Raising the Bar

PERPARED FOR

Capable NZ – Otago Polytechnic
Master of Professional Practice

Preface

Contact Details

PAUL GEOFFREY ALLOTT

82A Chelsea Avenue
Richmond
Nelson

Phone: (027) 686 1963
Email: paul@allottconsulting.co.nz

Contents

List of Tables & Figures

List of Abbreviations

Abbreviation	Meaning
ACC	Accident Compensation Corporation
ACC WSMP	Accident Compensation Corporation Workplace Safety Management Practices
ACOP	Approved Codes of Practice
AS/NZS	Australia and New Zealand Standards
CAA	Civil Aviation Authority
CEO	Chief Executive Officer
C-HIP	Communication – Human Information Processing
CRP	Canterbury Recovery Project
FTE	Full Time Employees
H&S	Health and Safety
HaSPA	Health and Safety Professional Alliance
HSNO	Hazardous Substances and New Organisms
ISO	International Standards Organisation
KTO	Kai Tahu Māori
LTI	Lost Time Injuries
MBIE	Ministry of Business, Innovation and Employment
MNZ	Maritime New Zealand
MOU	Memorandum of Understanding
MPP	Master of Professional Practice
NEBOSH	National Examination Board in Occupational Health and Safety
NZISM	New Zealand Institute of Safety Management
NZTA	New Zealand Transport Authority
OECD	Organisation for Economic Co-operations and Development
OP	Otago Polytechnic
PCBU	Person in Change of a Business or Undertaking
PIRA	Preliminary Impact and Risk Assessment
PMO	Project Management Office
PPE	Personal Protective Equipment
SME	Small to Medium Enterprise
SSSP	Site Specific Safety Plan
SWMS	Safe Work Method Statement
TAIC	Transport Accident Investigation Commission
UK	United Kingdom

Acknowledgements

I would like to thank the important people in my life who have helped make it possible for me to complete this master's research. Firstly, to my partner Robyn – thank you for your love, patience, support and understanding as I progressed through completing this work. Also for your perseverance during my absence, while I gained valuable experience working in Christchurch with the Canterbury earthquake recovery project. I simply could not have finished this research without your on-going support.

Secondly, I would like to thank Dr Aidan Hobson, OP Programme Leader and Dr Malcolm McPherson, Academic Mentor and Facilitator. Your guidance and wisdom throughout this MPP process has been incredibly helpful in keeping me focused.

Thirdly, I wish to thank my previous employer, John Gibb, a very wise, talented and innovative business entrepreneur who encouraged me to attempt this project, and also Kim Ngawhika, Whanau Ora Manager; Whakatu Marae for her valuable Māori perspective.

Lastly, thank you to all the professionals that participated in this this study by completing the surveys and interviews. Without your assistance, simply this MPP would not have been possible.

Abstract

The introduction of the new Health and Safety at Work Act will be one of the most significant changes in workplace health and safety in the past 20 years. At the time of completing this project, the Health and Safety Reform Bill is currently before Parliament. The Transport and Industrial Relations Committee has considered the Bill and public submissions and reported back to Parliament with improvements.

Worksafe New Zealand (the new health and safety agency set up by Government) states, "On average, 73 people per year die on the job, 1 in 10 is harmed and 600-900 die from work-related diseases – all coming at a cost of $3.5 billion per year. And that doesn't count for the social and psychological costs on the friends, family, loved ones and co-workers of those people hurt on the job".

This research project is ultimately driven by a desire for New Zealanders' to go to work with an expectation that they will return home safely to their families.

Communication – *the imparting or exchanging of information by speaking, writing or using some other medium (Oxford Dictionary).*

Risk communication is an important factor in organisational risk management and when information isn't fully communicated to those who need it, it can lose its value. This project attempts to explore whether risk communication is effective in motivating individuals to carry out risk directed behaviour.

Executive Summary

▪ Background

The research project

This research project was first considered in January 2014 and resulted from a keen interest in how health and safety is managed in New Zealand. I had read, with interest, Rebecca Macfie's book "Tragedy at Pike River Mine" and later, the Royal Commission's report. It seemed that the systemic failure and tragedy at Pike River had triggered the Government into finding a better way.

I have a background in management, starting in 1978 when I was promoted to Operations Manager while employed with a medium size road transport company. From there I progressed to General Manager and continued in this capacity with several other organisations. The management positions were mainly financial focused, however in 2011 I changed careers and became employed on contract with Leighton Contractors Pty Ltd (New Zealand) in an alliance project for refurbish of the Mount Victoria and Terrace tunnels in Wellington, as Quality Assurance Manager.

My interest in compliance and in particular, health and safety has increased over time to include my current employment. I now have a contract role with Hawkins Construction Canterbury Recovery Project and this will conclude in March 2016. At this time I have proposed to further promote my own consulting business to include health and safety management. I see this as an opportunity to develop systems and processes that will assist small to medium enterprises (SME's) improve their own health and safety capability.

▪ Research Aims

a. Impact on Commercial organisations:
Establish what impact the Independent Taskforce on Workplace Health and Safety recommendations accepted by Government will have on commercial organisations.

- What resources are business organisations going to commit to ensure continuous improvement and on-going compliance with the new Act?
- The new Health and Safety Reform Bill provides a duty to a person conducting a business or undertaking (PCBU) to ensure, so far as reasonably practicable that the workplace are without risks to the health and safety of any person; how will this be controlled from an owner or board perspective?
- The new Health and Safety Reform Bill also provides a duty to manage risk by either elimination or if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks. How will boards/directors have sufficient confidence that they have minimised risks?

b. Communication process:

Investigate new and innovative approaches to understanding how organisations communicate risk to their employees, contractors and visitors.

- How do business organisations communicate risks to their employees, contractors and visitors, and will this significantly change when the new Act comes into force?

▪ Method

The research was undertaken in two phases (Part A and Part B), with on-line questionnaires conducted for each. Data has been summarised and reported as themes emerged. Additional research was needed to complement Part A due to the lack of respondents. This was carried out by personal interviews with Chief Executive Officers (CEO's) and research on current statements and presentations by industry leaders.

▪ Main Findings and Discussion

Senior organisation leaders use a wide variety of information sources to keep them up-to-date with developments concerning the implementation of the new Workplace Health and Safety Act.

Sources mentioned as being helpful were:

- Business Leaders Health and Safety Forum
  http://www.zeroharm.org.nz/

- Institute of Directors in New Zealand (Inc.)
  https://www.iod.org.nz/
- WorkSafe New Zealand
  http://www.business.govt.nz/worksafe/

Large 'high risk' organisations are committed to resourcing on-going compliance, some looking at overseas experienced professionals and benchmarking to raise New Zealand standards.

It is encouraging to see that organisations are taking proactive steps to, not only raise awareness about the new Act in their organisations, but also actively promoting the resourcing required to achieve or exceed compliance.

Controlling risk is seen as a major challenge within organisations and will require stringent policing, such as annual checks and regular audits. Control of sub-contractors is also challenging and will require a greater degree of co-operation by both parties. There is concern that Government Agencies are not considered part of the safety chain, particularly when letting contracts where price seems to be the driver above health and safety considerations.

Officers need to verify and validate that minimised risk has been adequately controlled in their organisations. This will entail them getting out of the offices and meeting with their workforce and listening to them.

Consultation with Māori provided an additional perspective which has also been included in this research.

I have included a quote from Dali Lama that sums up some of the current views expressed by business leaders;

"When you talk, you are only repeating something you already know. But if you listen, you may learn something new".

While many New Zealand organisations consider the implementation of senior management authorisation of minimised risk as being "too hard", Leighton Contractors (Australian multinational company with almost 25,000 workers) have managed to successfully employ this model. There remains an overreliance on minimisation of risk

by organisations and there is an opportunity with the implementation of the new Act, to encourage fresh thinking in this area.

Communication, it seems, on the whole is successfully transmitted and workers are complying with health and safety rules and practices. The communication systems in place are relatively effective, although could be tested by tracking safety messages throughout the communication system to ensure that specific information is being successfully communicated.

Proactive safety campaigns were identified through respondent's answers, such as monthly roadshows, climate surveys, early intervention clinics, new technologies etc. However, it is also apparent that there were opportunities to improve the effectiveness of communication of health and safety information in the workforce. Improvements could be made at the attention, comprehension, attitudes and beliefs, and motivation stages.

▪ Recommendations

There are several recommendations that eventuated from this research project and present an opportunity for possible further study.

1. Officers of PCBU's need to ensure they are satisfied that minimised risks within their organisation have been adequately controlled. The research has determined that they "need to do more positive verification and validation than they currently do". It is recommended that Officers of PCBU's spend time with their workforce getting to know what is actually happening in their organisation and listening to their employees.
   While it may not be practicable for many large organisations to require authorisation of minimised risks, there is a real opportunity for some to employ the "Leighton Construction" model. I believe that this would encourage "outside the box" thinking where innovative controls were developed, rather than the reliance on minimum standards such as PPE.

2. Māori have high representation for work-related claims in New Zealand 'high risk' industries such as forestry, fishing and construction. Statistics New Zealand 2012 claims for fatal work-related injuries totalled 60 (15% were Māori). This is an area

that I believe is worthy of further research, particularly in 'high risk' industries, such as fishing and forestry where Māori workers are highly representative. We need to understand the reasons why Māori are being injured at a greater rate than others.

3. Organisations should test their own risk communication to ensure that messages are being received and acted on. Far too many risk messages fail to achieve the motivational behaviour sought by management because of lack of adequate process.

   The communication process could be improved by;

   - Choosing appropriate communication sources that attract and maintain attention,
   - Improving comprehension of the underlying reasons for health and safety initiatives,
   - Addressing any attitudes or beliefs that oppose safe behaviour, and
   - Eliminating any motivators for unsafe behaviour.

   It is recommended that organisations use the Communication-Human Information Processing (C-HIP) model, or other similar research models to determine if their own communication is effective.

Definitions and Glossary

1. Introduction

New Zealand has an abysmal workplace health and safety record compared with many Organisation for Economic Co-operations and Development (OECD) countries. The rate of occupational fatal injury for New Zealand of 4.2 fatalities per 100,000 person years (standardised for industry composition averaged over the period 2005-2008), remain ranked lowest out of 9 established market economies *(Lilley, Samaranayaka, Weiss et al. 2013). 7*
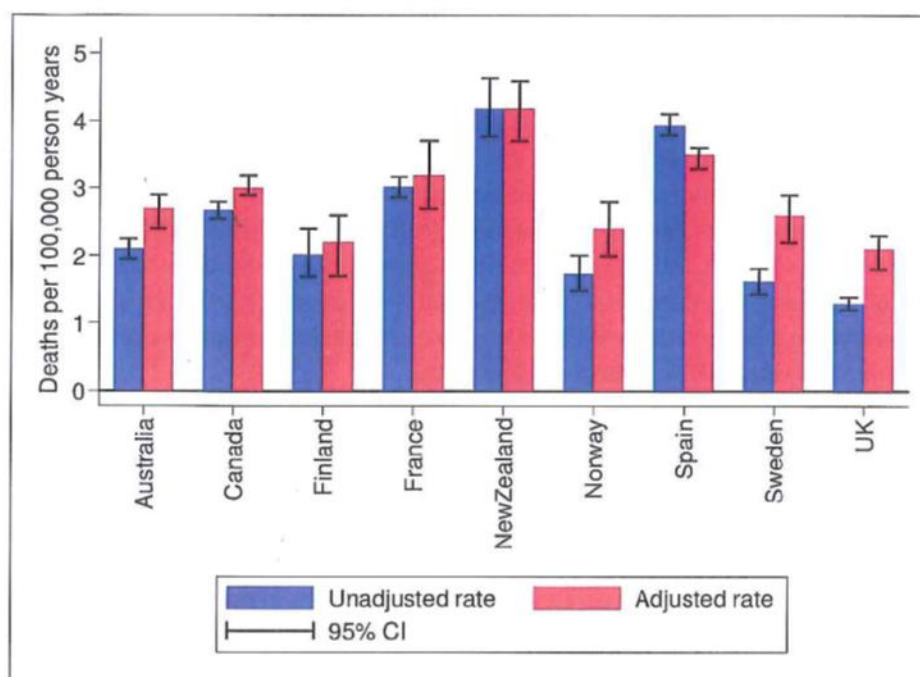

Figure 1: Non-standardised (unadjusted) and standardised (adjusted) occupational fatal injury incidence rates for the 9 comparative countries averaged over the period 2005-2008. (Data for France based on 3 years data 2005-2007 and data for UK based on 2 years data 2005 & 2006. UK figures inflated to include work road traffic fatalities.)

