
Safety Voicing: The impact of job insecurity and the differences in severity of safety concerns.

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Table of Contents

Acknowledgements	iii
List of Tables	iv
List of Figures	iv
Abstract	1
Overview	2
Introduction	6
Overview of the issues of Health and Safety	6
Safety Voice	8
Safety Climate	11
Job Insecurity	14
Severity of Safety Concerns	17
Individualistic Characteristics	19
Method	20
Participants.....	20
Materials (Safety Survey)	21
<i>Demographics and Background Questions</i>	21
<i>Employee Safety Voice Scale</i>	22
<i>Job insecurity Scale</i>	22
<i>Perceived Organisational Support for Safety Scale</i>	22
<i>Perceived Co-worker Support for Safety Scale</i>	23
<i>Safety Climate</i>	23
<i>Job Risk Scale</i>	23
<i>Team Member Interaction Scale</i>	24

<i>Opener ability</i>	24
Procedure	24
Results	25
Data Preparation	25
Descriptive Statistics	25
Correlation Analysis	27
Job Insecurity	28
Severity of Safety Concerns	32
Discussion	34
The Current Study	34
Safety voice	35
Job insecurity	36
Severity of safety concerns	37
Limitations and Strengths	38
Recommendations for future research	41
Conclusion	42
References	44
Appendices	53
Appendix A:	53
Appendix B:	54
Appendix C:	63

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List of Tables

Table 1:	<i>Descriptive statistics.</i>	25
Table 2:	<i>Correlation matrix.</i>	26
Table 3:	<i>Univariate ANOVA with job insecurity as the dependent variable</i>	30
Table 4:	<i>One way ANOVA comparing means of safety voices across job insecurity levels</i>	31
Table 5:	<i>Respondent frequencies to each safety voice scale</i>	33

List of figures

Figure 1:	<i>Proposed model of severity of safety concerns overriding the association of job insecurity and safety voice.</i>	18
Figure 2:	<i>The percentage of respondents who were likely to voice and were unlikely to voice based off the cut off restriction points.</i>	33

Abstract

The aim of this current research was two-fold; one aim was to develop a deeper understanding of job insecurity and its association with safety voicing. The perception of job insecurity was specifically examined in relation to job insecurity and its association with safety voice. The second aim was to examine safety voice with possible antecedents based on past research. This involved investigating the proposition that safety voice falls within a safety severity concern continuum. This continuum suggests that the severity of the safety concern may play a role in an employee's willingness to voice these concerns. A questionnaire was devised to investigate perceptions of 47 employees from a single organisation. This organisation is undergoing a planned future job redundancy process (within a few years as of 2014). Correlational and univariate analyses were used to investigate any associations and differences in means between the different measures. Results from this research found partial support for the hypothesis that perceived organisational support, safety climate, and perceived co-worker support were positively associated with safety voice. The hypothesis that higher job insecurity would be associated with lower safety voice concerns was tested, and was not found not to be statistically significant to support the idea. This dissertation offers a preliminary indication that safety voice varies according to severity, and that job insecurity may affect employees' likelihood to voice safety concerns. Practical implications and directions for further research are discussed.

Overview

Many employees in the workplace have concerns about their own safety, and or about the safety of their co-workers. It is these safety concerns which provide the feedback that is critical to the management of health and safety. Even though feedback is crucial to management, some safety concerns are still not being voiced to employers. This unfortunate situation means that employees with safety concerns either may not voice their safety concerns, or may only voice their concerns through different means. Therefore their safety concerns have little chance of being addressed through proper channels, such as when employees tell their spouses rather than reporting to management.

Perhaps the most important way for employees and employers to convey their safety concerns in the workplace is by speaking up using their 'safety voice'. Safety voice enables employees to raise their concerns in the hopes of seeking a remedy to those concerns.

This pressing issue of voicing safety concerns, and its associated outcomes, have begun to be investigated by scholars as safety voice has attracted interest towards the industrial organisational domain (Tucker, Chmiel, Turner, Hershcovis & Stride, 2008). The large potential number of variables that predict safety voice and the antecedents that will be used in this study are taken from different fields in literature, range from the individual characteristics through to the safety climate domain.

In order to understand the broader context of the issues surrounding health and safety, an introduction into the growing interest of safety issues in the workplace will later be explored. This will help contribute to the reader's understanding of the impact safety voice has on employees, employers, and organisations in New Zealand. Health and Safety in the workplace has notably attracted attention around the world recently with serious disasters occurring globally. These global occurrences have led to the increased coverage of such tragedies, while promoting the awareness of health and safety. Unfortunately, significant

catastrophes still occur in spite of the increased efforts from revised legislation regarding safety training. For example, in 2010 there were disasters which led to injuries and deaths, including the Gulf of Mexico oil spill, the Copiapó mining accident, and locally in New Zealand the Pike River mining disaster. It is reasonable to assume that there are still a lot more that needs to be learnt and which can be reasonably practised towards health and safety in the workplace. Factors which greatly impact on this communication of safety concerns should be investigated to promote communication between employees and their employers. The rising costs of health and safety in New Zealand (see HSTaskforce report, 2013) highlight the impact safety prevention has on the workplace, where injuries and deaths may still occur. This is more apparent in the risky sectors of industries where the costs of injuries and deaths occur more frequently than in the less risky industries for example, agriculture, fishing, and forestry (Driscoll, Mannetje, Dryson, Feyer, Gander, McCracken, Pearce, & Wagstaff, 2004). The costs to organisations and to the nation naturally promote the efforts toward improving safety through legislation to which both employees and employers need to abide by law.

What may also affect health and safety of individuals in the labour market is the impact job insecurity has on health with associated organisational practices such as redundancy or restructuring (Bohle, Quinlan, Mayhew, 2001; Quinlan, Bohle, 2009). Job insecurity is the perceived feelings of insecurity an employee has about their job. Job insecurity has been found to be associated with the deterioration of an employee's psychological health such as psychological distress and employee burnout (Dekker & Schaufeli, 1995). While it is not yet known if job insecurity predicts safety voice, there are some clues in the literature which may indicate that this may possibly be the case.

Researchers have already examined many possible antecedents in the field of safety voice and job insecurity. The work that they have done so far has tied organisational safety

climate to safety voice and to safety outcomes, as well as job insecurity to safety outcomes (Probst and Brubaker, 2001; Probst, 2004; Tucker et al., 2008). Current research indicates possible associations between job insecurity and safety voice, however this has not yet been specifically researched as most of the studies have investigated under-reporting (Probst, Barbaranelli & Petitta, 2013).

The idea that job insecurity will influence the willingness for employees to voice their safety concerns, has also yet to receive very much research attention. Given the nature of competitive markets in accident prone industries like the forestry industry or mining, the extra burden of harsh work schedules, higher expectations on output, and threat of redundancies highlight the importance of identifying the role of job insecurity in safety voice (NZCTU report, 2013). This is especially so for organisations who are demanding and expecting more from their employees, and attempting to comply with legislation and policies. This is relevant as employees may potentially be suppressing their willingness to voice safety concerns because of their job insecurity. It is reasonable to assume that employees are more reluctant to speak up or against management given their dependency on the employers' economic support and the risk of being dismissed as retribution. As this is a relatively new concept, job insecurity as an association will become one of the main focal points of this dissertation.

The introduction of job insecurity and its relationship to safety voice also suggests that there may be other associations of safety voicing. One such moderator could potentially be the severity of safety concern type. It may be that the perceived severity of safety concerns may play a role when an adverse event occurs (such as life threatening accident). An employee may voice their concern irrespective of their job insecurity fears. Conversely, in a trivial event it is likely that an employee may not voice their concerns because they are worried that any negative attention may make their job even more at risk. This suggests that

safety voice may lie within a safety severity concern continuum, which will also become one of the focal points of this dissertation.

Ultimately, the aim of this dissertation is to contribute to, and to address the limited body of research into the job insecurity and safety voice relationship domain. The limited literature on safety voice has yet to yield a comprehensive framing approach towards investigating job insecurity and safety voice. The framework that this investigation used focused on a sample population that has both prominent elements of job insecurity and job safety risks. Investigating the research questions through a targeted sample population that has elements of job insecurity may allow the association effect to be readily noticeable. Similarly, by using a target sample population with jobs that are in a safety reliant context, for example, in the Forestry and Mining industry, safety voice would be more relevant to employees.

As the antecedents of safety voice has yet to be fully established, it has yet to be fully understood what could reliably predict safety voice. Nevertheless, this investigation will draw upon the current literature and variables from different fields in order to help capture the associations of safety voice.

Introduction

Overview of the issues of Health and Safety

According to the Department of Labour of New Zealand (2011), there were more than 378 occurrences of serious work-related non-fatal injuries with an average of 102 work-related fatalities happening annually. Work-related diseases were also reported to be causing 800 deaths, occurring over the period of 2008 to 2010. This costs an estimated \$3.5 billion dollars in social and economic costs annually for work-related injuries and diseases. While the statistics have yet to be updated by the department of labour, these figures highlight the real costs to health and safety. Occupational Health and Safety (OHS) in New Zealand is a very important area of focus for the government, as they are providing additional funding (\$37 million dollars over four years) towards a projected target of 25% minimum reduction in workplace serious harm. Given the social, political, and most importantly the economic costs, Department of Labour plays a large role in OHS in New Zealand workplaces. The department had implemented New Zealand's first Health and Safety in the Employment Act (1992), by placing and enforcing duties onto employers to control hazards in the workplace. As a requirement employers must work with their employees: to identify hazards in the workplace, and ensure that those hazards are eliminated, isolated or minimised; eliminate hazards where possible, where a hazard could not be eliminated employees have the right to know about the hazard and what needs to be done to work safely; and record and investigate any accidents or "near misses" of anyone relating to the workplace. When a person suffers serious harm, the Ministry of Business, Innovation and Employment must be advised. The problem with the dated legislation, which was prescriptive and tended to focus on specifically identified hazards for specific industries, which meant that it was not robust enough to be updated or catered to other industries very easily.

