effective than CARD? ii) If CARD and Rights training would be additive in improving confidence and willingness to voice safety concerns in a real workplace? iii) Whether, as noted in Study One (regarding *perceptions of futility* and *manager receptivity*) the act of training managers along *with* young workers would result in improved confidence and willingness to voice safety concerns in a real workplace? If so, why? Perhaps employee-supervisor co-training alters perceived trust in leaders, the receptivity of leaders to voice, and/or simply creates a shared understanding of what is expected (Duan, et al., 2017). If the broader literature on voice (including whistleblowing) is any indication (Kenny, et al., 2019), the task of improving young workers' confidence and willingness to voice will be difficult and multifaceted (e.g., legislation protecting those who voice, clear guidelines regarding how, when, and where to voice, evidence that people who have voiced in the past continue to be safe, etc.). Perhaps manager involvement in CARD training could alter young workers' 'calculus of voice' (i.e., perception of risk to voicing safety concerns)? Exactly how it would do so, is presently unclear.

Chapter 6

General Discussion

Context vs. Implicit Theory

As stated Contextual factors theory assumes that various external (or contextual) factors inhibit or enhance an individual's willingness to voice, including: safety climate, leadership style, leader's receptivity to ideas, type of voice (i.e., challenging/prohibitive or supportive/ promotive), loyalty (to the leader and/or organization), and more recently employee's voice quality and voice strategy (Walumbwa & Schaubroeck, 2009; Whiting, 2012). Rather than competing theories, contextual factors and implicit voice theories may complement each other. By recognizing that both theories are important can help refine training efforts to target both objective constraints (e.g., policies, procedures, leadership) while also rectifying the interpretations (i.e., cognitive scripts) of contextual factors (e.g., via communication skills).

Gary Johns defines context as "situational opportunities and constraints that affect the occurrence and meaning of organizational behavior as well as functional relationships between variables…" (pg. 386). If context influences relationships between independent and dependent variables, it is worth considering whether study two (video intervention) and study three (email intervention) as measured by the dependent variables could be partially due to contextual factors. Contextual factors could include the workplace settings participants imagined as they were completing the questionnaires (e.g., in study two participants imagined a workplace setting and in study three a workplace setting was provided by the vignette - i.e. a restaurant). Additional contextual factors could include an imagined supervisor vs vignette supervisor. Or, the type of leadership involved, study

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two (imagined by participants) vs. study three (manipulated by the researcher through the vignette). In a 'real world' sense, if employees were trained to use CARD, the relative efficacy of CARD may depend on contextual factors such as workplace/worksite safety culture, workplace norms surrounding speaking out/up and or who is expected to speak (e.g., high social status workers, senior workers, women). Each of the above could act to constrain or enhance willingness and likelihood to voice and/or the receptivity of someone to CARD. Further, various contextual factor could combine (i.e., the culture) to influence the relationships/variables under investigation. As Johns (2006) states, context may also be a 'bundle of stimuli' - that is, CARD combined with SSTL and/or requirements to voice may become a contextual factor influencing DV's. According to Johns (2006), context can: restrict range, affect base rates, change causal directions, reverse signs, prompt curvilinear effects, tip precarious relationships, and or threaten validity. This suggests that the three-way interaction of IV's could, by itself, be a collective contextual influence on participants' interpretation of the IV's on DV's. Further CARD research will be required to demine if and what context variables may have influenced the findings.

Empirical Support for CARD

Communication, assertiveness, or *how to voice* training/interventions need to be empirically evaluated (Shannon et al., 1999). Specifically, do such interventions result in measurable increases in actual voicing incidents or in perceived willingness to voice:

> "We describe the importance of evaluating workplace safety interventions. Based on the literature and other sources, we list eight areas for which readers can assess the quality of reports evaluating these interventions. The areas are, intervention objectives and their conceptual basis; study design; external validity; outcome measurement; use of qualitative data; threats to internal validity; statistical

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analysis; and study conclusions. Good quality evaluations can help avoid wasting limited time, money and effort on ineffective or even harmful interventions… Conclusions: i) Did the conclusions address program objectives? ii) Were the limitations of the study addressed? iii) Were the conclusions supported by the analysis? iv) Was the practical significance of the result discussed?" (p. 175).

This research set out to develop and empirically test the efficacy of a safety voice intervention. Specifically, will training people *how* to voice safety concerns result in improved confidence and willingness to voice safety concerns. The results from Study Two suggest that the safety voice intervention CARD may have improved their perception of the probability of successfully voicing concerns to a (their) manager. This conclusion is not without a disclaimer, internal validity may be challenged by the method used (i.e., on-line questionnaire, on-line participant pool, video style/format, etc.). For this reason, suggestions of a potential impact on public education/policy of the CARD intervention should be tempered until field studies can be performed. With this being said, the result found in study Two occurred after a one-time, 90 second video. Whereas the Rights video is repeating training that many young workers may have been exposed to (primed) prior to their participation in this study.

Study Three holds promise for moving forward with field trials. Although prone to similar method-biases and hence threats to internal validity as Study Two, the positive impact of CARD on several established measures, should provide support for moving forward with field trials (i.e., on-site, in-workplace) training. Also, this study was aimed at improving *young* persons' confidence and willingness to voice safety concerns. It is unclear at this moment if such an intervention would improve older workers' confidence and willingness to voice safety concerns.

Many other questions remain. What, for example, is the suitability of the CARD safety voice intervention to safety incidents of different duration, frequency, intensity and/or consequences? The safety voice intervention being developed in this research was intended to be applied across contexts. However, during Study One (interviews with young workers) participants described safety incidents of vastly different duration, frequency intensity and/or consequences. Given differences in measured outcomes across Studies Two and Three, there is reason to believe different safety incidents could impact the efficacy of a single (i.e., generic) safety voice intervention. Considering that a broadcasted CARD message could, if applied by a young worker in their workplace, be perceived as *odd* in one context and more ideal in another, future research may need to explore how different duration, frequency and/or intensity of safety incidents (and perhaps other contextual variables) interact with specific safety voice intervention.

A gap in this research, is the influence of CARD on collective voice. It is unclear if CARD will positively influence such informal voice; as some participants stated in Study one, 'gathering peer support' or 'voicing together with other employees'. However, because the safety voice intervention being developed and tested in this study assumed that one person will speak to a supervisor, manager or boss, collective or informal voice was not incorporated into CARD.

Further, it is not clear from this research the exact path or mechanism through which CARD works. For example, is it perception that is important (i.e., cognitive script) and/or is it due to obedience; or alternatively, some other mediated or moderated path?

Future Research

Variance in Manager/Supervisor Receptivity

Several participants in Study One mentioned the importance of manager/supervisor receptivity to employees' voiced safety concerns. Specifically, how may this inhibit or enhance their confidence and willingness to voice safety concerns (e.g., wanting to 'avoid conflict with [their] manager')? Comments related to manager receptivity included: [he/she] 'provides time to voice', 'a nice person', 'not dismissive', 'not rude', 'showed interest in the issue', 'good relationship with boss', 'approachability of boss', 'willingness to listen', 'boss providing time', 'boss spoke a lot about safety', 'felt safe/comfortable confiding in boss', 'I have an open line of communication with boss', 'trusted the boss', alternatively 'boss too intimidating', 'boss too focused on production [vs. safety]', 'boss not in good mood'; 'I would not want to upset boss'.

Given that participant's *perceptions* of manager's receptivity versus manager's *actual* receptivity may differ (i.e., script or fact) and by extension potentially impact participant's reported confidence and willingness to voice safety concerns, future research may want to explore i) if CARD alters *perceptions* of manager/supervisor receptivity, ii) if CARD can improve manager/supervisor *receptivity* to employee's voiced safety concerns. In contrast, some Study One participants mentioned that *strong manager employee friendships (and/or kindness)*, could result in them (participants) being *less* likely to voice safety concerns to their manager. iii) This preliminary finding suggests that further research is needed to determine if CARD is effective in settings where managers and employees are cordial, friendly and/or family.

Futility

Another element, somewhat related to manager/supervisor receptivity, is young

workers' perception of futility (i.e., their script). According to Study One participants,

perceptions of futility can undermine their willingness to voice safety concerns.

Participants' perceptions of futility may occur for a variety of reasons including: 'the

boss did nothing', 'the boss had too many direct reports', 'the manager lacks power to

effect change' or a participant 'felt the boss would do nothing'. Future research may seek

to explore the role and influence of CARD on employee perceptions of futility in voicing

safety concerns.

Supervisor Participation in CARD Safety Voice Training

Beyond the influence of CARD on young workers' confidence and willingness to

voice safety concerns, manager involvement in employee safety voice intervention

(training) may be a key factor in overcoming perceptions of futility. As mentioned

above, participants conveyed the importance of manager receptivity for employees

considering voicing safety concerns. However, while some managers hope and/or intend

to convey receptivity, variability in employee perceptions of managers enacted

receptivity adds to the complexity of leadership. Many participants in Study One (while

reiterating the importance of managers' receptivity), felt that managers providing CARD

to and/or co-training with employees would help convey managers' receptivity to voiced

safety concerns. Specifically, co-training of CARD alongside/with managers could help

for the following reasons: i) employees witnessing supervisors receiving/giving CARD

training, may believe the supervisor/manager endorses CARD, thereby is more receptive

to employees' voiced concerns; ii) employees may believe that CARD is a *shared and*

accepted language, expectation or practice in their workplace; iii) *both* managers and employees may become attuned (and responsive) to others practicing CARD.