Whilst acknowledging difficulties that arise attempting to benchmark international occupational safety performance, New Zealand, in my opinion needs to significantly 'raise the bar' for workplace health and safety performance. High risk industries in New Zealand include agriculture, forestry, fishing, mining, construction and transport with a significant number of forestry fatalities recorded in 2013. This is further highlighted with one of New Zealand's most significant coal mine tragedies when on 19 November 2010, 29 men lost their lives at Pike River coal mine.

In June 2012 the Minister of Labour established the Independent Taskforce on Workplace Health and Safety to assess whether the workplace health and safety system in New Zealand was fit for purpose and reduce the rates of workplace fatalities and serious injury by 2020.

The report was published in April 2013 with 15 recommendations, including enacting a new Workplace Health and Safety Act based on the Australian Model Law. Currently the Health and Safety in Employment Act 1992 (and Amendments) is based on a light version of the Robens health and safety model, originating from the UK. The Taskforce view was that weakness across the system stem from fundamental failure to fully implement properly the Robens health and safety system in New Zealand. [1]

Table of the Taskforce's Recommendations and Government Response. [2]

Taskforce Recommendations	Government response
1. Establish a new workplace health and safety agency with a clear identity and brand, and statutory defined functions:	Broadly consistent
a. It should be a Crown agent.	Already agreed and under action
b. The new agency should be constituted on a tripartite basis.	
c. The new agency should have primary responsibility for workplace harm prevention, including strategy and implementation.	Board membership will reflect needed skills rather than a fixed allocation.
2. Enact a new Workplace Health and Safety Act based on the Australian Model Law ('Model Law'), including:	Consistent
a. Scope of new act to cover chronic and catastrophic harm	
b. Object based on the object in the Australian Model Law	
c. Duties should extend to all relationships between those in control of workplaces and those who are affected through adopting the Australian approach of persons conduction a business or undertaking (PCBUs)	
d. Duties should extend to all those in governance roles through adopting the Australian approach of giving a due diligence obligation to officers of PCBUs	
e. Replacing the current 'all practicable steps' test with	

	the Australian 'reasonably practicable' test.	
3.	Strengthen the legal framework for worker participation, including through providing (based on the Model Law): a. Specific obligations for employers to support worker participation b. Expanded powers and responsibilities for worker health and safety representatives c. Stronger protections for workers who raise workplace health and safety matters	Consistent Approach consistent with Taskforce recommendations, which diverge from Model Law.
4.	Ensure that the following actions occur to support effective worker participation: a. The new agency should provide approved codes of practice (ACOPs) and guidance material for worker participation b. New agency to provide increased support for worker participation, including increased support for i Worker health and Safety representatives ii Workers who raise workplace health and safety matters iii Unions existing rights of entry	Consistent
5.	Ensure a much stronger alignment and co-ordination of workplace health and safety activities through: a. Regulation of use of hazardous substances in the workplace that are currently under HSNO Act 1996 moving to the new workplace health and safety legislation b. A partnership between the new agency and ACC to oversee funding arrangements for the delivery of workplace injury prevention activities	Consistent Joint approach to injury prevention and incentive programmes between ACC and WorkSafe paper.
6.	Revise the workplace health and safety activities of transport regulatory agencies (CAA, MNZ, New Zealand Police and NZTA) to ensure that they: a. Are led by the new agency through service level agreements for specific health and safety services	Broadly consistent The Government will expect WorkSafe and transport regulators to consider how they should improve relationships and alignment when WorkSafe has been established.

	b. Are strategically and operationally co-ordinated through a cross agency oversight group.	
7.	Significantly strengthen the regulation of occupational health by: a. Giving the new agency accountability and responsibility for leading strategic and operational occupational health activities in New Zealand b. Establishing an occupational health unit within the new agency	Broadly consistent The Government will expect WorkSafe to consider how it should establish its occupational health expertise within its organisational structure.
8.	Strengthen the regulatory regime for managing risks of major hazard facilities by: a. Mapping the risk landscape around potential catastrophic failure b. Developing criteria and prioritising types of major hazard facility for inclusion in the major hazards regulatory framework c. Ensuring that robust regulatory requirements apply to all priority facilities d. Building capacity in the new agency to provide rigorous regulatory oversight and ensure compliance with the new regulatory framework.	Consistent
9.	Provide strong leadership and act as an exemplar of good health and safety practice, demonstrated by: a. Developing a comprehensive and targeted public health and safety awareness programme to change behaviours, norms, culture and tolerance of poor practice. This programme should be linked to a compliance strategy and specific compliance activity b. Ensure that excellent health and safety outcomes are achieved by its own agencies c. Government procurement policies and practices drive high standards of health and safety practice through the supply chain d. Introduce WHS impact assessment into preliminary	Broadly consistent Incremental and phased approach to Government leadership and procurement approaches No change recommended to PIRAs – is unlikely to have any effect

impact and risk assessments (PIRAs)	

10. Implement measures that:
  a. Reward business for better health and safety performance through differentiated levy regimes that are aligned to business health and safety rating scheme; and
  b. Reflect the cost of regulatory activity inherent in the industry (e.g. major hazards)
	Broadly consistent
	
	ACC and WorkSafe will develop new incentive programmes

11. Implement measures that increase the costs of poor health and safety performance:
  a. Extend manslaughter offence to corporations and revise corporate liability framework that applies to all offences
  b. Stronger penalties and cost recovery
  c. Visible and effective compliance activity.
	Broadly consistent
	
	Recommendation a. under consideration by Government, other recommendations to be implemented.

12. Ensure that the new agency implements a comprehensive set of regulations, ACOPs and guidance material that clarifies expectations of PCBUs, workers and other participants in the system:
  a. Significant resourcing should be dedicated to this area by the new agency in the short term. The new agency should publish a timetable for the development and review of regulations, ACOPs and guidance material, and must ensure that these processes are undertaken on a tripartite basis. The new agency must consider what support is required for tripartite participation in the standard-setting process, including training and potentially funding for participation.
  b. The new agency must ensure that its information are delivered effectively to hard-to-reach population groups and should consider establishing advocacy or advice services (potentially on a trial basis) to support this.
	Broadly consistent
	
	Agree that regulations, ACOPs and Guidance be implemented, MBIE to take leadership on regulations, working closely with WorkSafe. WorkSafe to lead development of ACOPs and Guidance.
	
	The Government will expect WorkSafe to consider how to reach hard-to-access population groups.

13. Improve the quality and availability of data and information on workplace injury	Consistent

and occupational health performance by establishing a sector-leading research evaluation and monitoring function within the new agency: a. With the mandate to influence and direct the collection of occupational health and workplace injury administrative data across government regulatory, compensation and health agencies and to collate and integrate this data for research purposes b. To commission and undertake research, monitoring and evaluation programmes, including the development of minimum datasets for workplace injuries and occupational illnesses and a system-wide suite of lead and lag performance indicators. To inform evidence-based regulatory and business practice c. To publish and disseminate findings, including through annual reporting on system-wide performance measures, and to make monitoring data available to partner agencies and key stakeholders in appropriate formats	
14. Require that the new agency lead the development and implementation of a workforce development strategy to identify and address capacity and capability gaps within the new agency as well as the workforce more generally, so that the workplace health and safety system functions effectively. Priority components for the new agency for inclusion in the workforce development strategy are: a. Developing specific workforce development plans for the new agencies staff generally and occupational health staff specifically b. Information gathering to inform the strategy's content c. Leadership from the new agency for the establishment of a health and safety	Broadly consistent Agree with the proposals. Some of these are proposed for implementation in future years – while the regulator and MBIE focus on urgent priorities.

professionals alliance (HaSPA) and the development of a pathway to the occupational regulations (registration) of the health and safety professionals d. A comprehensive embedding of workplace health and safety into the education and training system at all levels to support up-skilling of the workforce generally	
15. Ensure the new agency's compliance activity is focused on harm prevention, with far greater emphasis placed on root-cause analysis in investigations. To support this, the Government should: a. Require that the new agency develop ACOPs or guidance material on how employers and PCBUs can implement no-blame, no-guilt or even-handed culture models or managing workplace health and safety matters, and how to undertake root-cause analysis b. Require that all investigations by the regulators examine the root causes of incidents, and that the regulators undertake more systematic reviews of root cause across groups of incidents c. Extend the role and function of TAIC to allow it to undertake root cause investigations of a broader range of workplace health and safety incidents	Broadly consistent The Government will expect WorkSafe to consider its approach relating to recommendations a. and b. MBIE and the Ministry of Transport, in consultation with TAIC, WorkSafe and transport regulators will examine and provide advice to the Ministers of Transport in late 2014.

What will change?

- The new Act will place greater emphasis on worker consultations. This means organisations will need to promote worker participation in health and safety more widely.
- Assessments of hazards will move to a broader, more risk-based approach.
- This will affect how organisations control hazards
- There will be a two-tiered model of 'Elimination and Minimisation'; isolation will become one way of minimising a hazard.

- Some health and safety terminology will change. For example, 'Person Conducting a Business or Undertaking' (PCBU) will be the new term to describe who has the primary duty to ensure health and safety in a workplace. A PCBU will usually be a business entity rather than an individual person.
- PCBU's will need to consult, co-operate and co-ordinate where they have overlapping duties.

2. Literature Review

Introduction

There are two separate, although inter-related areas of this research project and this section sets out the relevant theories considered. Part A section deals with Business Owners, Directors, board Members, CEO's and General Managers of large 'high risk' organisations and essentially looks at how they intend to manage risk as Officers of a PCBU. Initially a questionnaire survey was developed and response data from this was intended to develop an overall theme. However, it quickly became apparent, due to the lack of respondents, that this method was inadequate. To supplement the poor response, I engaged in personal interviews with several CEO's to obtain their views on my questionnaire. The questionnaire was anonymous and therefore I have had to anonymise the interview information gathered. Also I researched business annual reports without obtaining sufficient information to progress my research. Therefore my research has included reports and presentations given by industry leaders to complement the existing research data that has been obtained. Quotations have been identified where appropriate.

Part B area of research uses the C-HIP model similar to that used for the evaluation of Olympic Park safety initiatives and communication "Talk the talk – walk the walk".

COMMUNICATION – HUMAN INFORMATION PROCESSING (C-HIP) APPROACH TO WARNING EFFECTIVENESS IN THE WORKPLACE.

Warnings are one of several hazard control methods used to protect employees and property against danger of loss using C-HIP model. The model begins with a source entity attempting to relay a warning message through one or more media/sensory channels to one or more receivers. At the receiver, processing begins when attention is switched to the warning message and then maintained while information is extracted. Processing continues through the successive stages of comprehension, beliefs and attitudes, motivation and ends with compliance behavior. Any of these stages can be a

*bottleneck that causes processing to stop, diminishing the effectiveness of the warning.*6

The C-HIP model was used in this research to determine the transference of warning information within organisation's and if there were any bottlenecks occurring at certain stages of the process. The C-HIP model can be a valuable tool in systemizing the assessment process to help determine why a warning is not effective. It can aid in pinpointing where the bottlenecks in processing may be occurring and suggest solutions to allow the process to continue to subsequent stages.

The following Standards highlight the various communication processes that were reviewed in this research.

HB 327:2010 – COMMUNICATING AND CONSULTING ABOUT RISK.