Recently however, an overhaul to this legislation had been announced by the department of labour, dubbed the Health and Safety Reform Bill. In response to the royal commission's recommendations and report on the 2010 Pike River mine explosion (see the Royal Commission report, 2010), this had expedited efforts to reform the dated legislation to be implemented across three years into 2016. This legislation emphasises the systematic approach to managing health and safety by promoting and maintaining safe working environments while also implementing good sound practice. The new reform acknowledges that a person conducting business or undertaking business (PCBU) needs to have the appropriate processes to receive and consider information about work-related incidents, hazards and risks, and to respond in a timely manner (MBIE, 2013). This reform suggests that multiple PCBUs along the supply chain may exist, emphasizing the need for increased collaboration, and thus the need for increased communication with one another. In other words, organisations will also be responsible for their own employees as well as the employees of their upstream suppliers of goods and services (e.g. importers, manufacturers). The responsibility now protrudes out of the traditional standalone organisation, and extends into the collaboration with their business associates (e.g. suppliers, sub-contractors). Therefore it is imperative for organisations to realise the importance of employee safety for not just their own, but also for their business associates. As stated earlier, the due diligence clause means that PCBUs are expected to receive information regarding safety. Thus it implies that the concerns about safety from their employees are expected to be communicated to and received by PCBUs. Evidently 'voicing' safety concerns is as extremely relevant for employees, as it is for employers of the workplace. Without safety voice, a large number of the reported safety hazards and incidents occurring become lost and this undermines the systematic management of employee safety participation in the workplace. At the end of the day, employees and employers expect to go back home safely in one piece.

Safety Voice

Employee safety voice is an area of research which was largely instigated from the seminal work *Exit, Voice, and Loyalty* undertaken in 1970, where Albert Hirschman investigated 'voice' as a response to the dissatisfaction felt towards organisations and their practices. Voice was therein a mechanism to which an individual would utilise towards an attempt to change rather than escape from an objectionable state of affairs (Hirschman, 1970). Hirschman argues that there were different pathways in which people could voice their dissatisfaction: either by appeal through a higher relevant authority for change, or by any other means which will instigate public interest and action. This form of protest as Hirschman claimed had large implications for organisations which were not meeting expectations of their citizens (O'Day, 1974). The backlash of public interest may hamper public relations to which could prove too costly for organisations (Goffman, 1959). Interestingly, the use of voice could also be considered informative to the organisation as an avenue leading to organisational change and health, and innovation (Morrison & Milliken, 2002).

In the context of workplace safety, Tucker, Chmiel, Turner, Hershcovis and Stride (2008) defined employee safety voice as the “communication motivated towards changing perceived unsafe working conditions that have implications for individual and organizational health” (p.2). They argue that dissatisfied individuals may utilise both informal and formal pathways to communicate their dissatisfaction. Utilising either form of communication, complaints may also be directed towards different recipients; but are mainly towards agents capable of change. This suggests that employees who are willing to stay on the job are raising safety concerns because they want to improve their working situation. Safety voicing is therefore the mechanism to which employees utilise in order to prevent or reduce harmful risks to injury, accidents, and or deaths. This dissertation will draw upon the measures used in the Tucker *et al.*, (2008) study, to capture the participants likelihood to voice safety concerns.

Employee silence, commonly thought of as the antithesis of voice, is not so black and white (Van Dyne, Ang, & Botero, 2003). Employee silence pertains to the intentional withholding of information, opinions, emotions, cognitions and concerns about potentially important work-related organisational information to relevant authorities capable to enact change (Morrison & Milliken, 2000; Pinder & Harlos, 2001; Van Dyne et al., 2003). Employees who are intentionally silent may have different motivations towards keeping their concerns. Employee silence has had reported benefits such as: reduction of managerial information overload, informational privacy of co-workers, and reduced inter-personal conflicts (Tangirala & Ramanujam, 2008; Van Dyne et al., 2003). Thus, with different underlying motivations, the difficulty in maintaining positive safety voice in the work place is apparent.

Under-reporting of safety accidents and incidents in the workplace is a common phenomenon which continues to plague organisations today (Probst & Estrada, 2010; Webb, Redman, & Wilkinson, 1989). In a study conducted by Probst and Estrada (2010) the negative consequences of reporting were very real and felt by some of the workers at a paper mill plant. The negative consequences that the employees had reportedly felt, varied from being interpersonally ostracised (e.g. socially shunned), to adverse job performance outcomes (e.g. poor performance reviews), or task reassignments. This highlights the real issue of some employees in the workplace who may be too afraid of the negative consequences to report to the authorities. The Protected Disclosures Act (2000) is a piece of legislation in New Zealand that provides protection for and promotes employees to make disclosures within their work organisations (i.e. serious misconduct, incidents, accidents.), in accordance with the act. Outside of the legal provision of protection, however, employees are left with other organisational factors to deal with such as whistleblowing (Garner, 2009; Ting, 2008) and intimidation (O'Day, 1974).

According to Reason (1997), a key component to reporting accidents and or safety concerns is a 'Reporting Culture' where there is a sense of shared trust between employees and management to be able to freely report incidents and safety concerns without persecution. Without going into the issue of the usage of the terms safety culture and climate until later (Cooper, 2000), this 'reporting culture' is characterised by an organisational safety climate where employees are willing and are prepared to report accidents, incidents, near misses and safety concerns. The growing body of research into this safety climate and why safety concerns are not reported, have produced many studies that have found factors which may be attributed to the safety voice dilemma (Detert & Burris, 2007; Milliken, Morrison, & Hewlin, 2003; Pransky, Snyder, Dembe, & Himmelstein, 1999; Tucker et. al., 2008). Employees might judge the potential risks to be too great compared to the benefits to voice concerns, and therefore might not risk themselves for inter or intra-personal reasons (Berson, Nemanich, Waldman, Galvin, & Keller, 2006; Stamper & Van Dyne, 2001). The possibility that the lack of knowledge on how to report safety concerns within the workplace, or that the safety reporting system is not known to employees, could be legitimate reasons (Probst, Brubaker & Barsotti, 2008). It could also however, be due to the organisational norms which may influence voicing (Argyris, 1977) or work cultural differences (Kingston, Evans, Smith, & Berry, 2004) and different standards (Lawton & Parker, 2002) which give variance to what safety concerns may be voiced. The fear of retribution however is perhaps the most prominent reason to why under-reporting occurs (Milliken, Morrison, & Hewlin, 2003; Pransky et. al., 1999). It is reasonable to assume that if it comes down to the future of an employee's livelihood they are more likely to choose to preserve their job over being victimised. Nevertheless, it is apparent that there are some underlying themes towards the willingness for employees to voice safety concerns within the workplace.

Safety Climate

Organisational safety climate refers to the snapshot of safety culture employees have of the attitude and perceptions of safety on a day to day basis in an organisation within the workplace (Guldenmund, 2000; Mearns, Flin, Fleming & Gordon, 1997). This suggests that employees may use safety climate as an indicator to the underlying safety culture and perception of value the organisation places on safety within the workplace (Neal & Griffith, 2000). Safety culture which was first thoroughly examined in light of the Chernobyl disaster, had led to an investigation to what at first seemed to be engineering design flaw, and equipment problems. This perspective quickly changed, as the inquisitors examined the human aspect to the disaster. What the inquisitors discovered was the influence of human psychology had on safety culture in the nuclear workplace.

Hypothesis 1: Safety climate will be positively associated with safety voice

Safety culture pertains to the attitudes, beliefs, perceptions and values that employees share with each other in relation to safety (Cox & Cox, 1991). Safety climate therefore relates to the collective set of cognitions employees have regarding the safety aspects of their organisation (Zohar, 1980). Neal and Griffith (2000) defined safety climate as an alternate form of an organisational climate to which individuals perceive the value that is placed on safety in the workplace. Organisational climate holds different components to which individuals may perceive or hold to as indicators of safety. These included perception of the extent to which management values safety, safety communication, safety training, and safety systems. The possibility that management, organisation or even co-worker support may play a factor in an employee's willingness to voice their safety concerns is therefore reasonable to

expect. Research into safety climate has revealed some factors which are predictive of safety outcomes such as accident reporting.

Hypothesis 2: Perceived co-worker support will be positively associated with safety voice

Hypothesis 3: Perceived organisational support will be positively associated with safety voice.

Tucker and his colleagues (2008) found that ‘perceived co-worker support for safety’ fully mediated the relationship between ‘perceived organisational support for safety’ and employee safety voice. This indicated that both employee perceptions of organisational support and co-worker support have associations with employee safety voice. What Tucker and his colleagues also found was a moderating effect of organisational and co-worker support on safety voice and its antecedents. However in 2010, Tucker had found that there were no moderating effects of safety climate on job insecurity and safety outcomes.