For Chamberlin, et al.'s (2016) safety voice training would be appropriate for *both* employees and managers: "Employee training could impart knowledge, skills, and abilities that foster competence and, in turn, engagement"… "organizations could develop practices and policies that help supervisors and organizational leaders better appreciate the value of prohibitive voice so that it is not discouraged" (p. 44). Stated differently "supervisors and managers can play a key role in whether younger workers raise safety issues" (Tucker & Turner, 2010, p. 18; Mullen, 2005).

Perhaps managers' involvement in CARD training is as or more important than the specific wording/steps of competing safety voice interventions? Or it may be that managers are seen as endorsing voice training, by having managers involved in giving, receiving, practicing voicing training? Is, like safety specific leadership (Conchie & Donald, 2009) there a role for safety-specific trust? Consequently, future research may seek to explore the role and influence of supervisor/manager co-involvement in CARD training.

Frequency of Safety Intervention

In addition to exploring managers' involvement in CARD training, the frequency of such training may be an important consideration. What is optimal exposure to CARD? One participant stated, 'a lot of training *gets lost*' (i.e., is forgotten). This is not hard to imagine, given the sheer amount of mandatory workplace training, especially for new employees. Participants of Study One recommended repeated exposure/training; in

workplaces, in Schools, in combination with CARD posters. Future research could explore 'optimal exposure' to CARD.

CARD's influence on employees' chosen voice strategy

Given participants (across studies) mentioned several channels/means for voicing safety concerns, such as: face-to-face, anonymous tip line, phone-call, email/text, and suggestion box. Can CARD be adapted across employees' chosen means of communication?

Employees ideal method of voicing concerns vs. managers preferred method for receiving voiced concerns

While Study One participants explained what *they* believe is the 'best method to voice to a manager', we do not know *if managers wish to receive voice in this manner*? Is *how* a supervisor wants to be spoken/voiced to, an important consideration? It should be noted, that several participants self-identified as having been, or currently being, supervisors of other young workers. For this reason, Study One may have inadvertently attained both worker's *and* supervisor's views on voicing safety concerns. Regardless, future studies could specifically explore supervisors' preferred method of or wording when receiving voiced safety concerns?

Suitability of CARD in cases of other workplace stressors?

Can CARD aid in reducing mental/psychological impact from other workplace stressors such as bullying and/or sexual harassment? Several participants asked if CARD could be adapted to cases of sexual harassment or bullying, which raises two points: i) are people/employees currently trained in how to voice concerns about these other stressors? ii) is there a current model for how to voice sexual harassment? Future research may

wish to explore these questions. Conversely, can research on CARD be informed by the sexual harassment or bullying literatures on voice?

Hostile or Less than Ideal Contexts

Another avenue for future research could be in how context (e.g., hostile, friendly, cordial, etc.) might influence the effectiveness of CARD? Whether a young worker is facing harassment due to their race, sex, age, disability, family status, or any other trait, or dealing with sexual harassment and/or bullying, such workplaces are hostile for those being targeted and likely for those employees witnessing such behaviours. Personal attacks (by peers and supervisors) on a young worker's skills, job security, character, or work ethic may also create a hostile work environment. In such scenarios, how likely is it that following the CARD safety voice script would effect change in the work environment?

Recent research on abusive supervision and employee silence (Khan, 2019; Lam & Xu, 2019; Park, et al., 2019;), disruptive behaviour and voice (Dixon-Woods, et al., 2019), leader Machiavellianism and 'follower' silence (Erkutlu & Chafra, 2019), suggests that the efficacy of CARD may be influenced by such factors; "the role of social context (e.g., leadership, team climate, and organizational support) in shaping employee proactive behavior has received considerable attention and has been investigated across multiple forms of proactive behavior" (Cai, et al., 2019, p. 209). Moving forward, it seems prudent to consider (workplace) social context when researching the application and efficacy of CARD.

Cross-Cultural Application

The current research is limited to an evaluation of CARD conducted in one language, in one region, of two North American countries, with specific and likely unique combinations of cultures, norms and laws - leaving open the possibility that (if unchanged or unmodified) CARD may not be relevant, applicable or sensitive to specific cultures internationally or within another country. Future research could explore safety voice training across cultures, industries, organizations, regions and countries.

Reliable Indicator of CARDs Effectiveness

It should also be noted that increases in voiced safety concerns by workers (a presumed benefit), might not be a reliable and consistent indicator of the effectiveness of safety voice training. While one might expect (and desire) increases in voiced safety concerns in the short term, one would hope that such concerns are addressed over time. Consequently, the reasons and motivation for voicing safety concerns should also diminish. However, a decline in voiced safety concerns over time may also be indicative of waning CARD training or degradation of safety vigilance/culture. Ultimately, a decline in workplace near misses, accidents, injuries, diseases and/or fatalities is a central goal and likely a critical long-term indicator of the efficacy of CARD safety voice training.

Turnover

Further, while improving health and safety outcomes are important when evaluating safety voice training initiatives, such training may reduce accidents and injuries while simultaneously increasing employee turnover. For example, while managers may address many lower cost and relatively easy health and safety concerns,

failure by managers to address other (perhaps more expensive and complex) ones, could result in workers choosing to 'exit' as a response (versus voice). Future research could explore the impact of safety voice training on workplace turnover (Kassing, et al., 2012).

Prohibitive and or Promotive Voice

How might CARD safety voice training (for/with both employees and managers) alter or reverse perceptions of promotive or prohibitive voice (Burris, 2012)? Based on Chamberlin, et al.'s (2016) work, perhaps *how* a person voices (safety concerns), helps the listener differentiate between whether the voice is promotive or prohibitive; resulting in positive or negative evaluations (by supervisors or others) of the voice. If *how* a person voices safety concerns can influence perceptions of a voicing event/effort, we might expect voicing efforts (and the voicer) to be perceived differently.

Perhaps a division between promotive and prohibitive voice is not firm and clearly defined, but more fluid and ill-defined; both of which are dependent on who is evaluating their perceptions and the outcome sought (improved job, organization performance or worker safety)?

CARD and Conflict

It is conceivable that training young workers and their supervisors how to voice (and receive) safety concerns may impact the type and degree of conflict in the workplace. For example, does safety voice training reduce incidents and severity of task, process and relationship conflict?

Leadership

Leadership style and leader personality may also be of future interest. In study two, some participants were exposed to a video (similar to a public service

announcement) and in study three some participants read a managers email (which included CARD). There was a measurable difference in the impact of CARD training via a 90 second audio/video versus an email. Future research will need to determine if the means of delivery (e.g., delivered via a workplace poster versus workplace CARD training video or email), or the source of the message (e.g., direct supervisor or company owner) impact the efficacy of CARD? Further, given that participants reported all interventions (Job Requirements, CARD and SSTL) as being perceived as SSTL interventions, who conveys the message may be as important as the message being conveyed. Is, for example, one leadership style more receptive to employees practicing CARD? Do certain personality types (of employees and/or managers) influence the expression of, and/or receptivity to CARD? For example, will a manager's (big five) personality traits predispose certain individuals to be more or less receptive to voiced safety concerns (Walumbwa & Schaubroeck, 2009)?

Teams and Peers

Based on research on employee voice in groups by Morrison, et al. (2011), would CARD training influence the likelihood of individuals voicing safety concerns in group or team contexts? This study primarily focused on whether *individuals* were more or less confident and or willing to voice safety concerns. Prior research suggests that peers can also influence safety behaviors of co-workers (e.g., Andriessen, 1978; Cree & Kelloway, 1997; Tucker, et al., 2008; Westaby & Lowe, 2005). Future research may wish to explore the impact of CARD training on groups or teams of coworkers.

Employment Status

Employment status may be another factor worthy of exploration; can safety voice training improve the health and safety of temporary agency workers (Underhill & Quinlan, 2011), or those in other precarious employment situations (e.g., 'fissured workplace')? Given the centrality of remuneration to workers' ongoing existence, could safety voice training result in improved health and safety outcomes while simultaneously maintaining or securing continued employment?

Potential Limitations

Shortcomings of this research include the use of cross-sectional data (for Study Two and Three). Therefore, it is not known if CARD training would be retained and/or if voice is sustained over time. In addition, perhaps improvements in confidence and willingness to voice safety concerns are more fully explained by other exogenous variables unaccounted for in the research design. For example, employees and managers may enact/respond to non-verbal (safety) voice (Matsunaga, 2014). The CARD safety voice intervention explored in this research is premised on an assumption that 'voice' is an overt verbal endeavour, versus (but plausibly) non-verbal 'voice'. For example, resistance by workers to an unsafe directive by a supervisor could simply be silence (by one or many workers). Yet as discussed above, silence can be ambiguous given that silence may indicate support, resistance, disinterest, or ambivalence on the part of workers. Only extended behavioural observations across workplaces are likely to reveal other forms of voice.

Conclusion

With the aid of theory, existing practices, and valuable insights from interviews of young workers who witnessed or experienced a health and safety incident and/or near-

miss, a safety voice intervention was created and refined into the CARD safety voice intervention. Study two demonstrated that exposure to a single, novel and brief (90 second) CARD intervention improved young workers' confidence to voice safety concerns at work. Further, young workers exposed to a text-based CARD intervention (i.e., manager email) also reported improved confidence and reductions in perceived risk in voicing safety concerns. These results would seem to support moving to field trials in real workplaces, and if significant results are found, may have an immediate and measurable impact on young workers voicing of safety concerns. For example, in the absence of safety specific transformational leadership, and in those normal organizations without mandatory reporting (i.e., a job requirement) to voice safety concerns, text-based and or video interventions may improve employees' confidence to voice safety issues to their supervisor/manager.