This Handbook is an accompaniment to the Australia/New Zealand Risk Management Standard (AS/NZS ISO 31000:2009) and the Risk Management Guidelines (HB 436:2004). It uses academic research and practical experience to further explain the "Communicate and Consult" part of the risk management process.
It explains that effective communication has three elements, transmitted form, communication process and received form (consistent with that transmitted). A wide range of factors influencing success of the message include, context, culture, knowledge, language, motivation, individual perceptions, complexity of the message, timeframe and interference.

Figure 2. Factors influencing success of communication.
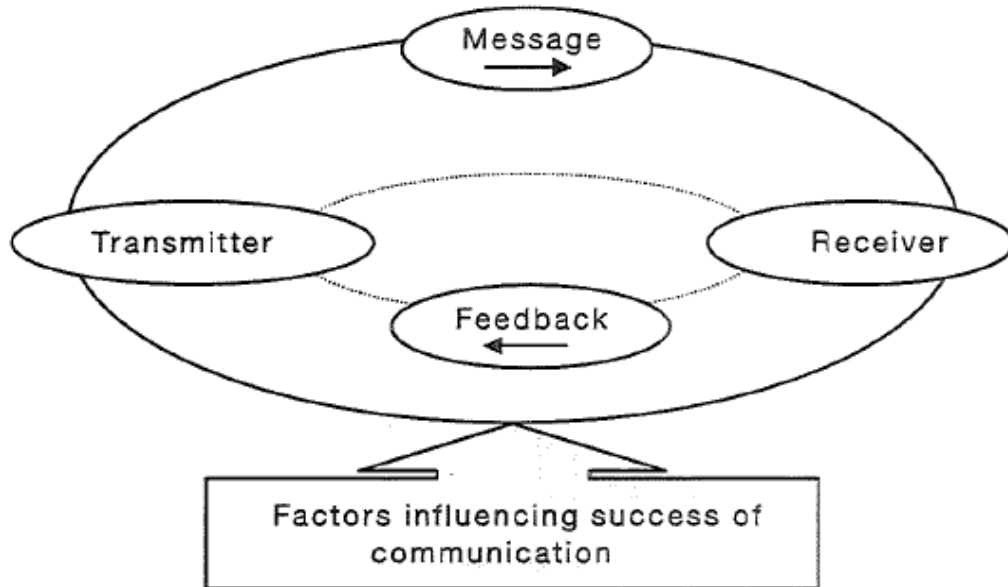
Participation of senior management is critical to the success of communicating and consulting about risk process and is identified in section 2.2 Participation of senior management.

For organisations communicating and consulting about risk, the participation of senior management in both planning and at appropriate stages of the communication and consultation activity is necessary because –

- *Elicited information (sometimes unpalatable) may require decision and action;*

- *And because effective communication and consultation may involve cost, which may or may not be budgeted;*

- *Allocation of time and resource with impacts on other demands;*

- *Engagement of external expertise; and*

- *Allocating senior management time in order to demonstrate the organizations' commitment to provide appropriate knowledge and authority.* 21

AS/NZS ISO 31000:2009 – RISK MANAGEMENT – PRINCIPLES AND GUIDELINES.

This international standard sets out generic guidelines for the management of "risk". As with the previous Handbook HB 327:2010 there is communication and consultation with external and internal stakeholders recommended during all stages of the risk management process.

Figure 3. Risk management process.
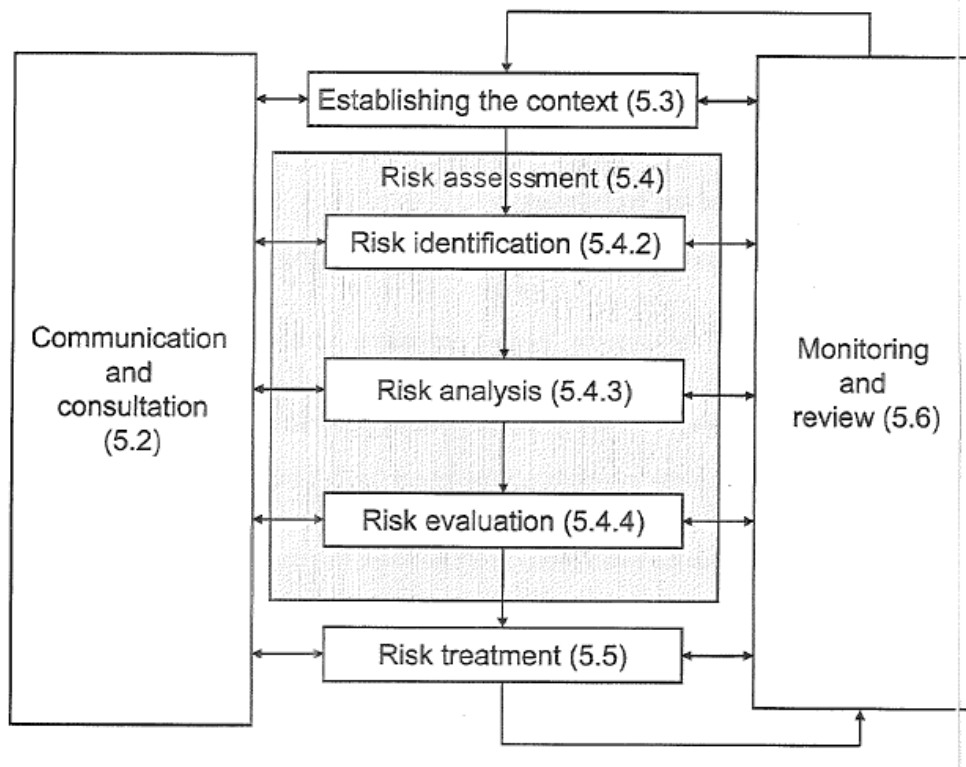
Enhanced risk management includes continual communication with external and internal stakeholders, including comprehensive and frequent reporting of risk management performance, as part of good governance.

Communication is rightly seen as a two-way process, such that properly informed decisions can be made about the level of risks and the need to risk treatment against properly established and comprehensive risk criteria. 22

AS/NZS 4801:2001 – OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT

Communication is cited in this standard as *requiring an organisation to have procedures for ensuring the pertinent occupational health and safety information is communicated to and from employees and other interested parties.* 23

AS/NZS ISO 9001:2008 – QUALITY MANAGEMENT SYSTEMS – REQUIREMENTS

Internal communication is referenced in section 5.5.3 – *Top management shall ensure that appropriate communication processes are established within the organisation and*

that communication takes place regarding the effectiveness of the quality management system. 24

3. Study Design and Methodology

Part A of the research project will evaluate the role of a *person conducting a business or undertaking* (PCBU) and their duty to manage risk under the new Workplace Health and Safety Act.

The draft Government Bill proposes:

22   Duty to Manage Risk

A duty imposed on a person under this Act to ensure health and safety requires the person –

- (a)   *To eliminate risks to health and safety, so far as is reasonably practicable; and*
- (b)   *If it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks so far as is reasonably practicable.*

Comparison: Model Work Health and Safety Act (Australia) s 17

Essential Principals of Health and Safety Governance – Leadership:

It is the role of directors to provide leadership and policy that sets the direction for health and safety management. Directors create and demand expectations and exercise due diligence in holding management strictly and continuously to account for meeting them. Directors should:

- *Ensure there is an active commitment and consistent behaviour from the board that is aligned with the organisation's values, goals and beliefs. This will encourage positive workplace culture.*
- *Ensure leadership is 'informed leadership'. Directors need to be aware of the organisation's hazards and risks. They should have an understanding of hazard control methods and systems so that they can identify whether their organisation's systems are of the required standard. They should understand how to 'measure' health and safety performance so they can understand whether systems are being implemented effectively. Directors should be prepared to seek advice from industry health and safety experts as required.*
- *Set an example and engage with managers and workers, this could include visiting work sites. This provides leadership and improves their knowledge of health and safety matters.* 8

Since the Royal Commission's case study of the Pike River coal mine tragedy causing the death of 29 men on 19 November 2010, boards have become significantly aware of their responsibilities concerning health and safety within their organisation.

Organisation boards and directors (PCBU's) will no doubt feel some degree of comfort to have, where necessary, 'eliminated' risks that are associated with the operations of the business and that they ultimately control. However they will rely to a significant extent on a health and safety manager or someone within the company who has the expertise and responsibility to administer health and safety. If this person/s do not have the necessary training, experience or qualifications to minimise risks, can they be certain that they have, as far as reasonably practicable, minimised those risks?

An electronic questionnaire was developed to explore the measures organisation boards/directors will employ to satisfy themselves that they have indeed minimised risks.

The New Zealand Health and Safety in Employment Act 1992 provides a hierarchy of controlling identified significant hazards by:
1. *Where practicable, the significant hazard must be eliminated (section 8) or,*
2. *If elimination is not practicable, the significant hazard must be isolated (section 9) or,*
3. *If it is impracticable to eliminate or isolate the hazard completely, then the employer must minimise (section 10).* 3

While employed as a Quality Manager for Leighton Construction Pty Limited in an alliance project for the refurbishment works to the Mt Victoria and Terrace tunnels in Wellington, I had the opportunity to review their method of controlling hazards. Leighton's methodology was to look at all possibilities, starting with elimination, substitution, Isolation and engineering. Once these options had been explored to their fullest and the only option remaining was minimisation, then authorisation was sought from the board before operating. The method was named '*Working Above the Line'*. Perhaps this method could also be employed by New Zealand organisations as this would ensure that all possible options to control risks have been explored.

Organisations may require that they employ an external consultant to review all minimised risks within the business. I see this as an opportunity to further develop my expertise and employment in this area.

Since 2006 I have operated a small consulting business specialising in management, including finance, compliance (health and safety, quality and environmental) systems. I have reviewed a considerable number of organisation's Hazard Registers and noticed that in many instances minimisation was used as an easy and cheap option, rather than substitution or re-engineering. Indeed there was little thought given to these safer options as they were considered too hard or too time consuming.
NB. <u>Hazard and Risk</u> – it is noted that a submission being proposed by the New Zealand Institute of Safety Management (NZISM) to the Safety Reform Bill 2014, is:
The duty to manage risk is the essential obligation of the bill therefore it is imperative that the term risk is well defined along with that of hazard. Currently the definitions of term 'risk' and 'hazard' used in the Bill are not consistent with normal definition concepts applied to the terms, and the use throughout the Bill is confusing and in some instances conflicting. It is suggested that the terms internationally used in ISO 31000 be adopted. [11]

Figure 4.

Working Above the Line – Australia

- **Eliminate** — Get rid of
- **Substitute** — Change
- **Isolate** — Separate
- **Engineering** — Engineered controls
- **Administrative controls** — Instructions and signs
- **Personal protective equipment**

Working Above the Line – New Zealand

- **Eliminate** — Get rid of
- **Isolate** — Separate/Engineered controls
- **Minimise** — Substitute / Administrative controls / Personal protective equipment

The second part of the project questionnaire focuses on health and safety managers/officers who are tasked to communicate risks to employees, contractors and visitors within their workplace.

It seems to me that often employers either have little or no information to convey to their employees concerning health and safety, or they simply overload them with too much information. Health and safety needs to be simple, clear and concise to be effective. Also employers need to consider their employee's understanding of the English language. For example can they read and write or is English their first language? A good example of communicating hazards to employees may be through the use of visual standards for good and bad safety practice.

Organisations must ensure that they have 'buy-in' from management for maintaining health and safety company-wide as the system will not succeed unless this occurs. Boards/Directors need to satisfy themselves that health and safety flows from top to bottom and that health and safety communication flows both from top to bottom and

reverse. For this to occur everyone must have a sense of ownership and belief that whatever health and safety concern they communicate, that some sort of action will be taken and followed through with.