In 2006, Neal and Griffith investigated the impact an organisation’s climate had on safety climate and safety behaviour. What Neal and Griffith found was that group safety climate predicted the safety motivation and participation for their participants. This suggested that the perception of the group safety climate affected an employee’s motivation and participation towards safety practices. Similarly, Zohar (1980) found evidence to suggest that safety climate may play an important part in safety practices. Clarke (2006) conducted a meta-analysis of safety climate in which was concluded to the agreement that there seems to be a positive association of safety climate and safety performance.

In 1998, Clarke investigated the organisational factors affecting incident reporting and found that some organisational factors would negatively influence employee safety behaviours. Specifically, Clarke found that incident reporting may be used as a feedback tool for perceiving how committed supervisors are towards safety. Furthermore, out of the six predefined reasons, the reason ‘supervisor would take no notice’ was the most significant predictor to employee’s under-reporting. This suggested that a supervisor’s attitudes towards reporting could potentially influence the willingness and the decision making process of an employee to voice their concerns. Similarly, Probst and Estrada (2010) found a moderating effect of positive perceptions of safety climate on supervisor safety enforcement and accident reporting. Another such study conducted by Lind and Tyler (1988) found that being allowed to voice led to more positive responses thus less negative affect towards management and more perceived procedural justice. Hornstein (1986) also investigated the link between supervisor and employees. It was found, however, that when an employee’s belief that their own supervisors showed ‘an unwillingness to accept safety voice concerns’ from their subordinates, this would further influence their willingness to voice in the future.

The fear of persecution or blame that employees experience may be affected by the blame culture of an organisation. Under an organisational context, blame culture is characterised by the overemphasis in blaming of an employee for the source of human error (Khatri, Brown, & Hicks, 2009; Whittingham, 2004). Withey and Cooper (1989) posits that employees weigh up the possible benefits and costs when deciding whether or not to voice their concerns. As Hirschman (1970) had described, voicing is attention-focusing which may highlight the work-related concern in question. This attention-focusing may turn out to be a potential barrier, as it might be seen as dissent towards management (Detert & Burris, 2007). For example, when management lose face, as a result of voicing concern management were

to be viewed as incompetent for allowing said concern to take place. Employees and employers may feel the need to utilise impression management by managing risk through minimising the potential fear and harm to their presented image and reputation through psychological safety mechanisms (Edmondson & Moingeon 1998; Goffman, 1959). The potential risk in voicing safety concerns may be moderated by an employee's fear of losing their source of economic support. One possible explanation for this fear could be explored with psychological safety theory, which pertains to an individual's perception about the consequences of interpersonal risks within their work environment (Edmondson 1999; 2002). Edmondson (2003) proposed that when individuals decide on whether or not to voice or to be silent, they are implicitly assessing the interpersonal risk of potential behaviour and its outcomes. Edmondson (2003) further argues that how people react towards putting 'one's self on the line' depends on the 'taken-for-granted beliefs' shared between people that work together through salient shared experiences. 'Putting one's self on the line' includes behaviours thought of as 'the nail that stands out': asking a question; seeking feedback; reporting a mistake; voicing concern, opinions, or new ideas. Group cohesiveness lacks interpersonal risk-taking while potentially reducing the willingness to disagree and challenge groupthink held views and beliefs (Janis, 1982; Edmondson, 2002). As these studies have pointed out, there are a growing amount of predictors to employee safety voice; some of these predictors will be incorporated to this studies investigation.

Job Insecurity

Job insecurity refers to the involuntary affective experience felt as a stressor by an employee about their security of job and its future prospects (Sverke, Hellgren and Näswall, 2002; Hans de Witte, 2005).

This particular issue has recently been scrutinised in New Zealand, in which the New Zealand Council of Trade Union (CTU) published a report into their investigation into how widespread job insecurity is in New Zealand (see NZCTU report, 2013). The report highlighted the fact that at least 30% of New Zealand's workers, which is over 635,000, are in insecure work, which the CTU believe means that employees have less security about their job. Given the nature of insecure work, the dependency of employees on the economic support from their employees, means that organisations greatly impact their employees with their practices. Job insecurity is of interest because the stressor may potentially have a detrimental effect on employee voicing their safety concerns within the work place.

Hypothesis 4: Job insecurity will have a negative direct relationship with safety voice.

The prediction that job insecurity will have a negative association with safety voice is supported by work done by Probst and her colleagues. Probst and Brubaker (2001) found that when employees reported high levels of job insecurity, employees showed lowered safety compliance and safety motivation which ultimately led to more negative safety outcomes i.e. high levels of injuries and accidents in the workplace. Later, in 2002, Probst then studied safety climate and its effects on job insecurity. Probst found that a strong organizational safety climate moderated the negative effects of job insecurity on self-reported safety outcomes (i.e. safety knowledge, compliance, accidents and injuries). In her study she had pointed out that there had been disparate findings between the effects of job insecurity and safety outcomes to which she believes was due to the moderating effects of organisations advocating safety within the workplace. The results from her study suggested that an organisation's safety climate has a key moderating influence on the negative effects job insecurity has on employee safety outcomes. For example, when organisational climate was

weak, job insecurity felt by employees were associated to more accidents and near misses being reported to the organisation.

Other researchers have also provided limited evidence for job insecurity and its effects on safety outcomes. Job insecurity has been found to influence on employees' job attitudes, organizational attitudes, well-being and organisational risk taking behaviour (Sverke et. al. 2002; Storseth, 2006). Furthermore, in 2007, Storseth found that affective job insecurity also influences safety outcomes at work, in other words the emotions stemming from job insecurity may influence safety behaviour. Probst (2002) found that employees threatened with job layoffs were more willing to violate organisational safety policies compared to employees that were not threatened. Job-insecurity seems to also have a volatile influence on 'occupational health and safety' as Quinlan (2005) had found adverse associations between precarious employment, job insecurity, and occupational safety outcomes such as injury rates, safety knowledge, and safety compliance. In 1996, Lim studied the effects of work-based social support and found that it was negatively correlated with job insecurity, job satisfaction, and noncompliant job behaviours. This seems to suggest limited evidence for an association of job insecurity and with non-compliant job behaviours such as employee silence.

Most importantly however Tucker (2010) found that high levels of job insecurity were significantly related to less reported accidents and injuries. Furthermore, Probst and her colleagues (2013) had also investigated job insecurity with under-reporting. Their findings also support the idea that with more job insecurity, there is more under reporting (less reported accidents). This seems to give limited evidence to suggest that there may be an association between job insecurity and safety voicing.

Severity of Safety Concerns

The severity of safety concern may also be an important factor to consider with safety voice, as the gravity to which a safety concern may have to potential harm and risk to employees may override any propensity to suppress an employee's safety voice. A study done by Evans, Berry, Smith, Esterman, Selim, O-Shaughnessy, and DeWitt (2006) identified potential barriers to reporting of incidents in hospitals. These included; no feedback on incident follow up, incident report form too difficult, too busy and forgot, unsure who is to make the report, and most importantly for the argument of the severity concern type idea is that the incident seemed trivial to make a report. The defence that the incident was 'too trivial' seems to suggest that different types of events may vary on a continuum. This continuum could potentially moderate voicing safety concerns based on how 'trivial' events may be. For example if an employee perceives an adverse event such as a potential lethal 'Life-threatening' event, then this may be very high on the continuum (high being that they are more likely to voice their concerns). Conversely if the event was trivial like mishandling equipment 'very minor', then maybe it would place very low on the continuum (low being less likely to voice their concern). Furthermore, it may be that a 'very serious' event may be more likely to be voice compared to a 'very minor' trivial event, but less likely compared to a 'life-threatening' event. Where an event falls on the continuum could potentially determine whether or not an employee may voice their safety concerns.

One potential problem in describing a safety severity concern type is that the classification may differ for each individual. Individuals may utilize different standards when identifying concerns (Lawton & Parker, 2002) and thus concerns maybe subjective in severity. Therefore, the use of broad category labels were used to encapsulate the general view of each severity level: very minor, serious, and life-threatening. This allows for a more

organic classification for each individual to assess. This study will investigate differences in predictors and moderators of safety voice for different types of severity in safety concerns.

Hypothesis 5: *Severity of safety concern will override the association effects of job insecurity on safety voice.*

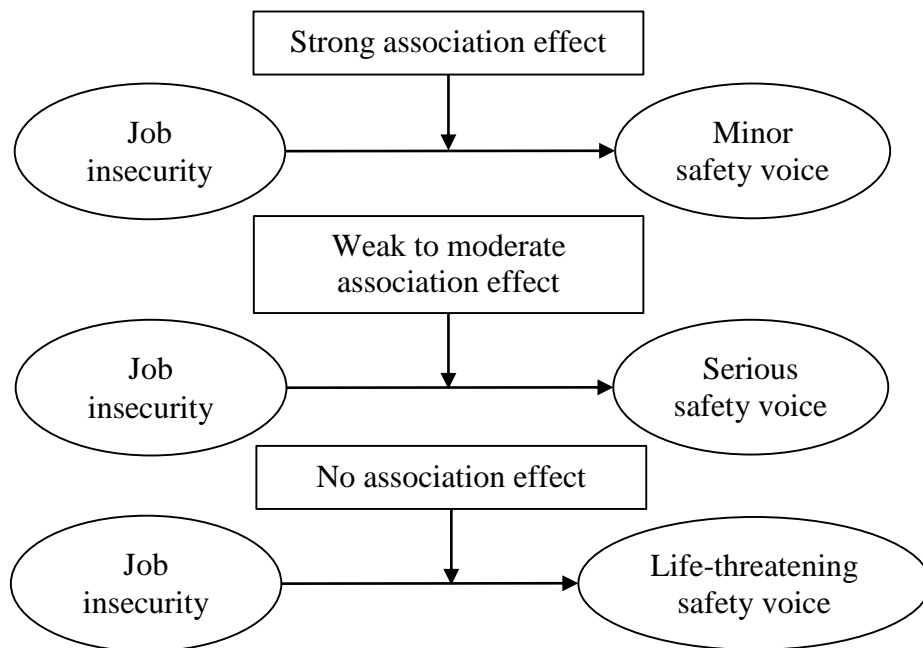


Figure 1. *Proposed model of severity of safety concerns overriding the association of job insecurity and safety voice.*

As mentioned above, certain event types may vary on a continuum such that when an adverse event occurs; an employee may voice their concern irrespective of their job insecurity fears (showing no association between job insecurity and safety voice). Conversely in a trivial event it is likely that an employee may not voice their concerns in relation to their job insecurity (showing association effects of job insecurity).