The path forward should not overlook or underestimate the challenges that lay ahead for researchers and young workers alike. Contexts and perceptions of contexts can be intimidating… "In manufacturing you want people who follow the rules and fall in line" (an Alcoa Spokesperson, taken from Michael Lewis's book "Boomerang", 2011, p. 31). Many organizations have strict procedures, hierarchy and reporting protocols that may (or may be perceived to) prevent injuries, illnesses, and deaths on the job. However, it should be acknowledged that such procedures, hierarchy and reporting protocols might be the very things that *hinder* employees voicing safety concerns. Fearful of placing their job and/or workplace relationships at risk, many employees may simply remain silent about safety concerns even when their life is at stake. Thus, CARD safety voice training may aid young workers in overcoming some factors that, if otherwise unquestioned,

would lead to blind adherence to procedures, hierarchy, and reporting protocols - as well as young worker silence, injuries and deaths. Young workers are at greater risk of workplace injury perhaps because they tend to work in temporary, part-time, non-unionized jobs (Barling and Kelloway, 1999; Galarneau, 2005; Marshall, 2007; Usalcas, 2005) they may miss or be excluded from workplace health and safety training opportunities, and instruction in formal or informal voice procedures. This was part of the reason young workers were chosen for this study in the first place. However, although CARD was designed for and tested on young workers (aged 15-24) CARD training may well be applicable to older workers as well. Initial testing of the suitability of CARD for older workers could follow a similar multi-phase research design used thus far. Specifically, face-to-face interviews with older workers (i.e., 25-65) to determine if the CARD intervention needs to be adapted, followed by an on-line survey of the CARD intervention using employed persons between ages 25-65 years of age as participants. Some aspects may need to be modified (for example, older workers may be more resistant to being told 'how' to voice). But these are questions for future research. Hopefully, this research can contribute one step to our understanding of and improve employee safety voice in the field; lives depend on it.

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Get involved in safety at your workplace.

If you're a worker, here are some tips for how you can use your voice to help protect your safety and the safety of others at your workplace.

With managers:

- I want to make sure I'm doing this job right. What should I know about doing it safely?
- I've heard of someone getting hurt doing something like that. How can we ensure it doesn't happen to me?
- I would feel more comfortable with that role if I had additional training. I've found some courses I think can help. What courses would you recommend?
- I'm concerned because I've seen a few people not following some of the safe working procedures we have posted.
- I've heard some people discussing (a hazard ex. a broken ladder, a broken light), but I'm not sure if you've been made aware of it yet. Can we get this fixed?
- How can I get involved in safety at our workplace? Is there a safety committee I can join?
- There seem to be a lot of new employees that don't know their safety and health responsibilities. I was talking to a few other people and we think it might be a good idea for a team meeting to refresh everyone on safety and health responsibilities at work.
- Is there an emergency procedures plan?
- I've seen some cool workplace safety posters on **www.safemanitoba.com**. Can we get some more safety resources posted around here?

With coworkers:

- I've worked on that machine before and learned (insert a best practice about working safely).
- It doesn't look like you are using the correct PPE. You need to have the proper equipment before continuing to work on that. You can get the equipment by talking to (insert manager's name).
- That doesn't look safe. Here is the safe way to do this.
- Do you need help cleaning your work area? It will help prevent possible injuries from slips and trips if your area is clean.
- You don't seem comfortable with that task? Have you received training on it? If not, you should tell (supervisor) that you have not been trained to do that job.

If you're an employer, here are some tips for how you can encourage your employees to use their voice.

- Let your employees know their safety and health at work are important and encourage them to come to you with any safety and health questions or concerns.
- Have safety meetings with your team with a time scheduled for questions and answers.
- Provide information on safety training opportunities.

Visit www.safemanitoba.com for more resources on workplace safety.

Appendix B

Study One: Recruitment

Student Recruitment Poster/Kijij (on-line) Advertisement
SMU Students needed for a study on young worker safety. Participants must be 18-25 years of age, currently work or have worked in paid employment, and have experienced or witnessed at least one workplace health and safety incident or 'near miss'.
Incident is an occurrence, condition, or situation arising in the course of work that resulted in or could have resulted in injuries, illnesses, damage to health, or fatalities.
Near miss (or a close call) is an event that could have caused harm but did not.
If you would like to participate or you have any concerns that may prevent you from participating, please contact me, Robert Murray (robert.murray2@smu.ca). This research has been approved by the Research Ethics Boards at Saint Mary's University (Insert Ethics Approval File Number); consequently, we are committed to follow strict protocols for the protection of your privacy including personal information. Thank you. Robert Murray, Ph.D. Candidate (Supervisor: Dr. Kevin Kelloway)

Faculty Recruitment Email (to be read out to students in class)
SMU Students needed for a study on young worker safety. Participants must be 18-25 years of age, currently work or have worked in paid employment, and have experienced or witnessed at least one workplace health and safety incident or 'near miss'.
Incident is an occurrence, condition, or situation arising in the course of work that resulted in or could have resulted in injuries, illnesses, damage to health, or fatalities.
Near miss (or a close call) is an event that could have caused harm but did not.
If you would like to participate or you have any concerns that may prevent you from participating, please contact me, Robert Murray (robert.murray2@smu.ca). This research has been approved by the Research Ethics Boards at Saint Mary's University (Insert Ethics Approval File Number); consequently, we are committed to follow strict protocols for the protection of your privacy including personal information. Thank you. Robert Murray, Ph.D. Candidate (Supervisor: Dr. Kevin Kelloway)

(Students responding via email to the above recruitment efforts will be sent the following:)
"Hello,
Thank you for responding to our request for participants. Please read the Informed Consent Information (below/attached). By responding (to robert.murray2@smu.ca) and typing "I agree" in the subject line (or in the body of the email), you are acknowledging that you have read the Informed Consent Information and consent to participate in an interview on the topic of young worker safety. Upon doing so, you will be contacted to arrange a time and location to begin the interview.
Remember to become a participant in this study you must be between 16 and 25 years of age, currently work or have worked in paid employment, not employed or managed by a family member/relative, and have experienced or witnessed at least one workplace health and safety incident or 'near miss'.

Appendix C

Study One: Young Worker Interviews

After students responded "I Agree" to the Research Participant Consent Form, an interview time was set. The following are the semi-structured interview questions for Study One:
"Before we begin are you between 16 and 25 years of age, currently work or have worked in paid employment, not employed or managed by a family member/relative, and have experienced or witnessed at least one workplace health and safety incident or 'near miss'?
'No' do not start interview.
'Yes' You can end your participation at any point. Questions? Ready to begin?

Question 1: Describe a workplace accident or near miss you witnessed or experienced? May need to clarify incidence and near miss. <u>Incident</u> is an occurrence, condition, or situation arising in the course of work that resulted in or could have resulted in injuries, illnesses, damage to health, or fatalities. <u>Near miss</u> (or a close call) is "an event that could have caused harm but did not" (CCOHS, 2018, OSH, Incident Investigation, Answer Fact Sheets, Accessed Feb 10, 2018)
If 'None': End interview (a condition for participating in this study is involvement in or witnessing of a workplace incident or near miss).
Participants describe an incident (Record then proceed to Question 1A)

Question 1A: What are some other incidents that bothered you?
(Record responses then proceed to Question 2)

Question 2: Have you ever voiced (i.e., communicated) safety concerns to your supervisor or boss?
Yes: Proceed to Question 2C
No: (Record responses then proceed to Question 2A)

Question 2A: What prevented you from voicing your safety concerns?
(Record responses then proceed to Question 2B)

Question 2B: What do you wish you had done about it?
(Record responses then proceed to Question 2D)

Question 2C: What did you say or how did you voice your safety concerns?
(Record responses then proceed to Question 2D)

Question 2D: How have others voiced safety concerns to your supervisor?
(Record responses then proceed to Question 3)

Question 3: Please describe what you feel is the best method of voicing safety concerns to your supervisor?
(Record responses then proceed to Question 4)

Question 4: What are your legal rights regarding workplace health and safety?
(Record responses then proceed to Question 4A)

Question 4A: Please explain?
(Record responses then proceed to Question 4B)

Question 4B: How might knowing you are legally allowed to voice your safety concerns have helped you to voice your safety concerns?
(Record responses then proceed to Question 5)

Question 5: What factors at your workplace might inhibit or enhance your willingness to voice safety concerns?
None: Proceed to Question 6
Participants describe factors (Record responses then proceed to Question 5A)

Question 5A: How so?
(Record responses then proceed to Question 6)

Question 6: Please describe how receptive your supervisor would be to you voicing safety concerns? Prompt: Specifically in what way?
(Record responses then proceed to Question 6A)
Question 6A: How would this impact on your decision to report the incident?
(Record responses then proceed to Question 7)

Question 7: Please describe your supervisor's leadership style?
(Record responses then proceed to Question 8)

Question 8: What personal factors might inhibit or enhance your willingness to voice safety concerns to your supervisor or boss? Personal factors such as - Friends? Co-workers? Family? Fear of being fired? Any other personal factors?
(Record responses then proceed to Question 9)

Question 9: If you were to be given training/guidelines on how to effectively voice safety concerns to your supervisor, what should this training include? Prompt: Please be specific?
(Record responses then proceed to Question 10)

Question 10: If the following training (participant given separate sheet) on how to effectively voice safety concerns to a supervisor were offered to you on your first day on the job, would it have helped?
Yes: (Record responses then proceed to Question 10A) Prompt: How so?

No: (Record responses then proceed to Question 10A) Prompt: Why?