In this research, the Communication – Human Information Processing (C-HIP) approach to communicating risks effectiveness in the workplace is used. The C-HIP model begins with a source entity attempting to relay a warning message though one or more media/sensory channels to one or more receivers. At the receiver, processing begins when attention is switched to the warning message and then maintained while information is extracted. Processing continues through the successive stages of comprehension, beliefs and attitudes, motivation and ends with compliance behaviour. Any of these stages can be a bottleneck that causes processing to stop, diminishing the effectiveness of the warning. The C-HIP model provides a structure to systematically examine factors that can cause risk communication to fail and for finding ways to improve risk communication in the workplace. [6]

- **Source** – is the originator or initial transmitter of the risk information,
- **Channel** – concerns the way information is transmitted from the source to one or more receivers,
- **Receiver** – the receiver's mental activities can be categorised into a sequence of information processing stages,
- Attention – concerns the switch of attention,
- Comprehension – understanding the message,
- Attitudes and beliefs – individual's knowledge that is accepted as true,
- Motivation – must motivate the desired behaviour, and
- **Behaviour** – if sufficiently motivated, then individuals will carry out the risk-directed behaviour.

Figure 5.
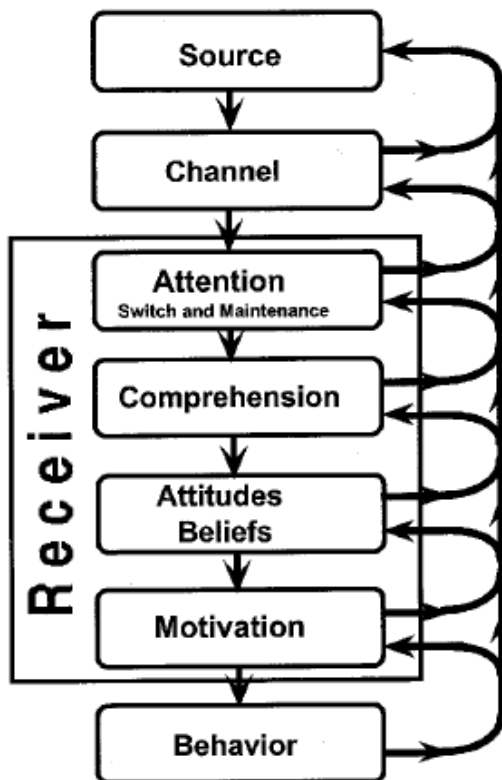
While the C-HIP model attempts to describe a communication process focused on the individual, communication between and within organisations is also important for the development of safe working environments.

Ethics

Background

Every care has been taken to ensure the anonymity of individuals and organisations. Therefore, all names of respondents and companies, where individually interviewed, have been removed. Data collected electronically has been securely maintained by login/password protection and destroyed at the conclusion of the project. Any raw data on which the results of the project depend will be retained in secure storage for five years after which it will be destroyed.

Consultation

The purpose of this process was to develop my project so that it broadened and deepened by including Māori perspectives, which I had not considered, and also

ensure that the project would meet responsibilities required of all Otago Polytechnic research.

Given that my project is about health and safety of workplaces, there is substantial relevance for Māori and specific Māori stakeholders in my industry and professional practice. I think that going into consultation has confirmed to me that the project was already relevant and designed well to capture Māori considerations, especially in relation to the disproportionate representation of Maori in work safety issues, and the question of how employers will need to take extra care in describing changes to Māori in workplaces.

I discussed through this process the issues employers will need to deliberately address in working through legislative change to Māori staff (in regards language and literacy perhaps) and to include in my study commentary on specific practices I found in research of areas of concern.

Process
The first step I took was to better understand the descriptions of Māori consultation and the unique nature of Kaitohutohu consultation, in regards to the MOU that Otago Polytechnic has with Ngai Tahu Runanga. During this process I enrolled in the KTO Treaty of Waitangi Moodle site.
Broad descriptions include:

It is important that consideration is given to consultation with Māori and the Treaty of Waitangi. The Treaty provides a set of reasons to consult with Māori and is about a relationship with Māori – a commitment to a constructive and mutually respectful relationship.

The courts have given some guidelines about what that entails:
- The relationship should be built on mutual co-operation and trust, and
- There are basic principles of reasonableness and good faith.

Questions concerning consultation should include:
- The project topic and issues that may arise and whether or not consultation is necessary,
- The level and extent of consultation required,

- Who should be involved in the consultation process,
- How the consultation process should progress,
- Identifying any constraints, and
- Seeking approval, if necessary.

On talking to my facilitator, I decided to make initial contact with local Māori stakeholders. Contact was made with Kim Ngawhika, Whanau Ora Manager; Whakatu Marae to discuss the work-based project and implication to Maori.

We discussed a range of issues and it was a useful process. We talked about the specific obligations that might need to be addressed by employers and Boards as new legislation is introduced to their workplaces. We discussed that Māori have a high representation in New Zealand in high risk industries, such as forestry, fishing and construction. Statistics New Zealand 2012 data for work-related claims has trended downward since 2007 and while Europeans make up nearly three-quarters of claims, Māori have higher rates (European – 87 claims per 1,000 FTEs, Māori – 90 claims per 1,000 FTEs). We discussed the reasons for this. I found that claims for fatal work-related injuries in 2012 totalled 60, with Agriculture, forestry, fishing and construction totalling 37 (15% were Māori).

This conversation and consultation gave rise to a number of interesting questions which I wanted to continue through my project. We thought the following would be well worth further exploration,
- Do high risk organisations consider ethnicity-based risk to their employees?
- How do they do this and what are the reasons for this?
- Do boards/directors respect cultural spirituality while working in culturally sensitive areas (such as forestry/fishing)?
- Is this important for raising awareness or healing around workplace incidents?
- Are Māori workers encouraged to give Karakia (used to invoke spiritual guidance and protection), prior to commencing daily work?
- What would the impacts of this in relation to any change in health and safety regulations.
- What ways do Māori (te reo) organisations communicate health and safety to employees?
- Does this have any effect on incidents or awareness?

These questions and a summary of how they might be engaged in my project was then presented to the KTO. It is an area for which I have low knowledge so I was looking for guidance on the relevance of what I had discussed with Kim and also their own thoughts on this topic, and some feedback on specific obligation of Otago Polytechnic research.

I received three major questions back which added to my research ethics considerations. The feedback was useful although my responses remain only my first impressions.

KTO: How would/might you begin to establish a respectful relationship?
My reaction was along the lines of health and respectful relationship can be demonstrated by:

- Treating each other with courtesy, kindness and consideration,
- Encouraging opinions and ideas and listening to each other's viewpoint,
- Dealing with differences directly, for example each person listens to the other, discovering more about the other's values and opinions can be meaningful,
- A commitment to produce quality by;
  Other new approaches, from a cultural perspective,
  Point out pitfalls or gaps,
  Raise issues that have not been considered.

I then considered the question in context of my research; the second phase of my project is attempting how 'high risk' organisations communicate risks to their employees' and I am particularly interested in finding new and innovative methods of communication where it has been identified there is a lack of comprehension. I am aware that this may be as result of cultural differences, such as language (difficult to understand), too much information, too little information, attitudes and beliefs etc. It will also be related to much more complex issues and relationships of power. It will also be related to individual or workplace bias.

Māori workers often are highly representative of 'high risk' industries, such as forestry and fishing and I am interested to understand how organisations might consider this aspect. Typically, health and safety information is not difficult to understand, however it is important that people understand the 'what' as well as the 'why', ie why a rule, practice, procedure or initiative is in place. Resources need to be devoted to this to

ensure there is full understanding and I will explore, from a specific Māori perspective, if this in fact happening.

KTO: Reasonableness and good faith – what are these as you understand them?
This question was asked because a lot of health and safety language and workplace relationships draw on the principle of good faith. Especially in regards to worker's rights. In my research, reasonableness and good faith is considered as faith in behaviour and goodwill that can grow or vanish due to interaction and experiences. A lack of which may impact on communication/productivity and results. Trust is fragile and can be lost quickly through negative experiences. The essential elements in building trust are: honesty, openness, consistency and respect. Without one of these dimensions, trust can fray or even break.

In reflecting on my response, I wondered if there was anything specific to Māori in the workplace that would mean this definition should be different, or extended or mean something specific to an iwi or a particular employer-employee relationship.

KTO: How would you adopt the MOU between OP and Kai Tahu Māori and apply it to people of Whakatu Marae?
I was unsure how to respond to this question, but it did signal the opportunity to consider Whakatu Marae as a partner; a partnership based on principles similar to OP and Ngai Tahu MOU. It would have been good to talk about this further. I noted in my proposal that a relationship may well include provision for dissemination of the research information to Whakatu Marae.

It also made me aware of the formal obligations of employers and all New Zealanders around the Treaty of Waitangi. It reinforced the importance of one of the questions of my research. In some ways I think this question relates to rights and responsibilities of the Treaty. This is the relevant interview question included for business directors/boards:
1. Māori have high representation for work-related claims in New Zealand high risk industries such as forestry, fishing and construction. Statistics New Zealand 2012 claims for fatal work-related injuries totalled 60 (15% were Māori). Does your organisation consider additional health and safety risks to Māori employees?

Thinking about responsibility, I also considered how this new legislation might actually be used to address Māori inequalities in workplaces. Or whether it would redress at all and potentially disadvantage Māori at-risk labour groups. This is about whether the extent to which employers will take genuine responsibility for communicating and supporting a vulnerable workforce. It is possible that further research on the impact of Māori worker claims in New Zealand workplaces may be worthwhile, although this is outside the work attempted here.

4. Results and Discussion

This section covers the main findings and results for the research project and includes a discussion of findings in relation to the two research aims.

Research aim – (a) Impact on commercial organisations.

"Company directors who wish to get to grips with health and safety need to get out of the boardroom and onto the shop floor – and to listen more than they talk"[18]

Part A questionnaire was sent out to boards and directors of over 30 large 'high risk' organisations and disappointingly only 2 responses were received. It is possible that the lack of response is, in part, due to time constraints of boards and directors and likelihood that they are continually bombarded with requests of this type. The other possibility is that the survey required written responses, rather than a selection tick box that would have been less time consuming to complete.

To supplement the lack of responses, I engaged with several organisational leaders to obtain their views and responses to my questions (their responses have been anonymised by removing identifiable information), I also researched news media statements, speeches and presentations by industry leaders to identify commonalities. The overall resulting theme highlighted by use of these methods, is typified in the above quotation reported recently from Sjoerd Post – Chairman, CE Refining NZ. It seems that organisations, while ensuring that they are complying with the current Health and Safety in Employment Act 1992, have identified a real opportunity to 'raise the bar' in their organisations health and safety.

Question 1 asked respondents "if their organisation's Board/Directors/Managers/Workers were aware of the Health and Safety Reform Bill introduced into Parliament and its implications to their organisation". All respondents indicated affirmatively:

- *Have attended seminars on the new legislation and also attended the Institute of Directors on-line training module. We will be rolling out in-house training in the New Year.*
- *Board sub-committee setup to monitor and co-ordinate with management on health. One of the sub-committee members is on the WorkSafe NZ Board.*
- *A Board Health and Safety Sub-committee was established 2 years ago and a Group National H&S Steering Committee. Members of the latter include the General Manager of the four businesses and their most senior H&S managers. As CEO I am a member of the Business Leaders Health and Safety Forum.*

There appears to be a wealth of information sources available for boards and directors to avail themselves of, such as the Business Leaders Health and Safety Forum, Institute of Directors (Good Governance Practice – Guideline for Managing Health and Safety Risk), WorkSafe New Zealand etc.

The second question asked respondents "if their organisation has committed, or was going to commit resources to ensure continuous improvement and on-going compliance with the new Act". Again all respondents confirmed that their organisations were committing resources.

- *We have over 50 health and safety professionals and they will be working with the operations team to educate and ensure compliance, and continuous improvement.*
- *Nothing special for the new Act, but just a continuation of a drive to steadily improve health and safety.*
- *I am in the process of recruiting a Group Health and Safety Leader (a direct report to me) from Australia or the UK. I am looking for someone who has worked in the countries where the health and safety bar has been raised and who can bring a different thinking and approach to our organisation. It has been a challenge to find suitable candidates where families are willing to relocate to New Zealand.*

We also had DuPont undertake an in depth survey and onsite review and that has produced a roadmap of the changes that our organisation needs to make to close the gap on international best practice. In order to advance, there is little benefit in benchmarking our organisation against other New Zealand businesses – we have to use international benchmarks.