Individual characteristic

In 1983, Miller, Berg, and Archer devised a 10-item opener scale, in an attempt to measure the individual differences in the ability to elicit disclosures, thus opening up. In that field investigation, it was found that high opener individuals were able to garner more information irrespective of their targets self-disclosure level, this was compared to low opener individuals who as expected would elicit less information. The idea that this may occur in the workplace may have potential to be another variable which may be associated with safety voice. That is, an employee may be less likely to voice concern given that their supervisors or managers were low in opener ability. Conversely it may be that, supervisors with high opener ability may elicit greater voicing in their subordinates' concerns. Opener ability is used as a control variable in the present study.

Method

Participants

The participants involved in this study were employees of the New Zealand branch of a global organisation which specialises in the industry of mining, shipping, and manufacturing of cement. Respondents of the survey were the employees who were heavily involved with above average safety risk work. These employees may have experienced job insecurity due to the first announcement of the plant and quarry division closure, whereby jobs were to be relocated to another plant. The second announcement retracted that assumption and has led to definite impending job redundancies. However the shipping operations for the division were announced to be retained. This came with the announcement that some of the employees may be relocated to the shipping division, which may also contribute to the job insecurity. Communication between the researcher and the organisation was first established with the Health and safety liaison. Approval from the organisation was obtained after presenting this research proposal to the head branch office which consisted of key managers. The survey was sent out to the three key core divisions of operations: Quarry, Plant, and Shipping.

In total, 122 surveys were distributed through either electronic online survey or through hard copy surveys, of which 47 were completed, giving a 38% strike rate. The participant pool consisted of 37 males and 10 females ($SD=.41$), with a mean average age of 42.23 years ($SD=13.07$). The sample population also had an average of 1.04 for employment contract type (indicating largely permanent contracts), and the number of co-worker interactions averaged 9.74 for each respondent ($SD=5.6$).

Materials

The method for obtaining data was through the development and use of a survey with measures of safety voice antecedents which will be utilised in order to investigate Job-Insecurity and its association effect. The survey was completed either by online and by hard copies (see appendix B and C for detailed examination). The first two pages consisted of an introduction of the study which described the purpose, security of information, instructions for the participant, and researcher contact details. The following page consisted of demographic and background questions relating to the job as well as a unique code reference for the possibility for longitudinal studies. The following pages then consisted of the safety voice predictors and job insecurity measure: voicing safety concern measure, job insecurity measure, perceived organisational support for safety measure, perceived co-worker support scale, Safety climate measure, psychological safety measure, job risk measure, team member interaction measure, and opener personality measure. These measures were used with a five-point Likert scale (1 = Very Unlikely to 5 = Very Likely).

Surveys were randomly presented in three different orders of sections; this presented the scales in seven iterations.

Demographics and Background Questions

This section of the survey followed directly after the introductory pages which consisted of questions relating to their job at the organisation. These included: age, gender, job title, work role category, typical daily co-worker interaction, and division of operations identified with, tenure, employment contract type, and unique code. The division of operations question was devised based on the request from the board of managers which they suggested may have a different sub-culture within these divisions. Please refer to the appendix for a comprehensive examination of the demographic and background questions.

Employee Safety Voice Scale

The employee safety voice scale used in this dissertation is an adaptation of the scale used in the Tucker *et al.* (2008) study. This scale measures the degree to which participants were likely to voice or speak up about safety concerns in their present job. Tucker *et al.*, (2008) reported a coefficient alpha of $\alpha = .78$ for this scale.

The scale used in Tucker *et al.*, (2008) did not fit with the current sample population, as their study targeted drivers and their driving safety. Amendments to the wording of the scale were therefore made to make it more suitable for the current study (refer to appendix A for more detail). This study found a coefficient alpha of $\alpha = .93$ for the overall safety voice.

In addition to the amendments to the wording of the scale, the voice scale was partitioned according to the severity of safety concern type. This was devised in order to capture the necessary data to analyse and explore the severity of safety concern idea. This study found a coefficient alpha of $\alpha = .91$ for the *very minor safety concern* scale, a coefficient alpha of $\alpha = .89$ for the *serious safety concern* scale, a coefficient alpha of $\alpha = .81$ for the *life-threatening safety concern* scale.

Job insecurity Scale

Job insecurity was measured using a three-item scale by Hellgre, Sverke & Isaksson (1999) focusing on the affective part of job insecurity. A sample item is “I am afraid I may lose my job in the near future”. A high score on this scale represents stronger feelings of job insecurity. This study found a coefficient alpha of $\alpha = .95$.

Perceived Organisational Support for Safety Scale

The three item Perceived organizational support for the safety scale by Tucker *et al.* (2008) was adopted to measure the degree to which the company encouraged workers to

express concerns about safety and responded to workers safety concerns. This scale has a reported coefficient alpha of .78 (Tucker *et al.*, 2008). An example item is “The company was quick to respond to the safety concerns of their employees”. This study found a coefficient alpha of $\alpha = .86$.

Perceived Co-worker Support for Safety Scale

The three item scale from Tucker *et al.* (2008) was adopted to measure perceived co-worker support for safety behaviour. Tucker *et al.* (2008) reported a coefficient alpha of .90 for this scale. An example item is “My co-workers were ready to talk to fellow employees who failed to use safety equipment/procedures”. This study found a coefficient alpha of $\alpha = .83$.

Safety Climate

This will be measured with three items taken from Neal and Griffith (2000) study. The items will be measured on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). The three items used to measure safety climate are: ‘Management is concerned for the safety of employees’, and “There is open communication about safety issues within this workplace”. The Neal *et al.* (2000) study found reliability of the scale was a coefficient alpha of $\alpha = .93$. This study found a coefficient alpha of $\alpha = .92$.

Job Risk Scale

Participants perceived job risk was measured using the 10-item Job Safety scale, developed by Hayes, Perander, Smecko and Trask (1998). This scale was included to ensure the research sampled participants with an above average job risk which meant that safety was

a real and relevant concern in the workplace. Hayes *et al.* (1998) measure of job risk demonstrated a coefficient alpha of .91. This study found a coefficient alpha of $\alpha = .81$.

Team Member Interaction Scale

Five items from the Team Member Interaction scale developed by Pearce and Gregersen (1991) were adopted to measure job interdependence. This scale had a reported coefficient alpha of $\alpha = .76$. This study found a coefficient alpha of $\alpha = .67$.

Opener ability

The ten item scale from Miller *et al.*, (1983) opener scale (e.g. “I have been told I’m a good listener”, and “I encourage people to tell me about themselves”), each accompanied by a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). This scale had been reported to have a coefficient alpha of $\alpha = .79$. This study found a coefficient alpha of $\alpha = .93$.

Procedure

A pilot test was initially conducted to help ensure survey items were clear and comprehensible (Roth & Switzer, 1995). 5 employed members of the public completed the survey and provided feedback. The pilot study found a time range of 8 -12 minutes to complete the survey.

The surveys were sent out either through email via the organisations email, or given a hard copy. To maintain anonymity and confidentiality the hard copy was accompanied with a large A4 page-sized envelope with a smaller letter-sized envelope to distinguish between the formal part of the survey and the rewards portion of the survey. These envelopes were handed separately into the plant’s onsite office in different collection boxes. Participants were invited to a prize draw for compensation for their time, which consisted of a fifty dollar supermarket voucher.

Results

Data Preparation

The survey data was entered into SPSS for analysis, where appropriate scale items were reverse coded. A reliability analysis was conducted on each scale to measure internal consistency. The reliability analysis yielded Cronbach coefficient alpha values greater than 0.7 for all of the scales, except for one scale which was within acceptable range approaching good internal consistency with 0.67. Alpha values for each scale used in this study are shown in Table 1.

Descriptive Statistics

Descriptive statistics for all variables were calculated and examined. Table 1 presented the means, standard deviations and range scores for the scale variables (*very minor safety voice*, *serious safety voice*, *Life-threatening voice*, *Total safety voice*, job insecurity, perceived organisational support, job risk, safety climate, perceived co-worker support, team interaction, and opener ability).