Question 10A: How might/would you improve the SQAC training?
(Record responses then proceed to Question 11)

(SQAC Training – printed on separate sheet)
"Knowing _how_ to speak up or voice safety concerns is important…
i) Stop: You are not a robot! You do not have to do unsafe work. Is it unsafe for you or others? Your health and life are at stake.
ii) Question: Be intelligent! It's not stupid to ask questions about safety. Ask lots of questions (about the job, the dangers, need for training, proper procedures, etc.). What is the cost to you, others, and the company of an injury or fatality? (You may feel nervous asking questions– that's ok)
iii) Alternatives: Create alternatives! Help others imagine safer alternatives. Offer creative ideas for working safely and avoiding loss, injuries, or fatalities. Create a verbal picture of the total costs (to profit, career and life) of unsafe work practices for others.
iv) Choice: Gut check time! If your safety concerns are not addressed, make a (potentially lifesaving) choice! Clearly state your objections/concerns; refuse to participate; and seek out support for your choice."

Question 11: Are there any comments or questions you would like to add?
        (Record responses then proceed to the Debrief Form, Appendix D)"

Appendix D

Study One: Debrief Form

(Printed in hardcopy and provided to participants)
Thank you for your participation. As mentioned previously, we are interested in those factors, thoughts or feelings that may influence young workers' voicing of safety concerns to their supervisors. Specifically, we are interested to learn what if anything can be done to improve young worker's confidence and willingness to voice safety concerns to their supervisors. It is believed that training young workers *how* to voice safety concerns will improve young workers' safety voice and by extension improve young workers' health and safety at work. If you have any concerns about your participation in the study or believe you are suffering adverse effects stemming from participation in the study or would like to withdraw your participation/data, please immediately contact me (Robert Murray, robert.murray2@smu.ca) or Dr. Kevin Kelloway (kevin.kelloway@smu.ca; 902-491-8616). Beyond our availability, additional structures of support include: The Canadian Centre for Occupational Health http://www.ccohs.ca/safetyinfoline.html; Nova Scotia Health and Safety https://novascotia.ca/lae/healthandsafety/workers.asp; Workers Compensation Board of Nova Scotia http://www.worksafeforlife.ca/Home/Injury-Prevention/Tools-for-a-Safer-Workplace/For-Young-Workers/Tools-for-Young-Workers If your symptoms persist please contact the Saint Mary's Counseling Centre http://www.smu.ca/campus-life/the-counselling-centre.html;

If you would like a copy of the final completed report, please email robert.murray2@smu.ca, to request a copy.

Study Two: Recruitment Poster/Script

Participants needed for a brief (approx. 20 min.) on-line study on young worker health and safety. You must be between 14 and 25 years of age, currently work or have worked in paid employment, were/are not employed or managed by a family member/relative and were/are not self-employed. If you are interested in participating, go to: (web address link provided)

If you have any concerns that may prevent you from participating, please contact me, Robert Murray (robert.murray2@smu.ca). This research has been approved by the Research Ethics Boards at Saint Mary's University (REB # 19-074). Consequently, we are committed to follow strict protocols for the protection of your privacy including personal information and questionnaire responses.

Thank you. Robert Murray, Ph.D. Candidate (Supervisor: Dr. Kevin Kelloway)

Appendix F

Study Two: Questionnaire

Q1. "What is your age (in years)?"
　　Under 14(1; omitted from study); 14 to 15(2); 16 to 17(3); 18 to 19(4); 20 to
　　21(5); 22 to 23(6); 24 to 25(7); 26 or older(8; omitted from study)

Q2. "What is your gender?"
　　Male(1); Female(2); Other(3)

Q3. "Do you currently work or have worked in <u>paid</u> employment?"
　　Yes(1); No(2; omitted from study)

Q4. "Were/are you employed or managed by a family member/relative?"
　　Yes(1; omitted from study); No(2)

Q5. "Are you self-employed?"
　　Yes(1; omitted from study); No(2)

Participants Randomly assigned to one of four conditions (Safety Voice; Rights;
Safety Voice & Rights; Control/No intervention)

<u>Condition 1:</u> Participants exposed to *Safety Voice/CARD* video <u>in advance of the questionnaire</u>.
"The following short (approx. 90 seconds) health and safety
training video will begin automatically after you click the next arrow (below).
NOTE: set the sound level on your electronic device so you are able to clearly hear the video."
<u>Script:</u> "When it comes to workplace health and safety, knowing the steps to voicing or raising safety
concerns is important. These steps are: Calm Down; Alert your Manager; Request Change;
Decision….C.A.R.D….*Calm Down*. Breathe. Take a moment to gather your thoughts. While it's
perfectly normal to feel nervous, remain calm when voicing concerns to your manager. *Alert your
Manager*. Carefully describe the situation to your manager, including feeling 'Uncomfortable',
'Concerned' or 'Unsafe'; your manager may not know. *Request Change*. What do you want changed? Be
specific and clear about what you want changed. Ask the manager for an expected due date for the
situation to be changed. *Decision*. Your health and life are too important. Later if the situation is not
changed, make a lifesaving decision!... Calm Down; Alert your Manager; Request Change;
Decision….C.A.R.D….Now you know the steps to voicing your safety concerns, use them."

<u>Condition 2</u>: Participants exposed to *Rights* video <u>in advance of the questionnaire</u>.
"The following short (approx. 90 seconds) health and safety training video will begin automatically after
you click the next arrow (below).
Note: set the sound level on your electronic device so you are able to clearly hear the video."
<u>Script:</u> "When it comes to workplace health and safety, knowing your rights is important. These rights are:
Right to Know; Right to Participate; Right to Refuse…. *Right to Know*: You have the Right to Know about
all the hazards in your job. Your employer or supervisor has to tell you about anything in your job that can
hurt you. And they have to make sure you have the information you need to work safely. *Right to
Participate*: You have the Right to Participate in keeping your workplace healthy and safe. You can be a
part of the workplace health and safety committee or be a health and safety representative. You also have
the right to participate in training and information sessions to help you do your job safely. *Right to Refuse*:
You have the Right to Refuse unsafe work. If you feel your job is putting you in danger, you have an

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obligation to tell your supervisor about it. Report the unsafe situation to management. If the situation is not corrected and you feel your health and safety is at risk, you have the Right to Refuse to do the work. And you can't get in trouble from your boss or your company. Not if it is unsafe…. The Right to Know; the Right to Participate; the Right to Refuse…Now that you know your three basic rights, exercise them." (the above *Rights* video script sourced from: Canadian Centre for Occupational Health and Safety (CCOHS; https://www.youtube.com/watch?v=wfSxen3E7LU)

Condition 3: Participants exposed to *Safety Voice/CARD & Rights* videos <u>in advance of the questionnaire</u>.
"The following short (approx. 3 minutes) health and safety training videos will begin automatically after you click the next arrow (below).
NOTE: set the sound level on your electronic device so you are able to clearly hear the video."
<u>Script: Same video scripts used in conditions 1 & 2</u>

Condition 4 (Waitlist Control Group): Participants exposed to both *Safety Voice/CARD & Rights* videos <u>after they have completed the questionnaire</u>.
"The following short (approx. 3 minutes) health and safety training videos will begin automatically after you click the next arrow (below).
NOTE: set the sound level on your electronic device so you are able to clearly hear the video."
<u>Script: Same video scripts used in conditions 1 & 2</u>

Note: Participants assigned to conditions 1 & 2 were exposed to the other/second video <u>after</u> they completed the questionnaire.

Participants from <u>all</u> conditions were exposed to the following questionnaire:
 "If I voice safety concerns at work:"
  Q6. "I would be worried about eroding good relationships." (relationship; Schwappach and Gehring, 2014)
  Q7. "good relationships would be damaged." (relationship; Schwappach and Gehring, 2014)
  Q8. "I would receive an immediate negative reaction." (relationship; Schwappach and Gehring, 2014)
  Q9. "I would be concerned about being labelled as *difficult*." (image; Schwappach and Gehring, 2014)
  Q10. "I would be worried about being humiliated." (image; Schwappach and Gehring, 2014)
  Q11. "my image at work would be hurt." (image; Mullen, 2005).
  Q12. "others at work would think worse of me." (image; Mullen, 2005).
(Relationship & Image- Risk; Mullen, 2005; Schwappach & Gehring, 2014)
A seven item measure of participants'' perceptions of risk to relationships and personal image, uses a 5-point Likert-type scale with Strongly Disagree(1) to Strongly Agree(5).

"If I voice safety concerns to management I would be:"
  Q13. "afraid I may lose my job in the near future"
  Q14. "worried about being let go"
  Q15. "worried about whether I will be able to keep my job"
(Risk – Job Security- in Voicing Safety Concerns; Hellgre, et al.,1999)
A three item measure of participants' perception of job insecurity, uses a 5-point Likert-type scale with Strongly Disagree(1) to Strongly Agree(5).

Q16. "Please select Option Three (3)"
  Option One (1) (coded as 1; omitted from study)
  Option Three (3) (coded as 2)
  Option Two (2) (coded as 3; omitted from study)

Q17. "I am confident that I could voice/raise safety issues with a supervisor."
Q18. "I believe that I could get a supervisor to address safety issues."
Q19. "I am confident that I could get a supervisor to pay attention to safety issues."
(Perceived Probability of Success/Confidence; Mullen, 2005).
A three item measure of participants' perceived probability of success (in voicing safety concerns), uses a 5-point Likert-type scale with Strongly Disagree(1) to Strongly Agree(5).