There is a positive indication that organisations are committing substantive resources to obtain certainty that health and safety is at the forefront of their companies.

The next question asked respondents "how they will ensure that their workplace is without risk to the health and safety of any person, so far as reasonably practicable, from an owner or board perspective". The responses were:

- *We will need to ensure all sub-contractors and suppliers meet our standards through education, good procurement, induction, auditing and regular assessment.*
- *Annual checks that our systems are in place and effective. Regular audits of worksites including contractors and sub-contractors. Monthly reporting of incidents, investigations and audit findings. Health and Safety goals established in strategic plan and business plan, with monthly reporting of progress towards these goals.*
- *This is a real challenge. While part of our approach is to shift health and safety behaviour and culture to the right hand end of the Bradley Maturity Curve, we know that strong policing and compliance regime will continue to be essential when dealing with our smaller sub-contractors. The senior managers and board receive monthly reports on health and safety performance.*
We are currently trialling a health and safety tool which has the capability of linking in all staff and all sub-contractors staff. We originally budgeted $500k for this.
One major concern is that customers, the government agencies in particular, are not part of the health and safety accountability chain when letting construction contracts. I have personally submitted to the Health and Safety Select Committee that customers need to be part of the accountability.
For the construction industry, and indeed many industries, we will struggle to raise health and safety performance with existing lowest cost offer mentality.

Having a customer committed to health and safety performance makes an enormous difference to getting change in onsite behaviour.

The fourth question respondents were asked about duty of risk – to eliminate or if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks. "How will Officers (Boards/Directors) of PCBU ensure they have sufficient confidence that risks have been minimised". Responses to this question were:

- *Officers will need to do more positive verification and validation than they currently do now. This will mean more site visits to ensure processes are in place and are being followed.*
- *Regular internal audits are scheduled, together with less frequent external audits, A Safety Committee has been reinvigorated and provides feedback on risks not adequately covered.*
- *For our organisation the two directors on the Board Health and Safety Sub-committee visit a selection of sites every quarter. Other senior managers, including myself, visit sites and health and safety is always a consideration, yesterday I visited a number of sites in Christchurch and a number of smaller sites in Auckland the previous week.*
  We also have Site Safe do quarterly audits of all projects over a certain size. Their report goes to the Board and senior management. Ultimately however it is through a culture change that we will improve industry health and safety performance.

One of the continuing themes to emerge over this research project is that owners and boards of organisations will be more proactive in their approach to health and safety. More than ever owners and boards are actively seeking to know and understand health and safety in their companies.

The following question asked respondents "whether they considered it reasonable that PCBU's should authorise and sign off minimised risks". This question relates back to the Leighton Construction "*working above the line*" process where senior management have to authorise minimised risks. They responded:

- *PCBU's need to understand all the risks that both their employees are exposed to as well as their sub-contractors.*

- *If a business creates risks and exposes people to them, it has a moral duty and should have a legal duty to manage those risks to avoid harm*
- *The nature of construction is that every site is different, things change continuously on most sites (not like a factory) and we are dealing with about 8,000 individual employees or varying competence, of our sub-contractors each year. We have to pass accountability for health and safety to our Project Managers. The job of more senior management is to take accountability for the health and safety performance of the Project Managers.*

There is some consensus that senior staff should authorise minimised risks, however it is impracticable for all industries to take this approach. However I believe there is an opportunity for further research in this area.

In the sixth question, respondents were asked "if they considered ethnicity based health and safety risks to their employees, for example, employees whom English is a second language". Reponses were:

- *We have a literacy issue in our business so many of our processes need to be simple to understand. This means we use lots of pictures, videos etc. to explain the risks.*
- *We consider literacy, but not based on ethnicity. An existing project will convert key processes into a simple cartoon style to better address those with limited literacy or patience for arcane documentation.*
- *We have just achieved 850,000 man hours with zero LTI's on a $90m project in PNG. We had to take an ultra-strong compliance based approach including 100% breath alcohol screening each day. Staff, including the first locally employed Health and Safety Manager, who failed twice, were dismissed. You may not consider this as culturally sensitive but it was essential to maintaining New Zealand standard health and safety practice in a third world location. Our job is to ensure that regardless of ethnicity and English ability, that people on our sites understand the requirements.*

The final question referred to the high representation of Maori work-related claims in New Zealand, particularly in high risk industries, such as fishing, forestry and construction. Respondents were asked "if they considered any additional risks to Maori

employees". All respondents confirmed they did not consider this was a factor in their organisation.

- *Refer previous answer, the way we target people is through their literacy capacity rather than their ethnicity.*
- *The risks come from hazards, and we manage these rather than profiling and ethnic background.*

Although organisations appear not to consider particular health and safety risk to Maori employees, again there is an opportunity for further research in this area, particularly as Maori appear to have a higher representation in high risk industries. This is something that I would like to further research in the future.

One of the re-occurring themes to emerge from this research and highlighted at the beginning of this section, was the recommendation that owners, directors, boards and CEO's need to understand health and safety within their business, and to do so, there is a need for them to get out amongst their workers. I have referenced a number of statements from industry leaders below.

"To increase management visibility on safety every member of the executive team also spends two half days a year working on-site. We put on our boots and overalls and experience what our staff experience. Although this started as a safety initiative it has broader benefits in helping us get to know our staff better" Jeremy Smith, Managing Director, Holcim New Zealand.

"Being a director is about leadership and leadership requires directors to - get down into the pit – to question and probe, and get independent advice where necessary to they can be sure they really know what's going on" Nicolas Davidson QC.

"Ensure directors authentically engage with employees on health and safety issues while on site visits" practical example of key safety leadership criteria for directors and senior executives, Business Leaders' Health & Safety Forum

Research aim – (b) Communication process

Part B questionnaire was sent out to 32 health and safety professionals of 'high risk' organisations with 14 respondent's (43.75% response rate). Questions were based on the communication process C-HIP model.

It is possible to determine the communication process and track messages through all stages of the C-HIP model, from source to behaviour. The C-HIP model provides a means of understanding the process of communication in terms of where information comes from and how messages are communicated. It also enables the effectiveness of communication to be determined by enabling the identification of any inhibitory factors at various stages of the communication process. If communication is truly effective it will change the behaviour of the workforce; but it is also important to understand if this process could be improved. By looking at each of the communication stages in detail, the effectiveness of each stage is determined. A number of potential inhibitory factors were found at various stages of the C-HIP model, which are also discussed here.

Although levels of management will be discussed, the primary focus of this research is on the effective health and safety communication to workers. Therefore, more space is devoted to this group.

Source

Information about the source of health and safety communications was obtained by asking respondents specific questions about the information they received, the quality/experience of the provider and the unique or innovative methods of their organisations' communication source.

Numerous communication sources were identified by respondents. Health and safety messages were derived mostly from Health and Safety Managers (85.71%) with additional support from a variety of sources, such as managers, supervisors, and health and safety representatives. Directors/Boards are now actively employing dedicated health and safety professionals to monitor health and safety within their organisations, an improvement from previous assigning health and safety as an 'add-on' to an administrative position.

The workforce is also a source of information via formal routes, such as near-hit (also known as near-miss) systems and workers' forums. However, given their preference for

face-to-face communication, workers are more likely to speak to people if they have an issue they wanted to raise. Therefore, much of this communication is not quantifiable. One method is worker engagement programmes where managers from all levels are encouraged to go on site frequently and talk to the workforce. This can be a source of information, not just in terms of checking that messages are getting through, but also to encourage the workforce to communicate about problems they have.

There is a high degree of competency among the major high risk industry organisations' (Occupational H&S Degree 28.57%, NEBOSH Certificate 21.43% and experienced 5-10 years 21.43%). This is a pleasing result and encouraging to see a higher standard of professionalism occurring as a precursor to the new Workplace Health and Safety at Work Act coming into force. The competence and credibility of the source of information is important. Credibility is achieved in a number of ways. An individual source is more likely to be perceived as credible if; they are familiar and have built up a relationship with the receiver of the message; have experience of doing a similar job; and can demonstrate their expertise and knowledge about an area.

When respondents were asked if their organisation differs in the way it operated from other organisations, responses were mixed (28.57% agree, 28.57% disagree and 21.43% neutral) with a variety of comments:

- *"Safety" is this company's number one value. H&S is the first agenda item at every meeting and H&S is driven by the Managing Director and the Board.*
- *Within the area we operate we are probably one of the leaders in H&S.*
- *We place a lot of personal ownership on workplace behaviour. We don't make blanket rules just because that is easier, we analyse the risk and put appropriate rules in place.*

Again when asked if there are unique or innovative health and safety initiatives in their organisation (Agree 35.71%, Neutral 42.86%) there were a variety of responses:

- *Rather than follow the prescriptive means detailed in ACCs' WSMP or the HSE Act; every worker is encouraged to be actively involved. Their voluntary involvement is positive and effective.*

- *Since coming to NZ to help with the rebuild I have brought in quite a few procedures and processes that were missing from this company and from NZ, or they just were not implemented correctly.*
- *Currently rolling out a culture change initiative which encompasses several factors, corporate statement a set of safety rules (non-negotiable) fair & just and emphasis on risk management and reporting.*
- *Some very company specific handling training with trained internal trainers. Also a company specific version of Site Safe.*
- *We have a team of 3 safety professionals in a business of 200. We are industry leaders in actively promoting HSE.*
- *On-site early intervention clinics.*

When respondents were asked if there are unique forms of health and safety communication used in their organisation, the responses were largely neutral (64.29%).

- *H&S is first agenda item in every meeting.*
- *Our company now uses Take 5's (personal risk assessment) hazard books which include improvement suggestions.*
- *Monthly info-share where CE shares information with all employees directly.*

There is evidence that organisations are moving towards a 'risk based' approach as opposed to the current hazard management system.

Risk management should be embedded in all organisation's practices and processes in a way that is relevant, effective and efficient. The risk management process should become part of, and not separate from, those organisational processes. In particular, risk management should be embedded into policy development, business and strategic planning and review, and change management processes. (AS/NZS ISO 31000:2009 – Risk management 4.3.4) 17

A number of discernible sources of health and safety messages were identified. The importance of competent individuals in key roles was also apparent if messages were to be perceived as credible and therefore progress to the next stage of the communication process. Overall, no significant problems seemed to be encountered with sources of information.

Channel

Analysis revealed multiple channels mentioned most frequently by respondents. These are outlined in this section. Table 2 summarises the most frequently cited channels.

Table 2.

Channel	%
Toolbox talks	92.86
Health and Safety Committee	100.00
Supervisor talks	78.57
Newsletters	57.14
Company web site	35.71
Posters	57.14
Other	35.71

Other:

- *Managing Director walks the sites and discusses issues directly with workers*
- *On site SQTE visits, safety days.*
- *Routine site visits.*
- *Monthly sideshow.*

All respondents agreed that Health and Safety committees are their most prevalent channel for health and safety information (100%). Health and Safety committee meetings are often held monthly and typically cover incidents that have occurred over the previous month, good practice from various contractors or workers, information about upcoming campaigns and accident trend information.

Toolbox talks are often given during morning briefing sessions, usually once a week. Typically, they are delivered by supervisors, but sometimes other people give them, eg health and safety managers. Talks usually cover hazards associated with the industry, although content may be varied. Supervisors tailor talks to the risks associated with current tasks, but also cover issues of key importance. Toolbox talks often take place in response to a problem or an act of non-compliance on site. Supervisors are usually provided with information for the content of the talk in written form and should have received training on how to communicate the information effectively. Toolbox talks are frequently cited by managers, supervisors and workers as a means of communicating health and safety messages to workers.

Supervisor talks featured and often gave an opportunity to discuss health and safety issues from the site and give feedback about actions taken from responses, such as near miss incidents. Supervisors often discuss the work that they were going to undertake to decrease the risk of misunderstanding tasks.

Other channels that I have observed as being effective are; Safety Work Method Statement (SWMS). A document that sets out the high risk construction work activities to be carried out at a workplace, the hazards arising from these activities and measures to be put in place to control the risks. A SWMS is classed as an administrative control and is used to support higher order controls to eliminate or minimise risk to health and safety, for example engineering controls. It is used as a tool to help supervisors and workers confirm and monitor the control measures required at the workplace.