Table 1.
Descriptive statistics

Variables	Mean	Standard Deviation	Range	Alpha
Very minor safety voice	3.72	1.08	1-5	.91
Serious safety voice	4.29	.74	2.20-5	.89
Life-threatening safety voice	4.65	.46	3-5	.81
Total Safety voice	2.6	.68	2.40-5	.93
Job insecurity	3.06	1.16	1-5	.95
Perceived organisational support	3.97	.95	1-5	.86
Job risk	2.48	.74	1-4.6	.81
Safety climate	4.10	.72	2.5-5	.92
Perceived co-worker support	4.04	.68	2-5	.83
Team interaction	4.18	.44	3.25-5	.67
Opener ability	3.55	.69	1-4.7	.93

Note. *p < .05. ** p < .01.

Table 2.
Correlation matrix

Variables	1	2	3	4	5	6	7	8	9	10
1. Very minor voice	-									
2. Serious voice	.82**	-								
3. Life-threatening voice	.40**	.73**	-							
4. Total safety voicing	.92**	.96**	.71**	-						
5. Job insecurity	-.16	-.10	.23	-.07	-					
6. Perceived organisational support	.30*	.51**	.41**	.43**	-.15	-				
7. Job risk	-.30	-.35*	-.08	-.31*	.05	-.32*	-			
8. Safety climate	.38**	.39**	.16	.38*	-.27	.82**	-.39*	-		
9. Perceived co-worker support	.36*	.47**	.25	.42**	-.26	.47**	-.19	.41**	-	
10. Team interaction	.34*	.27	.34*	.35**	.17	.14	.09	.22	.04	-
11. Opener ability	.53**	.28	-.13	.36*	-.28	.01	-.18	.19	.29	-.15

Correlation Analysis

In order to test hypotheses 1, 2, and 3, the strength and direction of the associations between the scale variables, were calculated with Pearson correlation coefficients. The magnitude indicates the strength of the association and whether it was a negative or positive correlation determined the direction of the association. A correlation value of one indicates a perfect relationship between the variables, whereas a value of zero indicates no correlation between the variables.

Examination of Table 2 supported the hypotheses 1, 2, and 3 for positive associations with safety voice, perceived organisational support, and safety climate, perceived co-worker support.

Results from the correlation analysis found significant positive correlations for the *very minor safety voice* scale variable. Table 2 presents the positive associations that the scale variable *very minor safety voice* has with perceived organisational support ($r = .30; p < .05$), safety climate ($r = .38; p < .05$), perceived co-worker support ($r = .36; p < .05$), and team interaction ($r = .34; p < .05$), and finally opener ability ($r = .53; p < .01$). In addition, a negative significant association was found between the *very minor safety voice* scale variable and the job risk scale variable ($r = -.30; p < .01$).

Similarly, the results from the correlation analysis found significant positive correlations for the *serious safety voice* scale variable. Table 2 presented significant positive associations for *serious safety voice* with perceived organisational support ($r = .51; p < .01$), job risk ($r = -.35; p < .05$), safety climate ($r = .39; p < .01$), perceived co-worker support ($r = .47; p < .01$). However team interaction was non-significant ($p > .05$).

Examining Table 2 presented significant positive correlations for the life threatening safety concern voicing scale variable with perceived organisational support ($r = .41; p < .01$), team interaction ($r = .34; p < .05$).

The overall safety voicing scale variable, was found to have strong positive correlations with perceived organisational support ($r = .43; p < .01$), job risk ($r = .31; p < .05$), safety climate ($r = .38; p < .01$), perceived co-worker support ($r = .42; p < .01$), team interaction ($r = .35; p < .05$), and lastly opener ability ($r = .36; p < .06$).

Job insecurity

Hypothesis 4 proposed that job insecurity would be negatively associated to each of the safety voice variables.

Examination of Table 2 did not find any significant correlations indicative of negative associations of job insecurity with safety voice at the 95% confidence level. For *very minor safety voice*, a negative non-significant correlation ($p > .05$) was found with job insecurity. Similarly, for *serious safety voice*, a negative non-significant correlation ($p > .05$) was also found with job insecurity. However, for *life-threatening safety voice* the correlation was positive and non-significant ($p > .05$) with job insecurity. Overall, safety voice was found to have a non-significant negative correlation ($p > .05$) for job insecurity.

In order to test hypothesis 4, it must first be acknowledged that job insecurity did not meet the requirements for a significant association with any of the safety voice antecedent scale variables. Nevertheless, one may inspect the difference (though statistically insignificant) in means of job insecurity between the different levels of safety voice. This may provide some preliminary indication of negative associations between job insecurity and each of the safety voice variables.

A univariate analysis of variance was performed to test for any observable group differences between each separate safety voice variable. This test was performed to provide preliminary indications of any expected observable differences in the means (had the correlations between job insecurity and safety voice concerns were statistically significant)

between the different severities in safety concerns. with high and low safety voice as the independent variable and job insecurity as the dependent variable. This test highlights the differences in means of job insecurity across respondents that were likely to voice and those that were unlikely to voice. For example, if no observable differences were found then the association, (had the correlation been significant), would not be negative. A negative association would see differences in means for greater reports of job insecurity with respondents that were unlikely to voice safety concerns. Each safety voice scale variable was dichotomised into high likelihood to voice (above 3 = likely to voice) or low likely hood to voice (3 and below = unlikely to voice). The results for these tests were tabulated into Table 3.

For *minor safety voice*, a difference in means of 0.31 was found between job insecurity, across safety voice group levels. The mean difference however was non-significant $F(1, 43) = 0.76, p > .05$. This was as expected given the observed low power value of 0.137, corresponding with a low proportion of variance of the sample pool being accounted for ($\eta^2 = .017$).

The results of the univariate analysis found a larger difference in means of 0.45, between job insecurity across the serious safety voice group levels. The mean difference however was non-significant $F(1, 43) = 1.07, p > .05$. Again, the observed power value was low (.137), which also corresponded with a low proportion of variance of the sample pool being accounted for ($\eta^2 = .017$).

For life-threatening safety voice however, the results of the univariate analysis found a small difference in means of 0.09, between job insecurity across and safety voice group levels. The mean difference however was non-significant $F(1, 43) = 0.02, p > .05$. The observed low power value of 0.137 also corresponded with a low proportion of variance of the sample pool being accounted for ($\eta^2 = .017$).

Lastly the results showed a small difference in means of 0.13, between job insecurity across and overall safety voice group levels. The mean difference however was non-significant $F(1, 43) = 0.10, p > .05$, with an observed power value of 0.137, and an eta squared value of $\eta^2 = .017$.

Table 3.
Univariate ANOVA with job insecurity as the dependent variable

Safety voice	Mean	SD	n	Source	F	df	Sig.	η^2	Obs. Power ^a
Overall safety voice									
Unlikely to voice	3.17	1.31	14	Corrected Model	0.1	1, 43	0.75	0	0.06
Likely to voice	3.04	1.13	31						
Minor safety voice									
Unlikely to voice	3.23	1.27	23	Corrected Model	0.76	1, 43	0.387	0.017	0.137
Likely to voice	2.92	1.08	22						
Serious safety voice									
Unlikely to voice	3.44	1.3	3	Corrected Model	1.07	1, 43	0.31	0.02	0.17
Likely to voice	2.99	1.14	42						
Life-threatening									
Unlikely to voice	3	1.73	3	Corrected Model	0.02	1, 43	0.9	0	0.05
Likely to voice	3.09	1.16	42						

a. Computed using alpha = .05

Hypothesis 5 proposed that the severity of safety concerns would override the effects of job insecurity on safety voice.

In order to test hypothesis 5, the means of each severity safety voice across high and low job insecurity group levels were compared. One-way ANOVAs were performed separately using each severity safety concern type as the dependent variable, with job insecurity index as the independent variable. Job insecurity was dichotomised into high (above 3) and low (3 and below) job insecurity. Table 4 presented the results of the ANOVAs which showed that there was a mean difference of 0.54 in the likelihood to voice *very minor safety voice* between high and low job insecurity group levels. Respondents reported greater likelihood to voice minor safety concern when perceived job insecurity was low, compared to when job insecurity was high. Further, there was a mean difference of 0.30 in *serious safety voice* and between job insecurity group levels, where those with high job insecurity reported a lower likelihood of voicing. Finally a mean difference of 0.12 between *life-threatening safety voice* and across job insecurity group levels in Table 4. Although these differences were not significant, the results showed a pattern, whereby job insecurity seemed to affect voicing for *minor* and *serious* concerns. Additionally, there is almost no difference between those with high and low job insecurity when in voicing life-threatening safety concerns.

Table 4.
One way ANOVA comparing means of safety voices across job insecurity levels

Safety voice	Job insecurity level	n=45	Mean	SD	F	Sig.
Very minor safety voice	Low Job insecurity (1-3)	23	3.97	0.77	2.61	.114
	High Job insecurity (4-5)	22	3.45	1.30		
Serious safety voice	Low Job insecurity (1-3)	23	4.44	0.55	1.99	.165
	High Job insecurity (4-5)	22	4.14	0.88		
Life-threatening safety voice	Low Job insecurity (1-3)	23	4.59	0.50	0.73	.398
	High Job insecurity (4-5)	22	4.71	0.43		

Severity of Safety Voice

One of the questions investigated in this study was whether an employees' willingness to voice was influenced by the severity type of the safety concerns (Hypothesis 5). A mean response of 3.72 ($SD= 1.08$) was obtained for *very minor safety concerns*, a mean response of 4.29 ($SD=0.74$) for *serious safety concerns*, and mean response of 4.65 ($SD=0.46$) for *life threatening concerns*. The means for safety voicing indicated that the sample reported more willingness to voice *serious* and *life threatening safety concerns* than *very minor safety concerns*.