"How likely are you to:"
  Q20. "speak to co-workers at risk and encourage them to fix safety problems?"
  Q21. "tell a supervisor about the consequences of dangerous working conditions?"
  Q22. "group together with co-workers and take safety concerns to a supervisor?"
  Q23. "tell a supervisor about hazardous work?"
  Q24. "remind co-workers to take precautions?"
  Q25. "talk to a supervisor about safety concerns?"
(Safety Voice Intentions; Tucker and Turner, 2011)
A six item measure of participants' safety voice intentions, uses a 5-point Likert-type scale with Very Unlikely(1) to Very Likely(5).

(Omitted from analysis) Q26. "How likely are you to, anonymously report unsafe conditions to an appropriate government department?" Uses a 5-point Likert-type scale with Very Unlikely(1) to Very Likely(5).

Q27. (Attention Check) "Please select the color Yellow"
  Blue(1; omitted from study); Red(2; omitted from study); Yellow(3)

Q28. "How much effort would you be willing to invest into changing safety issues at work?"
Q29. "How much time would you be willing to invest into changing safety issues at work?"
Q30. "How much energy would you be willing to invest into changing safety issues at work?"
(Willingness to identify a Safety Issue; Mullen, 2005)
A three-item scale to measure quantity of time, energy, and effort to raise safety issues, uses a 5-point Likert-type scale with none(1) to a great amount(5). (Q4.29- 'A great amount' originally coded 6, correctly coded into same variable as 5; Q2.27- 'A lot' originally coded 6, correctly coded into same variable as 4; Q2.27- 'A great amount' originally coded as 7, correctly coded into same variable as 5).

Q31. (Attention Check/Knowledge Test; Kirkpatrick, 1976): "I have rights related to workplace health and safety, these rights are?" _____ (Open ended response)

Q32. (Attention Check/Knowledge Test; Kirkpatrick, 1976): "There are steps to voicing

health and safety concerns, these steps are?" _____ (Open ended response)

Demographics

Q33. "Completed *years* of post-secondary education?"
None(1); 1 to 2 years(2); 3 to 4 years(3); 5 to 6 years(4); 7 to 8 years(5); over 8 years(6)

Q34. "You currently are or have been employed in:"
Food Service(1); Construction(2); Lawn Maintenance(3); Retail(4); Other, please describe(5)

Q35. "Average number of *hours* employed per week?"
1 to 5 hours(1); 6 to 10 hours(2); 11 to 15 hours(3); 16 to 20 hours(4); 21 to 25 hours(5); 26 to 30 hours(6); 31 to 35 hours(7); 36 to 40 hours(8); above 41 hours(9)

Q36. "How long have you been working for your most recent employer?"
under one month (1); 1 to 3 months (2); 4 to 6 months (3); 7 to 9 months (4); 10 to 11 months (5); 1 to 2 years (6); 3 to 4 years (7); 5 or more years (8)

Q37. "Total (paid) working experience across all employers/sectors?"
under one month(1); 1 to 3 months(2); 4 to 6 months(3); 7 to 9 months(4); 10 to 11 months(5); 1 to 2 years(6); 3 to 4 years(7); 5 or more years(8)

Q38. "My workplace employs approximately _____ number of employees?"
1 employee(1); 2 to 5 employees(2); 6 to 10 employees(3); 11 to 20 employees(4); 21 to 30 employees(5); 31 to 50 employees(6); 51 to 100 employees(7); over 100 employees(8)

Q39. "Have you ever been injured by a workplace accident?"
Never(1; proceed to Q40); Once(2); A few times(3); Frequently(4)

Q40. (Displayed if Q39 = 1) "How severe was your workplace injury?"
Not at all severe(1); Somewhat severe(2); Moderately severe(3); Severe(4); Very severe(5)

Q41. "Have you personally witnessed a co-worker get injured at work?"
Yes (1; proceed to Q42); No(2)

Q42. (Displayed if Q41 = 1) "How severe was your co-worker's injury?"
Not at all severe(1); Somewhat severe(2); Moderately severe(3); Severe(4); Very Severe(5); Died from injury(6)

Q43. "Has a close friend or family member ever been injured by a workplace accident?"
Yes(1; proceed to Q44); No(2; proceed to Q45.)

Q44. (Displayed if Q43 = 1) "How severe was your friend's or family member's injury?"
Not at all severe(1); Somewhat severe(2); Moderately severe(3); Severe(4); Very severe(5); Died from injury(6)

Q45. "I am more willing to voice safety concerns if I witness my supervisor being trained on how to voice safety concerns."
Strongly Disagree(1) to Strongly agree(5)

Q46. "I am more willing to voice safety concerns if I witness my supervisor being trained on employee health and safety rights."
Strongly Disagree(1) to Strongly agree(5)

Q47. "What do you feel is the best/most effective steps to voicing safety concerns to a supervisor? Please enter your suggestions here:" _____(open ended response).

Q48. "My preference when voicing safety concerns at work is:"
face-to-face/in-person(1); email(2); text(3); phone(4); anonymous/voice mail(5); suggestion box(6); other, please describe(7)_____ (open ended response).

Appendix G

Study Two: Debrief

<u>Feedback Form</u>
Thank you for your participation. This study is exploring the ability, confidence and willingness of young workers to voice safety concerns to their supervisors. It is believed that training young workers how to voice safety concerns will improve young workers' ability, confidence and willingness to voice safety concerns and by extension improve young workers' health and safety at work. The type of training being tested was purposely removed from the description of the study so as to lessen biased survey responses.
If you have any concerns about your participation in the study or believe you are suffering adverse effects stemming from participation in the study, please immediately contact me Robert Murray (robert.murray2@smu.ca) or Dr. Kevin Kelloway (kevin.kelloway@smu.ca). Beyond our availability, for Saint Mary's University students, additional structures of support include: Saint Mary's
University Counselling Centre (http://www.smu.ca/campus-life/the-counselling-centre.html). For all other participants, please consult your physician, clergy or other helping professional.
If you would like a copy of the final completed report, please email robert.murray2@smu.ca to request a copy.

Appendix H

Study Three (A): Manipulation Check- Recruitment

Recruitment Script for SMU <u>Instructors</u>:
My name is Rob Murray, I am in need of participants for a very brief (under 5 minutes) questionnaire. This questionnaire is part of a larger study ultimately contributing to a Ph.D. Thesis. Students are simply asked to read an example email and rate the degree to which students/participants believe it was written by a transformational leader. If you are willing to allow me to visit your class for 5-10 minutes, I will provide a large box of Timbits for the class. All are free to enjoy the donuts, even students who do not participate in the questionnaire.

Recruitment Script for <u>Students</u>:
My name is Rob Murray, I am in need of participants for a very brief (under 5 minutes) questionnaire. This questionnaire should take less than 5 minutes to complete and is part of a larger study ultimately contributing to my Ph.D. Thesis. Participants are asked to read an example email and rate the degree to which you believe it was written by a transformational leader. I have provided a large box of Timbits; you are all free to enjoy the donuts, even if you do not participate in the questionnaire. Your instructor will not be present during the time of the survey and your course grade will not be affected by your participation or non-participation. Although all students will receive a questionnaire, if you do not want to participate, you can simply doodle or draw on the questionnaire until the questionnaires are collected.

Appendix I

Study Three (A): Manipulation Check-Email Transformational Leadership:

All participants read the following:
"Please read the following email from a restaurant manager responding to health and safety issues, then rate the manager using the questions below:"

"There is now a policy for employees to voice/report health and safety concerns. The policy is as follows:"

Participants in Condition One: Job/Role Requirement
1) All employees who witness, experience or believe there is a health and safety concern must voice/report such concerns to your manager; and 2) If it is determined that an employee failed to report a health and safety concern to their manager, the employee will face disciplinary action or termination."

Participants in Condition Two: 'Transformational Leadership' modified from Kelloway et al. (2003)
"I see the health and safety problems in the restaurant. This is not an easy situation to fix, but I know we can solve it. Start by thinking of other health and safety problems you have faced. What did you do to fix the situation? I encourage you to voice/report safety issues, ask questions and offer ideas for improvement; I want to hear your ideas and concerns. I think this is going to be a good learning opportunity and that you/we are ready for it. But I'm here to support you and if you want, I can set my things aside and work with you on this. Trust me, we will achieve a healthier and safer restaurant."
(Kelloway, Barling, Kelley, Comtois & Gatien (2003). Remote transformational leadership. *Leadership & Organization Development Journal*, *24*(3), 163-171.)

Participants in Condition Three: 'Transformational Leadership$_2$' derived from Barling et al. (2002)
"I see the health and safety problems in the restaurant. It is important to me that all employees feel healthy and safe at work. To accomplish this goal, I am willing to put in the time and resources required. I have recognized many people currently perform their jobs safely. However, you should continually try to find new ways of doing your job more safely. I encourage you to voice/report safety issues, ask questions and offer ideas for improvement; I want to hear your ideas and concerns. If you need help, I will spend time teaching and coaching you. If you need me to show you how you might do your job more safely, just let me know and I will offer you suggestions. I have complete confidence that you/we can create and maintain a healthy and safe restaurant."
(Barling, J., Loughlin, C., Kelloway, E., 2002. Development and test of a model linking safety specific transformational leadership and occupational safety. Journal of Applied Psychology 87, 488–496.)

Participants in all three conditions were asked to complete the following Safety Specific Transformational Leadership questions:

For each question, please circle the response that best describes the restaurant manager.