ACC Critical Risk Cards are another means of communicating risks to workers at the workplace, are simple to understand, durable and water resistant and a helpful tool for supervisors to use as toolbox talks.

Newsletters and company web sites were an excellent channel of information to workers, particularly when presented in pictorial form, are interesting, relevant and easy to understand.

The use of posters is another information channel that is frequently used to convey a variety of messages, including consequences of unsafe behaviour or information about the work area. They are also used to remind workers about safety campaigns and how to behave safely. Warning signs are used to keep people in safe zones, indicate appropriate ways to work, prompt behaviour (eg to wear PPE) and warn of hazards. Visual standards are a good information source where written form may be not be easy for people to understand, such as foreign workers with little or no English.

Figure 6. Example of standard for cable management
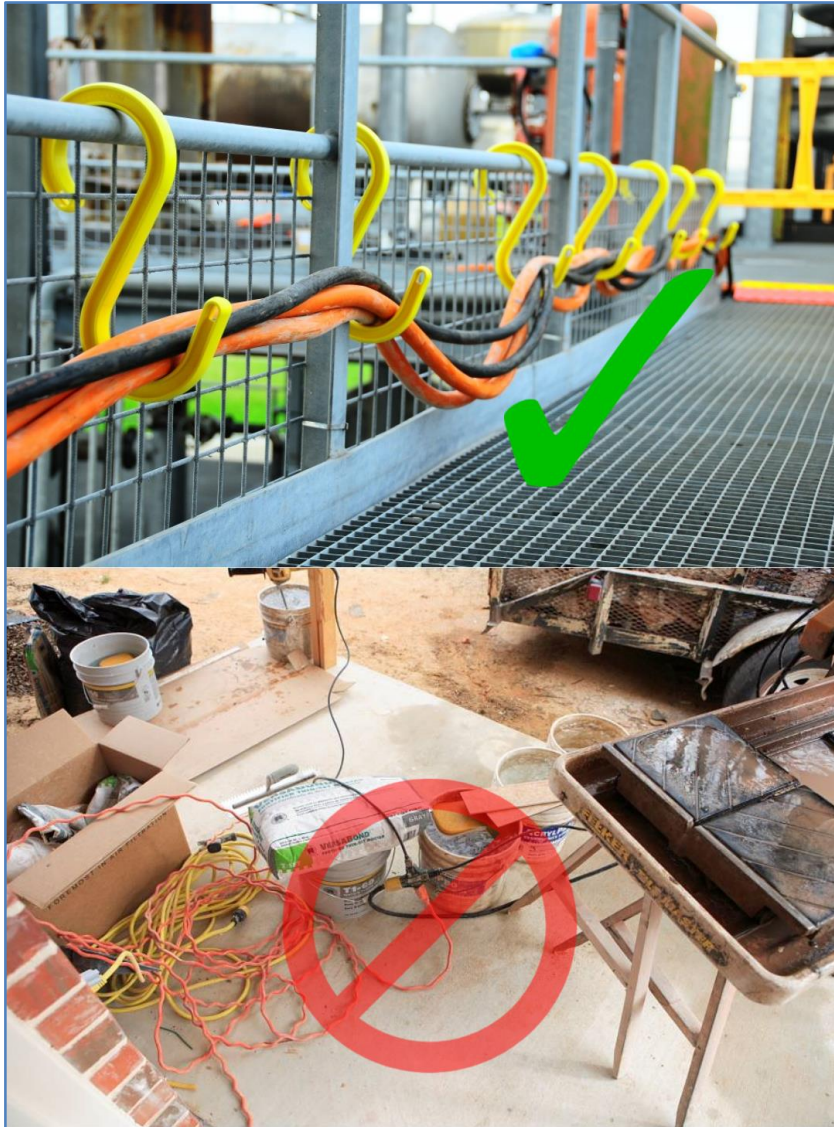
Other channels included senior management visiting sites and is a particularly effective source of information between management and the workforce (in both directions). Workers can appreciate management health and safety decisions and management can use the opportunity to engage with workers and listen to their concerns about what is actually happening at the 'coal face'. This two-way conversation channel can have a beneficial influence on company health and safety outcomes.

Respondents were asked "whether their organisation differs from others in terms of providing health and safety information", (Strongly agree/agree 21.43%, Neutral 57.14% and Disagree 14.29%).

- *We offer information in a variety of ways on issues specific in our industry and we provide health information.*
- *Guy's comment that they get far more safety information than they have in previous jobs.*
- *We have safety professionals in the field routinely. We talks to teams about issues normally in small informal groups.*

Although respondents remained relatively neutral to this question, there were some that agreed their organisation provided a variety of health and safety information. It is clear that there is far more health and safety information now being channelled to workers than previously.

Reinforcing health and safety information is an important process in discouraging unsafe behaviour. Respondents were asked "if their organisation was strict in terms of enforcing health and safety matters" (Strongly agree/Agree 78.57%, Neutral 14.29% and Disagree 7.14%).

Supervisors usually have a pivotal role in the communication process. They are a source of information, and also a channel of information, often between management and the workforce (in both directions) and are usually the largest provider of safety information. The supervisor is also the most likely person a worker will turn to if they have a problem. This is made easier as they are the most identifiable person on site and are more approachable. Supervisors will also most likely be the first response to worker unsafe behaviour and issue warnings or more formal system of addressing non-compliance.

When respondents were asked if "workers can describe the difference between a safe and unsafe work site", the response was positive (Strongly agree 35.71%, Agree 57.14%). This is an encouraging result and indicates that worker engagement is an essential process for improving health and safety.

Various channels were used to convey health and safety information. Their individual success is discussed through the 'receiver' stage of the C-HIP model (primarily the 'attention' stage). The receiver stages of the C-HIP model are dependent on various cognitive processes within the individual receiving the message, including attention, comprehension, attitudes and motivation.

Attention switch

For the attention stage of the C-HIP model to be successfully negotiated, two things need to occur: attention switch – the receiver must notice the communication channel; and attention maintenance – the receiver must pay attention to the channel in order to successfully encode the information.

Respondents were asked "if their workers' pay attention while receiving health and safety training/information", (Agree 50%, Neutral 42.86% and Disagree 7.14%). Different channels appear to be better than others at attracting the attention of the workforce. Active forms of communication that involve interaction are more likely to be effective than passive forms, which are more prone to habituation; this is particularly true of posters. Sometimes the sheer volume of health and safety communications is overwhelming and can lead to information overload where people stop paying attention to them.

This appears to be confirmed when respondents were asked "if visual warnings around your work site grab attention", (Agree 35.71%, Neutral 50%, Disagree/Strongly disagree 14.28%).

Reponses, when questioned – "your organisation makes good use of health and safety posters", (Agree 35.71%, Neutral 35.71%, Disagree and Strongly disagree 28.57%). Attention switch in the use of posters can be improved by using colour, pictorial examples showing good and bad practice, having people known to workers in the photograph, e.g. award posters, humour and minimal writing.

Generally, death and injury statistics, and real-life scenarios, tend to have a high impact on workers. Posters could also be made into an active form of communication if incorporated into briefing and training. Using images when giving talks can make both forms of communication more effective.

Their general consensus to the question – "workers engaged in a long training session are able to keep attention focused", (Agree 14.29%, Neutral 21.43%, Disagree 35.71%, Strongly disagree 21.43% and Not sure/Not applicable 7.14%).

Ideally, sessions need to be short, fairly punchy and relevant. The use of multiple channels and different stimuli is helpful maintaining attention in longer sessions. For

machinery and equipment training, it is preferable to allow people to use the machines and tools, as well as talk about them. For longer sessions, it may also be better to have smaller groups to enable more effective interaction. Maintaining attention when a topic specifically relates to their job often is successful.

Induction process is sometimes where loss of attention occurs. Maintaining attention throughout a long induction where a large quantity of information is presented on one go, is unlikely to be retained. Respondents, when asked – "workers' pay attention to different parts of their induction in different ways", (Strongly agree/Agree 64.28%, Neutral 21.43% and Not sure/Not applicable 14.29%). When they were asked to "describe the reason for their selection":

- *This is natural for adult learners; we provide a range of different learning styles (kinaesthetic, audio, visual and experienced based sessions.*
- *Everyone learns and understands differently.*
- *Depends on their learning style.*
- *It depends on what level of importance they place on specific area of safety and their age.*
- *I have noticed that if it is more relevant to their background they tend to focus more.*
- *What is pertinent to their job gets the most attention.*
- *Everyone learns differently and have different experiences.*
- *Workers learn differently so the one training style doesn't fit all workers.*
- *Induction for field service personnel takes about 2 hours – can see their attention wavering at times.*

An over-reliance on one communication channel can be problematic and people are likely to stop receiving the messages. It is important to ensure that the information is relevant to the person receiving it.

The induction process is designed to introduce new workers into the organisation and work site. They usually cover housekeeping, such as company handbooks, HR issues, employee responsibilities, hazards, accidents, emergencies etc. They vary in length from 30 minutes to several hours. There is a danger that the induction process can be overwhelming to the new employee, overloading them with too much information to possibly retain.

Responses to the question – "we test workers to ensure comprehension following the induction process", (Strongly agree/Agree 42.86%, Neutral 14.29%, Disagree/Strongly disagree 35.71% and Not sure/Not applicable 7.14%).

It is important that a message has gotten the attention of the receiver, it must be understood before it can progress to the next stage of the communication process. Successful comprehension is determined by two things: the characteristics of the message; and the characteristics of the receiver. Health and safety communications should provide the receiver with an understanding of risks and allow them to assess them appropriately.

When respondents were asked – "your work site differs from others in terms of health and safety", (Strongly agree/Agree 35.72%, Neutral 28.57% and Disagree/Strongly disagree 35.71%).

- *We have high expectations of our workers and from sub-contractor's companies working on our sites.*
- *Very varied and diverse work sites. Frequently working in public areas where we can only influence, not control, people's actions and safety.*
- *We have clean floor workshops, high quality equipment and no hi-vis vests in sight.*
- *Our work sites are varied due to the nature of our industry – every work site could be so different from others.*
- *We have many unmanned/remote sites which are on private land – so there is a lot of access road driving to get there.*

It is not surprising that some channels were prone to failure at this stage. Passive channels, such as posters, may not have achieved attention switch, although this may be less of a problem with warning signs, because it is more likely to be applicable to people as they carried out their jobs, eg exclusion zone signs indicating that there was no access to an area. For active channels, it is apparent why inductions are problematic – they are frequently too long and repetitive, whereas daily briefings, which are short and relevant to what respondents are going to do that day, are the best way of getting information to the workforce.

Comprehension

Once a message has got the attention of the receiver, it must then be understood before it can progress to the next stage of the communication process. Successful comprehension is determined by two things: the characteristics of the message; and the characteristics of the receiver. Health and safety communications should provide the receiver with an understanding of the risks and allow them to assess them appropriately.

Respondents were questioned – "your workers find health and safety information training easy to understand", (Agree 35.71%, Neutral 64.29%).

This is an indication that there is some uncertainty with worker comprehension. While workers sometimes do not understand why rules were implemented, it is important that the reasons for a rule and consequences for not abiding by it are fully understood.

There was strong overall agreement when respondents were asked – "your workers have learnt new aspects about health and safety and the risks they face in their job", (Strongly agree/Agree 85.71%, Neutral 14.29%).