Response to the voice scale items was on a 5 point scale with a scale score of 4 or greater, indicating at least agreement with all the items. Thus a cut-off point of 4 and above was established in order to dichotomise the responses.

To illustrate the differences in safety voicing for the different types of concerns, a frequency analysis was performed. Results from the analysis were shown in Table 5 and Figure 1. Inspection of Table 5 showed clusters of responses that were above the cut-off point that respondents were likely to voice and those that were unlikely to voice, below the cut off restriction.

Figure 1 illustrated the distribution of responses that the sample population reported. The responses were dichotomised, corresponding to the cut off of 4 or above for likely to voice and 2 or below for unlikely to voice. The trend in Figure 1 showed that a respondent's likelihood to voice their safety concerns gradually increased along with the increase in severity of safety concerns.

Table 5.

Respondent frequencies to each safety voice scale

Response rating	Very minor safety voice		Serious safety voice		Life-Threatening safety voice		Total safety voice	
	N=47	%	N=47	%	N=47	%	N=47	%
1 = Very Unlikely	3	6.7	0	0	0	0	0	0
2	6	13.3	4	8.9	0	0	3	6.7
3	14	31.1	5	11.1	3	6.7	11	24.4
4	15	33.3	23	51.1	21	46.7	25	55.6
5 = Very Likely	7	15.6	13	28.9	21	46.7	6	13.3
Missing	2	-	2	-	0	-	3	-

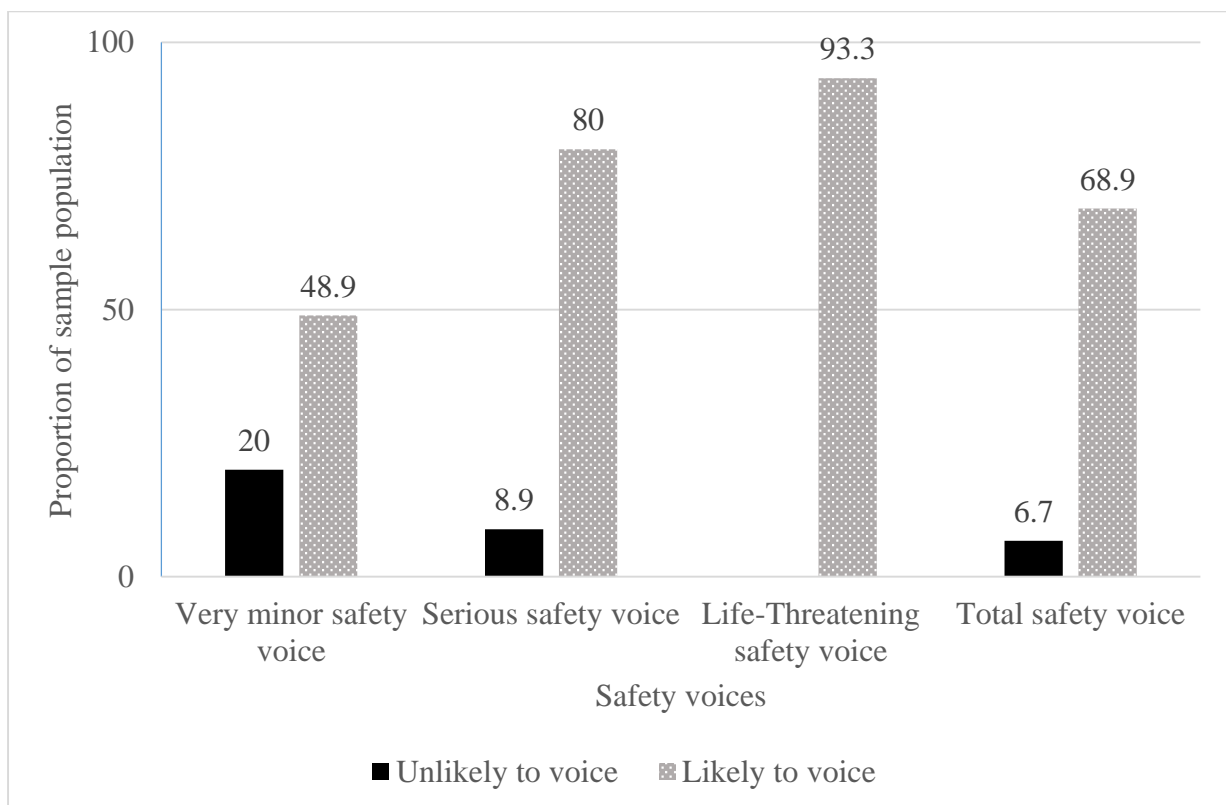


Figure 2. *The percentage of respondents who were likely to voice and were unlikely to voice based off the cut off restriction points.*

Discussion

The current study

The safety of employees in the workplace is a pivotal function to the management of health and safety. What employers are now faced with are challenges towards maintaining safety whilst being as productive as they can to survive and compete in their respective markets (NZCTU report, 2013). Health and safety has recently been given a major overhaul in New Zealand in terms of government legislation, and its expectation for employers to abide by their guidelines. This has highlighted the significance that these changes may have on health and safety.

The only way for the employees' safety concerns to be effectively addressed is dependent upon whether employees voice their concerns or that the relevant authorities actually receive these concerns. One such mechanism is through using safety voice, which uses communication between employee and employer (or an employer representative, supervisor) to convey safety concerns.

This communication may be influenced by the perception of feelings about job insecurity in employees. Organisational practices such as redundancy and restructuring may also add to job insecurity felt by employees as the threat of job loss may be inflating those perceptions. Furthermore, the communication of safety voice may also be influenced by the severity of safety concerns.

The objectives of this dissertation was twofold, one objective was to explore the potential influence severity of safety concerns has on safety voice, the other objective was to investigate the association job insecurity has with safety voice.

Safety Voice

Overall, safety voice in this study was significantly and positively associated with perceived organisational support, job risk, safety climate, perceived co-worker support, team interactions, and opener ability. This is consistent with research by Tucker et al., (2008), where they had found that lack of perceived organisational support and co-worker support was associated with lower levels of safety voice. This finding may suggest that the social context which respondents perceive may influence the willingness to voice safety concerns. Respondents might therefore be using cues in the positive associations of the social context which contribute to their thought processes in their willingness to voice regarding safety concerns. In other words, it may be that respondents with the perception of the support received by their organisation and co-workers may use this support to contribute to the likelihood to voice safety concerns. It could also be that the perception of the safety environment in the workplace may be used as cues in the likelihood to safety concerns.

The other positively associated social scale variable was team interaction. It could be that greater exposure to the team may correspond to the greater likelihood to voice. The positive associations suggest that with greater perception of safety social support would correspond to greater likelihood to voice safety concerns. However, one may argue the adequacy of the reliability of the team interaction scale which, in terms of the reliability exhibited below the usual cut-off of .70 for good internal consistency (Nunally, 1978).

The findings which relate to *minor safety voice* in this study found positive associations with the work environment. This included safety climate, perceived organisational support, perceived co-worker support, and team interactions.

The positive correlations found for *serious safety voice* comes as to no surprise that the same associations seen with *very minor safety concern* were also significant.

Similarly the correlations also found for *life-threatening safety voice* indicated positive associations with perceived organisation support, perceived co-workers support as well as team interaction.

The lack of support however, for the association between *life-threatening safety voice* with safety climate, may highlight the gravity to which the severity of safety concerns may have on safety voicing. It is quite possible that the respondents are willing to use their *life-threatening safety voice* irrespective of their social environment. This may allude to other factors which may influence *life-threatening safety voice*. For example, the notion of ‘self-preservation’ in the sense that individuals have an underlying motivation to preserve ones existence. It could be that the salience of mortality from life-threatening concerns may override organisational safety climate and fall back to ones’ own cultural global view in light of the risk to their own or other’s life as described by terror management theory (Solomon, Greenberg, & Pyszczynski, 1991). This could be investigated in future studies involving life-threatening safety concerns and their willingness to voice these safety concerns.

Job insecurity

The other objective of this dissertation was to address the role to which job insecurity may play in safety voice. It was expected that job insecurity would be negatively associated with safety voicing, this however was not supported given the non-significant results. Nonetheless, in the univariate analyses there was an indication, albeit statistically insignificant, that the low group levels of *overall safety voice* had higher levels of job insecurity. Similarly, serious and for *very minor safety voice* also had this pattern. This difference suggests the possibility that job insecurity may affect the propensity to voice minor to serious safety concerns. The difference however was much higher for *very minor safety voice*. This was illustrated in figure 1 where the frequency for respondents who were likely to voice very minor safety concerns was clearly fewer than for the increasing severity safety concerns. *Given* that the

risk in voicing *very minor safety concerns* would put more risk towards job insecurity, hence, voicing at this severity level would simply not be worth it (Berson, Nemanich, Waldman, Galvin, & Keller, 2006; Stamper & Van Dyne, 2001). The observed differences in group means, though non-significant, does fall in line with similar research by Goldenhar et al., (2003) and Tucker (2010) where they found a negative association of job insecurity and reported incidents and accidents. The differences in the two group levels for high and low *life-threatening safety voice on job insecurity*, were very small. This may possibly be due to the irrelevance of job insecurity in the voicing of adverse concerns. Perhaps a reason for this may lie with the context to which respondents may perceive adverse safety concern and the expected consequences of voicing their concerns. It may be that respondents may use a global view of safety concerns relating to their selves or their co-workers and henceforth voice safety concerns ‘for the good of all’. The example of the global view could be that when an individual experiences an adverse safety concern, they are going to voice this concern as the consequences of not doing so outweighs the repercussions of inhibiting their safety voice. This global view could be compared to an individual self-centred view of safety concerns, in which adverse concerns may inhibit their voice because of reasons which affect their selves. For example, an individual who experiences an adverse safety concern wont voice this concern as it may highlight their self-incrimination and duty negligence, thus unlikely to voice due to this self-centred view. This may also suggest further investigations into the global-views versus self-centred views of voicing safety concerns.