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
1. Shows determination to maintain a safe work environment	1	2	3	4	5
2. Behaves in a way that displays commitment to a safe workplace	1	2	3	4	5
3. Talks about their values and beliefs of the importance of safety	1	2	3	4	5
4. Provides continuous encouragement to do jobs safely	1	2	3	4	5
5. Suggests new ways of doing jobs more safely	1	2	3	4	5
6. Encourages staff to express their ideas and opinions about safety at work	1	2	3	4	5
7. Spends time showing staff the safest way to do things at work	1	2	3	4	5
8. Listens to staff's concerns about safety on the job	1	2	3	4	5

(Barling, J., Loughlin, C., Kelloway, E., 2002. Development and test of a model linking safety specific transformational leadership and occupational safety. Journal of Applied Psychology 87, 488–496.)

Appendix J

Study Three (A): Manipulation Check- Debrief Form

Researching Young Workers' Working Conditions Saint Mary's Research Ethics Board, REB# 19-122
Robert Murray (Principal Investigator)
Sobey School of Business Saint Mary's University, Sobey Building, 923 Robie Street, Halifax, NS, B3H 3C3
Phone: (902) 489-2127, Email: robert.murray2@smu.ca
Dr. Kevin Kelloway (Co-investigator, Supervisor) Sobey School of Business
Saint Mary's University, Sobey Building, 923 Robie Street, Halifax, NS, B3H 3C3
Phone: (902) 491-8616, Email: kevin.kelloway@smu.ca
Dear Participant,
Thank you for your participation. This study is the first part of a larger study exploring the ability, confidence and willingness of young workers to voice safety concerns to their managers, through training, leadership or company policy. It is believed that improving young workers' ability, confidence and willingness to voice safety concerns will by extension improve young workers' health and safety at work. Your participation helps to determine if the manager is considered to be a transformational leader (versus another type of leader). In a subsequent study, we will see if this email impacts young peoples' behaviour.
If you have any concerns about your participation in the study or believe you are suffering adverse effects stemming from participation in the study, please immediately contact me, Robert Murray (robert.murray2@smu.ca) or Dr. Kevin Kelloway (kevin.kelloway@smu.ca; 902-491- 8616). Beyond our availability, for Saint Mary's University students, additional structures of support include: Saint Mary's University Counseling Centre http://www.smu.ca/campus- life/the-counselling-centre.html. For all other participants, please consult your physician, clergy or other helping professional. If you would like to view the report based on this study, you may go to the CN Centre for Occupational Health and Safety webpage (https://www.cncentreinitiatives.com) 60 days after today for a link to a final report.
As with all Saint Mary's University projects involving human participants, this project was reviewed by the Saint Mary's University Research Ethics Board (REB #19-122). Should you have any comments or concerns about ethical matters or would like to discuss your rights as a research participant, please contact the Chair of the Research Ethics Board at 902-420-5728 or ethics@smu.ca.
Thank you.

Appendix K

Study Three (B): Qualtrics- Recruitment Script

Participants needed for a brief (15 min.) on-line study on young worker's working conditions. Participants must be between 18 and 25 years of age, currently live in the U.S.A. or Canada and have current or past wage or salaried employment experience.

      If you have any questions or concerns that may prevent you from participating, please contact Robert Murray (robert.murray2@smu.ca). This research has been approved by the Research Ethics Boards at Saint Mary's University (REB # 19-122); consequently, we are committed to follow strict protocols for the protection of your privacy including personal information and questionnaire responses.

Thank you. Robert Murray, Ph.D. Candidate (Supervisor: Dr. Kevin Kelloway)

Study Three (B): Questionnaire

Q1. "What is your age (in years)?"
18(3 -> 1);19(4 -> 2); 20(5 -> 3); 21(6 -> 4); 22(7 -> 5); 23(16 -> 6); 24(17 -> 7); 25(18 -> 8)
(Note: Coding changed -> to correct coding using same variable heading)

Q2. "What is your gender?"
Female(1); Male(2); Other(4)

Q3. "Do you currently work in paid (i.e., hourly wage or salaried) employment?"
Yes(1); No(2; omitted from study)

Q4. "Do you currently live/work in either the U.S.A. or Canada?"
Yes(1); No(1) (omitted from study)

All participants exposed to the following vignette:
"Please imagine you are the kitchen employee in the story below and answer the questions that follow: You are one month into a new job at a restaurant. You work in the restaurant's kitchen. In the past month, you've noticed that your coworkers and manager do not put much effort into keeping the kitchen clean. Much of the time they do not follow safe work practices. Employees who were hired in the past month received no training about how to do their jobs or about hazards in the kitchen. In the last month you've noticed that spills of oil and other liquids are frequently not mopped up, protective equipment (e.g., gloves, oven mittens, eye protection) is not available when you need it, and boxes and crates are often left out where people walk. Further, all cleaning chemicals are improperly labelled. Your coworkers and manager rarely communicate about potential hazards in the kitchen. For example, they usually do not let you know when liquid or food is spilled on the floor, or when they're walking behind you carrying a hot tray."

Q5. "I have read and understood the above story"
Yes (continues the questionnaire, participant randomly assigned to one of 8 conditions)

Condition 1: Safety Voice (C.A.R.D.)
"Yesterday you received the following email from your manager: Hello, there are now steps for employees to voice/report health and safety concerns, these steps are:
CALM DOWN: Breathe...Take a moment to gather your thoughts. While it's perfectly normal to feel nervous, remain calm when voicing/reporting concerns to your manager.
ALERT YOUR MANAGER: Carefully describe the situation to your manager, including feeling 'Uncomfortable', 'Concerned' or 'Unsafe'; your manager may not know!
REQUEST CHANGE: What do you want changed? Be specific and clear about what you want changed. Ask your manager for an expected due date for the situation to be changed.
DECISION: Your health and life are too important. Later, if the situation is not changed, make a potentially lifesaving decision!
Calm down ... Alert your manager ... Request change ... Decision ... C.A.R.D.
Sincerely, Your Manager"

Q6. "I have read and understood the above email"
Yes (continues the questionnaire)

Q7. (Attention/Recall Check) "In the email to restaurant employees, your manager stated
_____. (Please select the correct statement)"

(Selecting any answer other than four, participant is omitted from study)

(1)The manager did not send an email

(2)"I want to hear your (health and safety) ideas and concerns. If you need help, I will spend time teaching and coaching you".

(3)"All safety related concerns must be reported to your manager, if not you will face disciplinary action or termination".

(4)"Calm Down, Alert your manager, Request change, Decision".

(5)"Once every six months a $500-dollar bonus will be given to the 'safest employee'. However, free staff meals will be discontinued until all safety issues are resolved".

Condition 2: Job/Role Requirement

"Yesterday you received the following email from your manager: Hello, there is now a policy for employees to voice/report health and safety concerns. The policy is as follows:

i) All employees who witness, experience or believe there is a health and safety concern must voice/report such concerns to their manager.

ii) If it is determined that an employee failed to report a health and safety concern to their manager, the employee will face disciplinary action or termination.

Sincerely, Your Manager"

Q8. "I have read and understood the above email."

Yes(continues the questionnaire)

Q9. (Attention/Recall Check) "In the email to restaurant employees, your manager stated _____ . (Please select the correct statement)"

(Selecting any answer other than four, participant is omitted from study)

(1)Your manager did not send an email. (1)

(2)"Calm Down, Alert your manager, Request change, Decision". (2)

(3)"I want to hear your (health and safety) ideas and concerns. If you need help, I will spend time teaching and coaching you". (3)

(4)"All safety related concerns must be reported to your manager, if not you will face disciplinary action or termination". (4)

(5)"Once every six months a $500-dollar bonus will be given to the 'safest employee'. However, free staff meals will be discontinued until all safety issues are resolved". (5)

Condition 3: Safety Voice & Job/Role Requirement

"Yesterday you received the following email from your manager: Hello, there are now steps for employees to voice/report health and safety concerns, these steps are:

CALM DOWN: Breathe...Take a moment to gather your thoughts. While it's perfectly normal to feel nervous, remain calm when voicing/reporting concerns to your manager.

ALERT YOUR MANAGER: Carefully describe the situation to your manager, including feeling 'Uncomfortable', 'Concerned' or 'Unsafe'; your manager may not know!

REQUEST CHANGE: What do you want changed? Be specific and clear about what you want changed. Ask your manager for an expected due date for the situation to be changed.

DECISION: Your health and life are too important. Later, if the situation is not changed, make a potentially lifesaving decision!

Calm down ... Alert your manager ... Request change ... Decision ... C.A.R.D.

Further, there is now a policy for employees to voice/report health and safety concerns. The policy is as follows:

i) All employees who witness, experience or believe there is a health and safety concern must voice/report such concerns to their manager.

ii) If it is determined that an employee failed to report a health and safety concern to their manager, the employee will face disciplinary action or termination.

Sincerely,
Your Manager

Q10. "I have read and understood the above email."
Yes (continues the questionnaire)

Q11. (Attention/Recall Check) "In the email to restaurant employees, your manager stated _____. (Please select the correct statement)"
(Selecting any answer other than four, participant is omitted from study)
(1)Your manager did not send an email.
(2)"I want to hear your (health and safety) ideas and concerns. If you need help, I will spend time teaching and coaching you".
(3)"We will be hiring more staff over the next few weeks; included in that hiring will be a Safety Supervisor".
(4)"Calm Down, Alert your manager, Request change, Decision. Further, all safety related concerns must be reported to your manager, if not you will face disciplinary action or termination".
(5)"Once every six months a $500-dollar bonus will be given to the 'safest employee'. However, free staff meals will be discontinued until all safety issues are resolved".