- *Workers spontaneously discuss their shift in knowledge and understanding of H&S and say the culture has changed.*
- *They see injury reports and have a much more information than previously, plus more training around HSE.*
- *Doing more one-on-one monitoring.*
- *Previously employees looked at it as being a job that pays well, not really understanding the implications they faced if things went wrong. They are more wiser now.*
- *Better understanding of accident reporting and investigation procedures.*
- *By spending time doing in-house training on risk management and tools, currently use Bow and Tie risk management techniques on high risk hazards.*
- *Every training session people get something different out of. We can see progress as they re-evaluate tasks they've done for many years and still find ways to improve.*

- *Constant discussion about HSE related topics. Our clients expect it as much as we do.*
- *Good culture near miss reporting has given them greater awareness of what is and could happen on their site.*
- *At the six monthly safety refreshers they are all given information about the changes to legislation, new knowledge and about existing hazards etc.*

Workers often indicate that the health and safety information they receive was easy to understand and was 'just common sense'. If there is anything that they are uncertain of, they are able to ask for clarification. It is preferable not to use written channels only, because this precludes the possibility of asking for clarification.

Also positive, were "describing key messages from safety information to workers", (Strongly agree/ Agree 85.72%, Neutral 14.29%).

Workers are able to demonstrate that they have internalised key messages by encouraging them to question things and make suggestions for changes. They should also be encouraged to stop work and seek advice if an activity was unsafe.

When asked to respond to the question – "some health and safety messages are specific to your work site, i.e. not generic industry wide", (Strongly agree 21.43%, Agree 21.43%, Neutral 28.57 and Disagree 28.57%).

- *This is because we have a moral obligation to inform workers of issues raised in near hit and accident reports as well as a legal obligation.*
- *Hazard related specific to site.*
- *Try to, we have specific project inductions and daily tailgate sessions.*
- *Because sometimes we do something that is a one-off job and risks are specific to that.*
- *Some of the messages are specific to our industry.*

Site Specific Safety Plans (SSSP) are commonly used communication tool between Principal Contractors and Subcontractors, usually completed prior to starting work. When used correctly, ensures that relevant site information concerning work methods, is regularly updated and worker safety is monitored.

Responding to the question – "workers advise of any training/posters they have found difficult to understand", (Agree 28.57%, Neutral 28.57%, Disagree 35.71% and Not sure/Not applicable 7.14%).

It seems that workers don't always advise if they are experiencing difficulties understanding training or information. Sometimes messages can be ambiguous or simply there is a reluctance to ask questions. Often information is confusing and contradictory between contractors in terms of health and safety rules and practices.

Responses to the question – "sometimes different aspects of health and safety training/messages contradict each other", (Agree 21.43%, Neutral 21.43% and Disagree/Strongly disagree 57.15%).

- *At a Site Safe course it is told to the guys slips, trips and falls are hazards, this is wrong, I have and will always tell my guys they are not hazards, they are consequences of hazard.*
- *Different managers and supervisors communicate their different requirements sometimes inadvertently contradicting message passed on by others.*

Although there was mostly disagreement with this question, there are, on occasion contradiction where management do not always appreciate the problems encountered by experienced workers on site and enforce rules without a collaborative approach to solutions, such as enforcing PPE when using it, may in itself create a hazard.

When questioned – 'some aspects of health and safety conflict with working operations", (Strongly agree/Agree 42.86%, Neutral 21.43%, Disagree/Strongly disagree 35.71%).

- *Production pressures and KPIs based on production effect decision making for foremen and managers despite H&S KPIs being present. There remains a tension between the two.*
- *Workers often find ways to complete tasks without using health and safety guidance.*
- *Time and effort to setup gear vs time to do the task.*

- *Longs and longs prevent skin cancer risk but increase problems from heat. Wearing hard hats on all roading work doesn't improve safety situations; it just annoys people.*
- *A few times, the processes we encourage in the work place may not be in line with written procedures.*

Overall, health and safety messages are successfully communicated through this stage of the C-HIP model. However, there were a number of ways that transmission to the next stage could fail to occur. Failure at this stage seems more likely where people receive mixed health and safety messages, e.g. *production pressures vs health and safety*. Also when health and safety is not prioritised or enforced and workers look for shortcut methods carrying out tasks.

Management sometimes create health and safety roadblocks due to blanket policies not always being appropriate and sometimes making work unsafe. In terms of bottom-up communication, managers do not always appreciate problems workers face. Experienced workers often have solutions and this needs to work collaboratively.

Failure at this stage can also occur for people who have little or no understanding of English. Workers need to understand the information in a message (eg wear PPE). Management need to develop comprehension strategies to overcome difficulties with English, such as using pictures, carrying our physical demonstrations, buddying up and spending extra time with workers on site.

Attitudes and beliefs

Even if a health and safety message is successfully understood, it may still not influence safety behaviour because of individuals' attitudes and beliefs preventing progression to the next stage. Beliefs and attitudes influence individuals' reactions like behaviour. Therefore, the findings in this section, which relate to people's attitudes and beliefs about health and safety explain reactions to health and safety messages and successful transference.

Respondents were asked – "your workers respect health and safety", (Strongly agree/Agree 78.58%, Neutral 14.29% and Disagree 7.14%).
Attitudes and beliefs about health and safety are generally positive among workers and value the importance of working in a safe environment.

When questioned – "your job would be easier if you didn't have to keep health and safety rules", (14.29% Agree, 14.29% Neutral and 71.43% either Disagree or Strongly disagree).

This is a positive and healthy response about attitudes and beliefs concerning health and safety in the workplace. It seems that health and safety is expected to play an important role in today's workplace environment.

Responses to the question – "you think there is too much health and safety in your industry", (Agree 14.29%, Neutral 14.29%, Disagree/Strongly disagree 71.43%). Not surprising most respondents disagreed with this questions and that health and safety plays an important role in their industry.

- *I disagree really but agree that there are too many blanket rules made by people that don't actually understand risk, it's just an easy way to appear as though they care about safety.*

When respondents were asked – "you have changed the way you think about health and safety", (Strongly agree/Agree 42.86%, Neutral 28.57%, Disagree/Strongly disagree 28.57%).

- *Having been a H&S inspector I am now aware of just how difficult implementing H&S initiatives can be in the real world.*
- *Health and safety requirements have been workable for the person on the 'coal face' and they have to understand the 'why' of what is required of them.*
- *Health and safety in the workplace has given an increased profile in our company. New H&S manager and new focus.*
- *I see my role as a more risk and compliance one as opposed to the true safety hands on role I started H&S for. I wanted to avoid workplace accidents I dealt with from my emergency service background.*
- *The expectations of maintaining good H&S systems are high when working for large clients. Once implemented the benefits of having good systems, training and visible commitments are obvious.*

Responses when questioned – "you view health and safety differently now" (Strongly agree/ Agree 42.85%, Neutral 28.57%, Disagree/Strongly disagree 28.57%).

- *Talking with workers helps to get their point of view.*
- *Critical to running a good business.*
- *The Government regulator is now hitting us with a stick at every opportunity and it seems to be a real paper trail, box ticking environment that is being created.*
- *I did not work in health and safety before, and now I am motivated to make sure that everyone stays safe.*

Overall, a mixture of beliefs and attitudes were apparent. Many were positive and therefore did not impede successful communication of health and safety messages. Specifically, people need to believe that health and safety rules and practices are beneficial and do not have negative consequences. It is important that workers believe that their employers are caring and concerned about their safety, not motivated by a desire not to get prosecuted. Despite the complexities surrounding people's attitudes and beliefs, the communication process does not appear to have been prevented from transferring to the next stage.

Motivation

If a health and safety message has gained attention, is understood, and fits with an individual's beliefs and attitudes (or has been able to change discrepant ones), the process moves to driving individual motivation, the next stage of the C-HIP model. Communication is effective at this stage if it produces motivation for desirable behaviour. Motivation to behave safely is influenced by a variety of interacting variables.

Workers primary motivation for complying with health and safety behaviour is personal safety and a desire to not get hurt. It should be everyone's right get to work safely and go back home safely. Another factor that motivates workers to behave safely is the fear of losing their job because of non-compliance. Also workers do not want to lose their job or have time off work because of an injury, and are motivated by the need to supports themselves and their families.

Some factors which could make workers more motivated to behave unsafely, or not comply with health and safety rules and procedures is when equipment is difficult to use or uncomfortable, people are more likely not to use it. Because of the problems associated with PPE, workers are more likely to avoid using them, particularly if they can see no valid reasons for doing so.

If working safely requires more time and effort, which is often true, workers are likely to try and circumvent rules and procedures. Workers can be frustrated by the time it takes to perform certain tasks and this can lead to cutting corners. By having equipment which fitted properly and is stored close to where it is needed, as well as effective planning to eliminate waiting times, workers motivation to behave unsafely could be reduced.

Respondents were questioned – "who has the most influence on your workers' safety behaviour".

Table 3.

	%
Health and Safety Manager	7.14
Operations Manager	14.29
Supervisor	21.43
Team Leader	14.29
Other	42.86

Other:

- *Fellow workers*
- *Co-workers*
- *Everybody from Directors to the cleaner. Everyone has to be involved to make a difference.*
- *Natural leader within the group, regardless of position.*
- *The employee themselves.*
- *They do/their colleagues.*

There is a wide variety of sources motivating worker safety behaviour. Management and supervisors play an important role in motivation, particularly supervisors who are usually working alongside workers.

When respondents were asked – "workers' in your organisation are motivated to behave safely", (Strongly agree/Agree 92.86% and Neutral 7.14%).

Increased communication within organisations has influenced cultural changes to health and safety and workers understand the importance of safety in work sites.

Respondents were questioned – 'your workers' have changed their health and safety behaviour since being at your organisation", (Strongly agree/Agree 64.28%, Neutral 21.43%, Disagree 14.29%)

- *Many new workers talk openly about how H&S is "real" in this organisation. Our company is seen as a leader in this region.*
- *More emphasis on H&S than most in the industry within this operational area.*
- *Other way around, since I started here with them they have changed the way they view safety which of course is a good thing, there's still lots of work to be done but hey Rome wasn't built in a day.*
- *Maybe because there is someone enforcing rules or maybe it's giving them the reason why we are doing it.*
- *Can see the change in what they do. Some people have left and come back because they felt unsafe in other job.*
- *They realise that the standard is not going away so they have adopted the concept.*
- *We encourage reporting all incidents including near misses not prevalent in a lot of companies so they have an ability to make a difference to our safety culture.*
- *Getting the views from new employees during induction about practices and experiences in their previous employment.*

Overall, workers appear to be motivated to work safely, but it is not possible to quantify the relative influence of different factors. The extent of success at this stage of the C-HIP model seems to sufficient to progress to the last stage – behaviour.

Behaviour

At this stage, workers should exhibit a high level of compliance if health and safety messages have been successfully transmitted through the communication process (all the C-HIP stages).

When asked – "Organisation interventions have had the biggest impact on workers' safety behaviour", (Agree 50.00%, Neutral 35.71%, Disagree 7.14% and Not sure/Not applicable 7.14%).

- *H&S is a journey without end; we try to maintain a state of chronic unease.*
- *Has to start from the top, when guys out on site see the company is willing to change their behaviour towards safety so will they. Monkey see monkey do!*
- *Training and corrective action as a result of accident and hazard reports make a difference and focus on the issue and the fix.*
- *In parts of our business the drug and alcohol policy has made a difference seeing some staff rehabilitate or sacked and the terminating of employment for H&S breaches which have resulted in harm.*
- *Immediate results.*
- *Weekly communication of incidents that have occurred the previous week, give everyone insight into the type of incidents that have happened around the country.*
- *Climate survey, early intervention clinics all play a part in this.*

Respondents were asked – "workers' behave differently depending on their impression of your work site", (Strongly agree/Agree 71.43%, Neutral 7.14%, Disagree 7.14% and Not sure/Not applicable 14.29%).

- *Subcontractors are known to behave differently at our sites than other sites; this is evidenced through observations at site under control of other companies and admissions by their workers.*
- *Most workers behave the same regardless of the site.*
- *Not sure.*
- *Level of tidiness is an indication of importance on housekeeping and attitude of supervisors and workers.*

- *Untidy congested work spaces, restricted access, cramped work sites, incorrect tools, v's tidy open work area, correct tools, supervision, training. It says it all!*
- *Clean and tidy workplace means rules are followed and staff are not too busy to take care.*
- *I think we have reduced our tolerance of unsafe behaviour and this has resulted in employment terminations. Staff realise we are serious about H&S and their behaviour reflects this.*
- *Untidy, unhealthy workplaces indicate a lack of management commitment to HSE.*
- *Workers have the same attitude to safety whatever site they are on.*
- *They wouldn't even start working if it was an unsafe site.*
- *Workers have not changed their H&S behaviour as they have been in the industry for a long time and it has always had strict H&S rules.*

Workers employed by large contractors are used to high standards of health and safety and expected to comply with their systems. Tidy work sites are identified as being an important indicator of strong health and safety standards within an organisation where workers are expected to comply and not pressured by unreasonable work expectations.