Severity of Safety Concern Types

One of the objectives for this dissertation was to address the possibility that severity of safety concerns would influence the likelihood for voicing those concerns. The illustration in Figure 1 depicts a dramatic and distressing effect in regards to respondents reporting their

willingness, or lack thereof, to voice *very minor safety concerns*. Given an ideal safety voice sample population, it is reasonable to assume that all severity types of safety concerns would be voiced. However in this study, more than half of the collected sample were not voicing their minor safety concerns.

This disconcerting effect could have real world implications, which can already be seen in tragedies like the Mount Erebus plane disaster. Multiple factors had led up to the loss of control of an aeroplane carrying passengers to crash into Mount Erebus, however, it all started with an initial oversight. Similarly, the Cave Creek tragedy which occurred in New Zealand also started from an initial oversight in the logistics and construction of a viewing platform overlooking the creek. The systemic failures had led to irreversible consequences involving the deaths of a group of children who fell victim to those oversights. This phenomenon has been referred to as the Swiss cheese paradigm, whereby the active and latent failures intertwine to ultimately lead to a negative outcome (Reason, 1990). Active failures pertain to the failures which can be directly attributed to an accident, while latent failures involves the underlying contributing factors which once set off, may lead to an accident. It can be therefore argued that, overlooking very minor safety concerns, thus not voicing, may lead to an active or latent failure which may lead to consequences in the future. Concordantly the idea of systemic failure from overlooking minor safety concerns can be extrapolated to the increasing increments of severity. Whereby overlooking serious safety concerns or even life threatening concerns may increase active and latent failures over time, which would have even more serious consequences.

Limitations and strengths

Given that job insecurity is more pronounced in a specific context, recruitment of the sample population was targeted through organisations which were undergoing or have future

restructuring or downsizing. Interest in participation was extremely low, whereby nine medium to large with potential above average safety work risk organisations from New Zealand were approached. Only one organisation that was approached was willing to investigate the effects of job insecurity in their workplace. The reluctance to take part in this study may highlight the significance of what job insecurity and its effects on safety voice had on the management agenda. This could not have been addressed by experimental manipulation of a sample population, as inoculating job insecurity would have ethical implications, and would not be a realistic representation of the working population.

Nonetheless, this has some implications to the sample collected. One such implication was to the number of sample cases that were actually recruited compared to what could have been collected, with a response rate of 38% success for the survey implemented in this study. A larger sample may have increased the power of the statistical analysis of this study which may potentially have provided significance to the findings.

As the sample pool was recruited under the context of future redundancy, this could have influenced the results, leading to non-significant results. As stated in the results, most jobs will definitely be made redundant as announced by the organisation; some jobs were still in question. Those respondents that were under the impression that their job was secure, may inflate their responses to their perception of job insecurity. This could have influenced the variability of the sample population given that most of the respondents would have accepted their high chance of job redundancies and therefore not be worried about job loss. This could have been addressed by taking comparisons of job insecurity at the time of each of the announcements, for test-retest validity. As with all self-reported data each person may be idiosyncratic to the context or situation, where the respondent may perceive, experience, or react towards job insecurity differently as would otherwise be in the normal population. For

example, one may strongly disagree with feeling job insecure but compared to another respondent this may be rated as agree.

One other potential restriction of the sample population is the possibility that respondents were basing their likelihood to voice safety concerns from the opportunities that respondents experienced on the job. It may be that respondents in the context with greater opportunity to voice safety concerns, may be over representing than what is commonly found in the total population. Similarly, Opportunities or experiences with life-threatening safety concerns may occur less or more frequent than the other severity concerns for some respondents than the sample population as a whole. This could be affecting the opportunities for voicing, which in turn may affect their reported likelihood to voice.

The other possibility arising from self-reported data was that individual responses were responded with social desirability. This issue was addressed by anonymising the survey and reassuring participants that they were under anonymity at the start of the survey. However this may still be an issue if the respondent did not believe in the anonymity assurance. Furthermore, as the survey collected responses that captures an individual's own perception, this may have influenced the results of the statistical analyses when translating these individual responses to the group level.

The generalizability of the results is very limited, given that this sample population was from one organisation, this does not capture the attributes of other organisations in New Zealand. Given the small sample population, most of the findings were non-significant raising the issue that further research is necessary for the validity to the indications reported in this dissertation.

The strength of this dissertation is the limited but observable main effects which were found, although they were non-significant results this was expected due to the limited sample size. It was expected that the intended sample size was sufficient enough to garner the

necessary results for further statistical analyses however, the strike rate was low.

Nevertheless the indications from the results may elicit more research interest in this area.

A second strength of this dissertation is the proposition that severity of safety concerns plays a significant part in safety voice with safety voice antecedents, consistent with the research done thus far. The application of these findings to organisations may be seen through the correlation analysis performed. This analysis showed how the associations varied in both strength and direction. It is here that organisations could begin to examine what their attentions should be focused on when addressing the issue of job insecurity and safety voice. Results from the analysis showed a range in the direction and magnitude across the different scale variables. Nevertheless as indicated by the results, the most consistent strong associations found with safety voice were that of perceived organisational support across all severities in safety voice. This was followed by safety climate and perceived co-worker support consistently positive and moderate in associations across very minor safety voice and serious voice. In other words, the perception of support from the organisation and co-workers, as well as the perception of the safety climate might encourage their employees to voice safety concerns. Organisations that do not have practises which address perceptions of support may find these results helpful in their implementation of promoting safety voice in their workplace.

Recommendations for future research

Further research on the effects of job insecurity and severity of safety concerns on employee safety voice will help strengthen and verify the associations found in this study. This research produced limited data to be able to address the job insecurity effect significantly, given that more sample size will further the power of statistical analysis. Further research could include

the possibility of job insecurity moderation on safety voice. As mentioned earlier, there are other factors at hand that may explain why life-threatening safety voice was not associated with job insecurity, safety climate, and perceived co-worker support. Further research could explore other variables which were not included in this study.

Conclusions

This dissertation began with the concept of safety voice and has identified the relevance of voicing safety concerns for employees as well as to organisations. Variables which could influence employee safety voice were also examined. The dissertation also sought out to know whether job insecurity can result in negative associations with safety voice, given that the research conducted so far has yet to address the specific issue of this negative association. In addition, what is unique to this dissertation was the proposition that safety voice may lie within a continuum depending on the safety concern severity.

The empirical findings of this dissertation found some indication of negative associativity of job insecurity on safety voice. This indication comes from the small group differences that were observed, given by the small sample size population, between job insecurity and safety voice. Additionally, empirical evidence seemed to support the safety severity continuum proposition, given that responses of the participants varied across severity levels. This severity continuum found empirical evidence of varied associations with the strongest associations with perceived organisational support followed by perceived co-worker support, safety climate, and team interaction. The findings found in this dissertation explored the potential associations' safety voice and its proposed antecedents. Given the limited data available however, associations were still seen, though in the case of job insecurity this must be revisited in order to further understand the associative effect it has on safety voice. The debate is still open as to whether these findings are significant enough to draw conclusions

about the indication of safety voice associations. To generate the necessary evidence, more research and thus more sample sizes from the job insecurity perspective is needed.

Despite the initial perception of simplicity, safety voice is an integral part of the management of health and safety. Its intricacy in regards to its related antecedents shows just how much management needs to consider in their practises which affect their employees. This is especially so in the risky sectors of industries where safety is paramount. This dissertation offers a preliminary indication that safety voice varies according to severity, and that job insecurity may affect employees' likelihood to voice safety concerns.

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Appendices

Appendix A

Changes to Employee Safety Voice Scale items

Original Item	Adapted item
I make suggestions about how safety can be improved.	how likely is it that you will make suggestions about how safety can be improved.
I tell my colleague who is doing something unsafe to stop.	how likely is it that you will tell your colleague who is doing something unsafe to stop.
I discuss new ways to improve safe driving with my colleagues or boss.	discuss new ways to improve safety with your colleagues or boss.
I inform the union/boss when I notice a potential driving hazard.	how likely is it that you will inform your boss when you notice a potential safety hazard.
I report to my boss if my colleagues break any safety rules.	how likely is it that you will report to your boss if my colleagues break any safety rules.

Appendices

Appendix B: Questionnaire

Dear Employee, Hello, my name is Sam Lu a 2nd Masters student at the University of Canterbury. As part of my studies I will investigate how employees notify the organisation about their safety concerns, and also investigate organisational factors that may matter for safety voice.

Completing this questionnaire should take less than 10 minutes.

This questionnaire is entirely anonymous and confidential. You will not be identified in the study, nor will your supervisors see your individual answers. We guarantee that no one outside the University of Canterbury research group will have access to your responses.

How to complete the questionnaire

- Read each question carefully.
- Then answer giving your first intuitive reaction.
- Please answer all of the questions.
- The usefulness of this survey depends upon the honesty with which you answer these questions.