Condition 4: Safety Specific Transformational Leadership
"Yesterday you received the following email from your manager: Hello, I see the health and safety problems in the restaurant. It is important to me that all employees feel healthy and safe at work. To accomplish this goal, I am willing to put in the time and resources required. I have recognized many people currently perform their jobs safely. However, you should continually try to find new ways of doing your job more safely. I encourage you to voice/report safety issues, ask questions and offer ideas for improvement; I want to hear your ideas and concerns. If you need help, I will spend time teaching and coaching you. If you need me to show you how you might do your job more safely, just let me know and I will offer you suggestions. I have complete confidence that you/we can create and maintain a healthy and safe restaurant.
Sincerely, Your Manager"

Q12. "I have read and understood the above email."
Yes (continues the questionnaire)

Q13. (Attention/Recall Check) "In the email to restaurant employees, your manager stated _____ . (Please select the correct statement)"
(Selecting any answer other than four, participant is omitted from study)
1)Your manager did not send an email.
2)"Calm Down, Alert your manager, Request change, Decision".
3)"All safety related concerns must be reported to your manager, if not you will face disciplinary action or termination".
4)"I want to hear your (health and safety) ideas and concerns. If you need help, I will spend time teaching and coaching you".
5)"Once every six months a $500-dollar bonus will be given to the 'safest employee'. However, free staff meals will be discontinued until all safety issues are resolved".

Condition 5: Safety Specific Transformational Leadership & Safety Voice
"Yesterday you received the following email from your manager: Hello, I see the health and safety problems in the restaurant. It is important to me that all employees feel healthy and safe at work. To accomplish this goal, I am willing to put in the time and resources required. I have recognized many people currently perform their jobs safely. However, you should continually try to find new ways of doing your job more safely. I encourage you to voice/report safety issues, ask questions and offer ideas for improvement; I want to hear your ideas and concerns. If you need help, I will

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spend time teaching and coaching you. If you need me to show you how you might do your job more safely, just let me know and I will offer you suggestions. I have complete confidence that you/we can create and maintain a healthy and safe restaurant.

Further, there are now steps for employees to voice/report health and safety concerns, these steps are:
CALM DOWN: Breathe...Take a moment to gather your thoughts. While it's perfectly normal to feel nervous, remain calm when voicing/reporting concerns to your manager.
ALERT YOUR MANAGER: Carefully describe the situation to your manager, including feeling 'Uncomfortable', 'Concerned' or 'Unsafe'; your manager may not know!
REQUEST CHANGE: What do you want changed? Be specific and clear about what you want changed. Ask your manager for an expected due date for the situation to be changed.
DECISION: Your health and life are too important. Later, if the situation is not changed, make a potentially lifesaving decision!
Calm down ... Alert your manager ... Request change ... Decision   ...   C.A.R.D.
Sincerely, Your Manager"

Q14. "I have read and understood the above email."
Yes (continues the questionnaire)

Q15. (Attention/Recall Check) "In the email to restaurant employees, your manager stated _____. (Please select the correct statement)"
(Selecting any answer other than four, participant is omitted from study)
1)Your manager did not send an email
2)"All safety related concerns must be reported to your manager, if not you will face disciplinary action or termination".
3)"We will be hiring more staff over the next few weeks; included in that hiring will be a Safety Supervisor".
4)"I want to hear your (health and safety) ideas and concerns. If you need help, I will spend time teaching and coaching you. Remember, Calm Down, Alert your manager, Request change, Decision".
5)"Once every six months a $500-dollar bonus will be given to the 'safest employee'. However, free staff meals will be discontinued until all safety issues are resolved".

Condition 6: Safety Specific Transformational Leadership & Job/Role Requirement
"Yesterday you received the following email from your manager: Hello, I see the health and safety problems in the restaurant. It is important to me that all employees feel healthy and safe at work. To accomplish this goal, I am willing to put in the time and resources required. I have recognized many people currently perform their jobs safely. However, you should continually try to find new ways of doing your job more safely. I encourage you to voice/report safety issues, ask questions and offer ideas for improvement; I want to hear your ideas and concerns. If you need help, I will spend time teaching and coaching you. If you need me to show you how you might do your job more safely, just let me know and I will offer you suggestions. I have complete confidence that you/we can create and maintain a healthy and safe restaurant.

Further, there is now a policy for employees to voice/report health and safety concerns. The policy is as follows:
i) All employees who witness, experience or believe there is a health and safety concern must voice/report such concerns to their manager.
ii) If it is determined that an employee failed to report a health and safety concern to their manager, the employee will face disciplinary action or termination.
Sincerely, Your Manager"

Q16. "I have read and understood the above email."
Yes (continues the questionnaire)

Q17. (Attention/Recall Check) "In the email to restaurant employees, your manager stated _____. (Please select the correct statement)"

> (Selecting any answer other than four, participant is omitted from study)
> 1)Your manager did not send an email.
> 2)"Calm Down, Alert your manager, Request change, Decision".
> 3)"We will be hiring more staff over the next few weeks; included in that hiring will be a Safety Supervisor".
> 4)"I want to hear your (health and safety) ideas and concerns. If you need help, I will spend time teaching and coaching you. Also, all safety related concerns must be reported to your manager, if not you will face disciplinary action or termination".
> 5)"Once every six months a $500-dollar bonus will be given to the 'safest employee'. However, free staff meals will be discontinued until all safety issues are resolved".

Condition 7: Safety Specific Transformational Leadership, Safety Voice & Job/Role Requirement (all three interventions)

> "Yesterday you received the following email from your manager: Hello, I see the health and safety problems in the restaurant. It is important to me that all employees feel healthy and safe at work. To accomplish this goal, I am willing to put in the time and resources required. I have recognized many people currently perform their jobs safely. However, you should continually try to find new ways of doing your job more safely. I encourage you to voice/report safety issues, ask questions and offer ideas for improvement; I want to hear your ideas and concerns. If you need help, I will spend time teaching and coaching you. If you need me to show you how you might do your job more safely, just let me know and I will offer you suggestions. I have complete confidence that you/we can create and maintain a healthy and safe restaurant.
>
> Further, there are now steps for employees to voice/report health and safety concerns, these steps are:
> CALM DOWN: Breathe...Take a moment to gather your thoughts. While it's perfectly normal to feel nervous, remain calm when voicing/reporting concerns to your manager.
> ALERT YOUR MANAGER: Carefully describe the situation to your manager, including feeling 'Uncomfortable', 'Concerned' or 'Unsafe'; your manager may not know!
> REQUEST CHANGE: What do you want changed? Be specific and clear about what you want changed. Ask your manager for an expected due date for the situation to be changed.
> DECISION: Your health and life are too important. Later, if the situation is not changed, make a potentially lifesaving decision!
> Calm down ... Alert your manager ... Request change ... Decision   ... C.A.R.D.
>
> Finally, there is now a policy for employees to voice/report health and safety concerns. The policy is as follows:
> 1) All employees who witness, experience or believe there is a health and safety concern must voice/report such concerns to their manager.
> 2) If it is determined that an employee failed to report a health and safety concern to their manager, the employee will face disciplinary action or termination.
> Sincerely, Your Manager"

Q18. "I have read and understood the above email."

> Yes (continues the questionnaire)

Q19. (Attention/Recall Check) "In the email to restaurant employees, your manager stated _____. (Please select the correct statement)"

> (Selecting any answer other than four, participant is omitted from study)
> 1)Your manager did not send an email.

2)"We will be hiring more staff over the next few weeks; included in that hiring will be a Safety Supervisor. Further, all staff must scrape their own customers' plates of left-over food into the green 'food waste' bin".

3)"The restaurant will be inspected next week; until then, staff are responsible for cleaning floors and vacuuming carpets once per shift".

4)"I want to hear your (health and safety) ideas and concerns. If you need help, I will spend time teaching and coaching you. Remember, Calm Down, Alert your manager, Request change, Decision. Also, all safety related concerns must be reported to your manager, if not you will face disciplinary action or termination".

5)"Once every six months a $500-dollar bonus will be given to the 'safest employee'. However, free staff meals will be discontinued until all safety issues are resolved".

Condition 8: Control Group

Q20. (Attention/Recall Check) "In the email to restaurant employees, your manager stated _____. (Please select the correct statement)"

(Selecting any answer other than four, participant is omitted from study)

1)"Calm Down, Alert your manager, Request change, Decision".

2)"All safety related concerns must be reported to your manager, if not you will face disciplinary action up to and including being terminated from your job".

3)"I want to hear your (health and safety) ideas and concerns. If you need help, I will spend time teaching and coaching you".

4)Your manager did not send an email.

5)"Once every six months a $500-dollar bonus will be given to the 'safest employee'. However, free staff meals will be discontinued until all safety issues are resolved".

Participants from all conditions are exposed to the following questions:

"If I voice safety concerns to management I would be:"

Q21. "afraid I may lose my job in the near future"

Q22. "worried about being let go"

Q23. "worried about whether I will be able to keep my job"

(Risk – Job Security- in Voicing Safety Concerns; Hellgre, et al.,1999)

A three item measure of participants' perception of job insecurity, uses a 5-point Likert-type scale with Strongly Disagree(1) to Strongly Agree(5). Note Q21 Recoded into 'Q10.2CorrCode' as follows: Strongly disagree(2 -> 1); Somewhat disagree(3 -> 2); Neither agree nor disagree(4 -> 3); Somewhat agree(5 -> 4); Strongly agree (6 -> 5)

"If I voice safety concerns at work:"

Q24. "I would be worried about eroding good relationships." (relationship; Schwappach and Gehring, 2014)

Q25. "good relationships would be damaged." (relationship; Schwappach and Gehring, 2014)

Q26. "I would receive an immediate negative reaction." (relationship; Schwappach and Gehring, 2014)

Q27. "I would be concerned about being labelled as *difficult*." (image; Schwappach and Gehring, 2014)

Q28. "I would be worried about being humiliated." (image; Schwappach and Gehring, 2014)

Q29. "my image at work would be hurt." (image; Mullen, 2005).