Please **Check** in the circle to indicate your **correct response** ✓

If you have made a mistake, **Cross out** the **incorrect response** —

Informed Consent

By completing this questionnaire you are consenting to the publication of the results on the basis that no individual, team or organization is identified.

At the end of the survey you have the option of entering a prize draw for the chance to win one of **ten \$50 shopping vouchers**. This information will be collected and stored completely separate from the survey responses.

Use of the Unique code

----- is dedicated towards improving the health and safety of their employees, therefore there is an interest for a follow-up survey to see if there is any changes over time. To make it possible to compare the results of this survey with a future survey, a tracking code generated by you will be used. The code will be based on some information which only you are likely to know, and it will be very unlikely that anyone else has the same code or knows another person's code. This code will be used strictly for a follow-up survey basis for use with the University of Canterbury and ----- New Zealand.

If you have any questions about this research please feel free to contact either:

Myself: sam.lu@pg.canterbury.ac.nz

Supervisor: Dr. Katharina Näswall: katharina.naswall@canterbury.ac.nz

Co-Supervisor: Professor Christopher Burt: Christopher.burt@canterbury.ac.nz

Thank you for your co-operation

Kind regards,

Sam Lu

Department of Psychology

University of Canterbury

Christchurch, New Zealand



Unique Code

To ensure anonymity please provide a code which can only be deciphered by yourself in the following format:

First 3 letters of your mother’s given name + Last 3 digits of your home or mobile number

For example: if your mother's name is Margaret and your mobile number is 0211234567 your code would be Mar567

Please enter a Unique code: _____

What is your age?

What is your Gender?

- Male
- Female

What is your job title in this company?

Which category best describes your work role in this company?

- Team Member
- Team Leader
- Manager / Supervisor

How many immediate co-workers do you interact with on a daily basis?

Which Westport division do you belong to?

- Plant
- Shipping
- Quarry

How long have you worked for this company?

(How many years; If less than 1 year, how many months)

What type of employment contract do you have with this company?

- Permanent
- Temporary/Fixed Term

Listed below are statements that may describe some safety aspects of the company environment. Please use the following scales to indicate how much you agree or disagree with each of these statements.	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Management places a strong emphasis on workplace health and safety	○	○	○	○	○
Safety is given a high priority by management	○	○	○	○	○
Management considers safety to be important	○	○	○	○	○
There is sufficient opportunity to discuss and deal with safety issues in meetings	○	○	○	○	○
There is open communication about safety issues within this workplace	○	○	○	○	○
Employees are regularly consulted about workplace health and safety issues	○	○	○	○	○
Employees receive comprehensive training in workplace health and safety issues	○	○	○	○	○
Employees have sufficient access to workplace health and safety training programs	○	○	○	○	○
There are systematic procedures in place for preventing breakdowns in workplace safety	○	○	○	○	○
The safety procedures and practices in this organization are useful and effective	○	○	○	○	○

Listed below are safety statements which relate to three variations of **voicing safety concerns**.
Please answer the questions in each of the three columns across each safety statement.

Please use the following scales to indicate how likely it is that you will ...	for Very Minor safety concerns					for Serious safety concerns					for Life Threatening safety concerns				
	Very Unlikely				Very Likely	Very Unlikely				Very Likely	Very Unlikely				Very Likely
make suggestions about how safety can be improved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
discuss new ways to improve safety with your colleagues or boss	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
inform your boss when you notice a potential safety hazard	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
will report to your boss if your colleagues break any safety rules	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
will tell your colleague who is doing something unsafe to stop	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Listed below are statements about Co-workers.

Please use the following scales to indicate how much you agree or disagree with each of these statements.	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
My co-workers are ready to talk to fellow employees who fail to use safety equipment/procedures.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My co-workers are prepared to stop others from working dangerously.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My colleagues encourage each other to work safely	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Listed below are statements that may describe the company you currently work for.

Please use the following scales to indicate how much you agree or disagree with each of these statements.	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
The company takes the safety concerns of employees seriously	○	○	○	○	○
The company is quick to respond to the safety concerns of their employees	○	○	○	○	○
The company encourages employees to voice their concerns about safety	○	○	○	○	○

Listed below are statements about your feelings regarding the **future of your current job?**

Please use the following scales to indicate how much you agree or disagree with each of these statements.	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I am worried about being let go	○	○	○	○	○
I am worried about whether I will be able to keep my job	○	○	○	○	○
I fear that I will end up losing my job	○	○	○	○	○

Listed below are statements which may or may not describe who you are.

Please use the following scales to indicate how much you agree or disagree with each of these statements.	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
People frequently tell me about themselves	○	○	○	○	○
I've been told that I'm a good listener.	○	○	○	○	○
I'm very accepting of others	○	○	○	○	○
People trust me with their secrets	○	○	○	○	○
I easily get people to "open up"	○	○	○	○	○
People feel relaxed around me	○	○	○	○	○
I enjoy listening to people	○	○	○	○	○
I'm sympathetic to people's problems	○	○	○	○	○
I encourage people to tell me how they are feeling	○	○	○	○	○
I can keep people talking about themselves	○	○	○	○	○

The following statements are about how much job related interaction you have with your team members or co-workers in your job.

Please indicate how much you agree or disagree with each of these statements.	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I communicate closely with my team/co-workers to do my work	○	○	○	○	○
I have to coordinate my efforts with my team/co-workers	○	○	○	○	○
My own performance is dependent on receiving accurate information from my team/co-workers	○	○	○	○	○
My job requires me to consult with my team/co-workers frequently	○	○	○	○	○

Listed below are items about the amount of risk associated with your job.

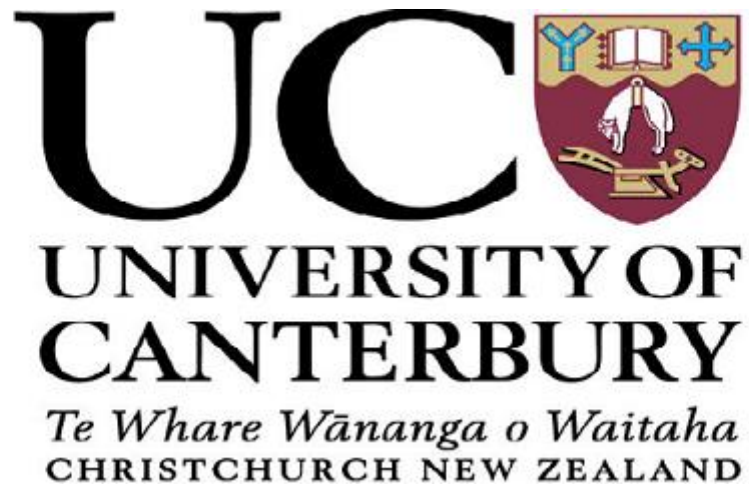
For each item please circle the number which indicates the extent to which you disagree or agree.	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Dangerous	○	○	○	○	○
Safe	○	○	○	○	○
Hazardous	○	○	○	○	○
Risky	○	○	○	○	○
Unhealthy	○	○	○	○	○
Could get hurt easily	○	○	○	○	○
Unsafe	○	○	○	○	○
Feared for my health	○	○	○	○	○
Chance of death	○	○	○	○	○
Scary	○	○	○	○	○

Thank you for taking the time to complete this questionnaire.

This concludes the formal part of the questionnaire; I would like to now invite you to the prize draw.

Use this page as the raffle ticket. Enter your contact information below – either postal address, or email address or mobile number, then remove this page from the rest of the survey and put in in the smaller envelope provided. Put both the smaller envelope and the survey in the bigger envelope and hand it in.

Contact information:



Appendix C

Dear Employee,

Hello, my name is Sam Lu, a student of the Masters of Science: Applied Psychology programme at the University of Canterbury. As part of my studies I will investigate how employees notify the organisation about their safety concerns, and also investigate organisational factors that may matter for safety voice.

Completing this questionnaire should take no longer than 10 minutes.

The *formal part* of the questionnaire is entirely anonymous and confidential, that means **you will not be identified in the study, nor will your supervisors see your individual answers.** We guarantee that no one outside our research group will have access to your personal views. Any information we ask of, is for our own research purposes.

This questionnaire will help towards the improvement of safety for you and your co-workers within your workplace; I therefore implore you to give this questionnaire your best efforts.

How to complete the questionnaire:

Read each question carefully.

Then answer giving your first intuitive reaction.

Please answer all of the questions.

The usefulness of this survey depends upon the **honesty** with which you answer these questions.

Informed Consent

By completing this questionnaire you are consenting to the publication of the results on the basis that no individual, team or organization is identified.

At the end of the survey you have the option of entering a prize draw for the chance to win one of **ten \$50 shopping vouchers.** This information will be collected and stored completely separate from the survey responses.

Use of the Unique code

----- is dedicated towards improving the health and safety of their employees, therefore there is an interest for a follow-up survey to see if there is any changes over time. To make it possible to compare the results of this survey with a future survey, a tracking code generated by you will be used. The code will be based on some information which only you are likely to know, and it will be very unlikely that anyone else has the same code or knows another person's code. This code will be used strictly for a follow-up survey basis for use with the University of Canterbury and -
----- New Zealand.

If you have any questions about this research please feel free to contact:

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Supervisor: Dr. Katharina Näswall: katharina.naswall@canterbury.ac.nz

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Thank you for your co-operation

Kind regards,

Sam Lu

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