Q30. "others at work would think worse of me." (image; Mullen, 2005).
(Risk to Relationship & Personal Image; Mullen, 2005; Schwappach & Gehring, 2014)
A seven item measure uses a 5-point Likert-type scale from Strongly Disagree (1) to Strongly Agree(5).

Q31. (Attention Check; Captcha - e.g., 'select all pictures that contain a car') "Answer the following question to continue:"

"The Restaurant Manager:"
Q32. "Shows determination to maintain a safe work environment."
Q33. "Behaves in a way that displays commitment to a safe workplace."
Q34. "Talks about his/her values and beliefs of the importance of safety."
Q35. "Provides continuous encouragement to do our jobs safely."
Q36. "Suggests new ways of doing our jobs more safely."
Q37. "Encourages me to express my ideas and opinions about safety at work."
Q38. "Spends time showing me the safest way to do things at work."
Q39. "Listens to concerns about safety on the job."
Q40. "Makes sure that we receive appropriate rewards for achieving safety targets on the job."
Q41. "Expresses satisfaction when I and my colleagues perform our job safely."
(Safety-Specific Transformational Leadership; Barling et al., 2002)
A ten item measure uses a 5-point Likert-type scale from Strongly Disagree (1) to Strongly Agree(5).

"The Restaurant Manager:"
Q42. "My manager communicates a clear and positive vision of the future."
Q43. "My manager treats staff as individuals, supports and encourages their development."
Q44. "My manager gives encouragement and recognition to staff."
Q45. "My manager fosters trust, involvement and co-operation among team members."
Q46. "My manager encourages thinking about problems in new ways and questions assumptions."
Q47. "My manager is clear about his/her values and practices what he/she preaches."
Q48. "My manager instills pride and respect in others and inspires me by being highly competent."
Global Transformational Leadership (Carless, Wearing, & Mann, 2000)
A seven item measure uses a 5-point Likert-type scale from Strongly Disagree(1) to Strongly Agree(5).
(Note: Factor analysis determined Globe Trans. is too similar to SSTL so this measure was dropped from the analysis)

Q49. "My manager is willing to invest money and effort to improve safety in this job."
Q50. "My manager assigns a high priority to safety issues."
Q51. "It is only a matter of time before I'm involved in an accident at the restaurant."(r)
Q52. "The safety problems in the restaurant are rather serious."(r)
Modified Safety Climate Scale (Zohar 1980/ Kelloway) (Note reverse codes)

A four item measure uses a 5-point Likert-type scale from Strongly Disagree(1) to Strongly Agree(5). (Note: 10.32 & 10.33 have been reverse coded into "ModSafClim")

> Q53. "I am confident that I could voice/report safety issues with my manager."
> Q54. "I believe that I could get my manager to address safety issues."
> Q55. "I am confident that I could get my manager to pay attention to safety issues."

Confidence (Perceived Probability of Success; Mullen, 2005)
A three item measure uses a 5-point Likert-type scale from Strongly Disagree(1) to Strongly Agree(5).

Q56. (Attention Check) "I eat cement on a regular basis."

> Strongly disagree(1) to Strongly agree(5) (Selecting any answer other than *Strongly disagree*(5), participant is omitted from study).

"At the restaurant, how likely are you to:"

> Q57. "speak to co-workers at risk and encourage them to fix safety problems?"
> Q58. "tell a supervisor about the consequences of dangerous working conditions?"
> Q59. "group together with co-workers and take safety concerns to a supervisor?"
> Q60. "tell a supervisor about hazardous work?"
> Q61. "remind co-workers to take precautions?"
> Q62. "talk to a supervisor about safety concerns?"

(Safety Voice Intentions; Tucker and Turner, 2011)
A six item measure, uses a 5-point Likert-type scale from Very Unlikely(1) to Very Likely(5).

Q63. (Omitted from analysis) "At the restaurant, how likely are you to:" anonymously report unsafe conditions to an appropriate government department?"
Used a 5-point Likert-type scale from Very Unlikely(1) to Very Likely(5).

> Q64. How much <u>effort</u> would you be willing to invest into changing safety issues at the restaurant?
> Q65. "How much <u>time</u> would you be willing to invest into changing safety issues at the restaurant?"
> Q66. "How much <u>energy</u> would you be willing to invest into changing safety issues at the restaurant?"

Willingness (Willingness to identify a Safety Issue; Mullen, 2005)
A three item measure, uses a 5-point Likert-type scale from None(1) to A Great Deal(5) (Note: Q65 coding was corrected as follows: None(1 ->1); A little(2 ->2); A moderate amount(3 ->3); A lot(6 ->4); A great amount(7 ->5) into 'Q65CorrCode' then included in the measure under 'WillIdentSafCorr')

Q67.(Attention Check) "The kitchen employee (in the story) has been employed at the restaurant for _____."

> One Week(1); Three Weeks(2); One Month(3); Six Months(4); One Year(5). (May be used to screen participants at the data analysis stage)

Message to Participants:
"At this point in the questionnaire, the following questions are about <u>you, a participant</u>."

Demographics

Q68. "Years of post-secondary education completed?"
  None(1); 1 to 2 years(2); 3 to 4 years(3); 5 to 6 years(4); 7 to 8 years(5); over 8 years(6)

Q69. "You currently are employed in _____ . (choose one best answer)"
  Forestry, fishing, hunting or agriculture support(1); Mining(2); Utilities (electricity, water)(3); Construction(4); Manufacturing(5); Wholesale trade(6); Retail trade(7); Transportation or warehousing (8); Information(9); Finance or insurance(10); Real estate or rental and leasing(11); Professional, scientific or technical services(12); Management of companies or enterprises(13); Admin, support, waste management or remediation services(14); Education services(15); Health care or social assistance(16); Arts, entertainment or recreation(17); Accommodation or food services(18); Other services (except public administration)(19); Unclassified industry (please describe)(20) _____.

Q70. "Not including online contract work; your average number of *hours* worked per week (in wage or salaried) employment?"
  1 to 5 hours(1); 6 to 10 hours(2); 11 to 15 hours(3); 16 to 20 hours(4); 21 to 25 hours(5); 26 to 30 hours(6); 31 to 35 hours(7); 36 to 40 hours(8); above 41 hours(9)

Q71. "Not including online contract work Total (wage or salary) working experience across all employers/sectors?"
  under one month(1); 1 to 3 months(2); 4 to 6 months(3); 7 to 9 months(4); 10 to 11 months(5) 1 to 2 years(6); 3 to 4 years(7); 5 or more years(8)

Q72. "Have you ever been injured by a workplace accident?"
  Never(1: skip to Q72); Once(2); A few times(3); Frequently(4)

Q73. "How severe was your workplace injury?"
  Not at all severe(1); Somewhat severe(2); Moderately severe(3); Severe(4); Very severe(5)

Q74. "Have you personally witnessed a co-worker get injured at work?"
  Yes(1); No(2; skip to Q76)

Q75. "How severe was your co-worker's injury?"
  Not at all severe(1); Somewhat severe(2); Moderately severe(3); Severe(4); Very Severe(5); Died from injury(6)

Q76. "Has a close friend or family member ever been injured by a workplace accident?"
  Yes(1); No(2: skip to Q78)

Q77. "How severe was your friend's or family member's injury?"
  Not at all severe(1); Somewhat severe(2); Moderately severe(3); Severe(4); Very severe(5); Died from injury(6)

Q78. "My preference when voicing/reporting safety concerns at my workplace is ____."
  face-to-face/in-person(1); email(2); text(3); phone(4); (anonymous) voice mail(5); suggestion box(6); other; please describe(7) _____

Appendix M

Study Three (B): Debrief Form

Dear Participant,

Thank you for your participation. This study is exploring the ability, confidence and willingness of young workers to voice safety concerns to their managers. Through training, leadership or company policy, it is believed that improving young workers' ability, confidence and willingness to voice safety concerns will by extension improve young workers' health and safety at work. The exact purpose of the study and the interventions being tested were purposely removed from the description of the study so as to lessen biased survey responses.

If you have any concerns about your participation in the study or believe you are suffering adverse effects stemming from participation in the study, please immediately contact me, Robert Murray (robert.murray2@smu.ca) or Dr. Kevin Kelloway (kevin.kelloway@smu.ca; 902-491-8616). Beyond our availability, for Saint Mary's University students, additional structures of support include: Saint Mary's University Counseling Centre http://www.smu.ca/campus-life/the-counselling-centre.html. For all other participants, please consult your physician, clergy or other helping professional.

If you would like to view the report based on this study, you may go to the CN Centre for Occupational Health and Safety webpage (https://www.cncentreinitiatives.com) 60 days after today for a link to a final report.

As with all Saint Mary's University projects involving human participants, this project was reviewed by the Saint Mary's University Research Ethics Board (Title: Researching Young Workers' Working Conditions; Saint Mary's Research Ethics Board, #19-122). Should you have any comments or concerns about ethical matters or would like to discuss your rights as a research participant, please contact the Chair of the Research Ethics Board at 902-420-5728 or ethics@smu.ca.

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Your choice to include or withdraw your survey responses/data:
Click: "Please include my survey responses (your survey responses/data will be included in this study)"

or

Click: "Please withdraw my survey responses (your survey responses/data will not be included in this study)"