It is important to note that behavioural changes are not instantaneous, but occur over time. Habits form over years and it takes time to establish new ones. Also, because this approach to worker engagement is a cultural shift for many workers, it takes time for them to adapt and become comfortable, 'I've been doing that for 40 years!'.

Organisation who have a consistent workforce, and therefore more time to influence workers, often have greater long-term impacts for change. Workers who are only employed for a short period of time, are less likely to change. For workers who are employed for a long time, there is an opportunity to change underlying attitudes, whereas workers employed for a short time, it is more important to give the impression of a strict and safe site, where unsafe behaviour is not tolerated.

One way to improve safety performance is to introduce a behavioural safety process that identifies and reinforces safety behaviour and reduces unsafe behaviour. The behaviour-based approach to safety focuses exclusively on the observable, measurable behaviours critical to safety in a particular setting. Behavioural safety is part of a natural progression of safety management from highly prescriptive

approaches, through the engineered or procedural systems which most progressive organisations have established, to a system which recognises workers as mature human beings with a genuine interest in their own wellbeing.

The final (key legacy) question, respondents were asked – "does your organisation promote new and innovative ways of communication with workers' and will this change significantly once the new workplace safety Act comes into force", (Yes 64.29%, No 35.71%).

- *We are always looking for ways to open up lines of communication including an anonymous reporting system. I doubt this will change when the new legislation comes in.*
- *We try to keep communication fresh and interesting.*
- *No, senior management not that interested.*
- *Making use of new technologies for communication such as tablets and smart phones with H&S apps for sites that have multilevel user applications.*
- *We have introduced new ways of communicating to our work crews which include, HSE meetings, communication notices, hazard alerts, a LEAN Board and no, this will not change once new legislation comes in.*
- *We are proactive with information and training on health and safety and involve our staff as much as we can.*
- *We have already changed the format of department meetings and H&S committee meetings. The department managers have been removed from H&S committee and we have Board OD Rep, the CEO, me and staff.*
- *Yes, we promote innovative communication and no, this won't change.*
- *We promote HSE like other organisations and we probably will not change the way we do it with the new Act.*
- *Everyone goes on about how the new Act will change attitudes, in large organisations, such as ours, there will be little change, we already have consultation with our employees and solid processes.*
- *At the coal face, we believe it's business as usual – the real difference would be at the top – how they view occupational health and safety.*
- *I don't think that the organisation will need to change that much when the new Act comes into force as we have been working on it a bit already now.*

Further comments:

- *As an organisation we are proactively gearing ourselves towards being ready for the changes in H&S through the Reform Bill and how they will affect our operations and communications.*
- *Thanks you for the opportunity, NZ desperately needs to look at the way safety in the workforce has to be addressed. Being an expat Kiwi working in the mines in Australia, I have seen it first hand, good luck.*
- *We don't test understanding at induction but do evaluate it through on site actions and address if required. Need to base rules on risk and avoid UK 'elf n safety' myths/issues.*

Successful communication is the climactic stage of the C-HIP model. It seems, on the whole, workers are complying with health and safety rules and practices. The communication systems in place are relatively effective, although could be tested by tracking safety messages throughout the communication system to ensure that specific information is being successfully communicated. To test that the message is getting through, interviews with various levels of management and focus groups with workers, it would be possible to check if information was successfully cascading through the supply chain via the supervisors and ultimately being received by the workforce.

Proactive safety campaigns were identified through respondent's answers, such as monthly roadshows, climate surveys, early intervention clinics, new technologies etc. However, it is also apparent that there were opportunities to improve the effectiveness of communication of health and safety information in the workforce. Improvements could be made at the attention, comprehension, attitudes and beliefs, and motivation stages.

Summary of Research aim b – communicating risk

In conclusion, I have summarised the overall outcomes from the C-HIP communication process of this research.

Source

Health and safety messages originated from a variety of sources but mainly from health and safety managers. There is evidence that high risk industries are now employing full-time health and safety professional with a high degree of competency.

For workers, the key individual sources of information were health and safety managers and supervisors. It was essential therefore, that they were seen as credible and had a high level of competence in terms of knowledge and communication skills. Source competence is a necessity for communication to progress to the next stage

Channel

Many communication channels were identified, particularly health and safety committees, toolbox and supervisor talks. Various standards were in place to ensure that appropriate levels of health and safety were in place and workers understood differences in safe and unsafe work.

Other channels, although not mentioned, have also been included, such as:

- SWMS
- Risk assessments
- ACC Critical Risk Cards
- Inductions

The use of multiple channels is likely to make communication more effective, which suggests that organisations need to reinforce important messages through organisational initiatives and training. Worker engagement, behavioural safety programmes and multiple channels, makes messages more effective. Improvements in knowledge distribution and acquisition, brought about by behavioural and worker engagement initiatives, are also more likely.

However, awareness of information alone does not necessarily result in improved performance. Therefore, evaluation of the impact on the workforce using the C-HIP model's receiver stages is essential to understand the potential to change worker behaviour.

Attention

Some channels are better than others at attracting and maintaining attention. Typically verbal communication is preferred, ideally supported by visual information. Toolbox

talks and daily briefings are effective as they are usually short in duration and relevant to the job being carried out.

Longer training sessions or inductions can be problematic and likely to lead to a loss of attention. Visual channels, such as posters, do not attract attention easily and habituation when workers hear the same message repeated in the same format.

There is scope for improvement at this stage, for example, when longer training sessions are required, to use smaller groups and more interaction. Also by targeting training specifically to the worker's job can improve attention at this stage.

Comprehension

In general, workers do not find health and safety information difficult to understand. However, it is not surprising that there are sometimes problems at the comprehension stage. Although workers typically understand the content of a message, they frequently do not understand why rules or initiatives are implemented. If workers have a better understanding as to why initiatives or rules are changed, communication at this stage would be more effective.

Additionally, sometimes there is too much information to take in at one time, and differences in the terminology or mixed messages received from different levels of authority may cause confusion. Improvements could be made by concentrating more effort on communicating why rules are implemented.

Attitudes and beliefs

Workers have positive attitudes and beliefs about health and safety, value working in a safe environment and believe that management genuinely care about their health and safety. *Attitudes and beliefs are reciprocal or bi-directional relationship, on the one hand, attitude and belief factors (expectations) can be expected to influence how the individual approaches and interacts with almost any potentially hazardous situation. On the other hand, a well-crafted warning message, if appropriately processed, can influence the individual's expectations regarding the product, object, or activity at issue.*[17]

Motivation and behaviour

Workers are motivated to behave safely by the desire to not get hurt. Also they are motivated out of fear of losing their jobs as organisations place more emphasis on safety practices. There is a strong indicator that workers are more open about conveying health and safety to their colleagues and this is encouraged by organisations that promote a safety culture.

The use of the C-HIP model shows that the communication process could be improved further by:

- Choosing appropriate communication sources that attract and maintain attention.
- Improving comprehension of the underlying reasons for health and safety initiatives.
- Addressing any attitudes or beliefs that oppose safe behaviour.
- Eliminating any motivators for unsafe behaviour.

This research has shown that the model provides a general framework for understanding the communication processes. However, the use of multiple messages addresses a wide range of individuals with different attitudes, beliefs and motivations, and adds a layer of complexity to the understanding of communication in this context. It is apparent that behaviour can be influenced even if attitudes and beliefs do not correlate with a health and safety message, or if workers do not completely understand why a process is being implemented.

The data supports positive change in workers' awareness, attitudes and beliefs about health and safety. Moreover, behavioural changes to this effect were observed by managers and supervisors. Workers are generally more positive about health and safety.

Learnings – Personal Development

This research project has taken me well outside my comfort levels, particularly as it required a high level of time-management. Allocating enough time for my research became a priority balancing act between full-time employment in a demanding management role, developing a growing consulting business, teaching, and family commitments. Unfortunately the latter seemed to endure the least amount of allotted time.

An aspiration I have, is to become a Level 5 Leader, as described in 'Good to Great' written by Jim Collins.

Figure 7. Level 5 Leader

LEVEL 5 — LEVEL 5 EXECUTIVE
Builds enduring greatness through a paradoxical blend of personal humility and professional will.

LEVEL 4 — EFFECTIVE LEADER
Catalyses commitment to and vigorous pursuit of a clear and compelling vision, stimulating higher performance standards.

LEVEL 3 — COMPETENT MANAGER
Organises people and resources toward the effective and efficient pursuit of pre-determined objectives.

LEVEL 2 — CONTRIBUTING TEAM MEMBER
Contributes individual capabilities to the achievement of group objectives and works effectively with other in the group.

LEVEL 1 — HIGHLY CAPABLE INDIVIDUAL
Makes productive contributions through talent, knowledge, skills, and good work habits.

Level 5 Leaders channel their ego needs away from themselves and into the larger goal of building a great company. It's not that Level 5 Leaders have no ego or self-interest. Indeed, they are incredibly ambitious – but their ambition is first and foremost the institution, not themselves. [19]

Throughout my career I developed a management philosophy that has endured over time and still remains relevant today. If I were to summarise, it would be as follows:

- Hard work – *knowing that people, get things done,*
- Honesty – *telling it how it is and not covering up for my mistakes,*
- Information – *the importance of keeping everyone in the picture, this has also caused me anguish at times. I have recognised that it is very easy to overlook someone when busy or thinking that they understand your intentions, I have attempted to improve this more recently,*
- Understanding that everyone needs to feel involved – *sharing with all employees from the bottom up. This has often given me a good perspective about what is really happening in the company, as opposed to what may be perceived by management,*
- Constructive criticism – *discussing errors/problems in a humane way and offering suggested methods of improvement,*
- Saying 'thank you' – *when a job is completed above expectations or going beyond everyday requirements,*
- Avoiding the politics – *rational decisions are hard to make when involved in either employee or management politics, and*
- Calm communication – *this is a particular strong work ethic of mine as I am able to clearly see through a crisis situation and rationally allocate resources accordingly, while others may look to me for leadership.*

While completing my research, I was presented with an opportunity to carry out a contract role with Hawkins Construction, as Compliance Manager for the Canterbury Recovery Project (CRP). The project requirement entailed providing technical guidance and support to senior management; while leading a team of health and safety specialists, compliance and administration staff. Hawkins role in CRP is as a project management office (PMO) for overall project management in excess of 600 building contractors carrying out rebuild or repairs of over 5,000 residential homes.

I have gained an in-depth knowledge of WorkSafe New Zealand – "A Principal's Guide to Contracting to meet the Health and Safety Act 1992". The Guide highlights six steps to adequately manage contractors – Scoping the work, pre-qualifying the contractor, contractor selection and negotiation of terms, awarding the contract, monitoring the contract and finally, post-contract review. Being involved in all stages of these six processes has given me an appreciation of the level of health and safety within the

residential building industry and the step change the industry has required for improvement. The PMO compliance team, senior health and safety advisors and I developed an inspection checklist that included six critical risks, such as, falls from heights, asbestos, hit by moving objects, etc. and nine general risks, for example, hazard boards, fencing, Site Specific Safety Plans, etc. We developed guidance material to assist Hawkins Recovery Solution Managers to reference, while they monitored work sites. This was an important compliance lead indicator model used to monitor contractors throughout the project. We rewarded contractors that performed well and carried out a progressive enforcement regime for those that weren't, concluding in removal from the programme.

From the very beginning of this research project I developed a gantt chart, initially to map out the 3 phases of the project – planning, design and review, however it later became a motivator of how far I had come and what was needed to do to reach the finish. I regularly placed updated copies of the chart on walls where I was studying, so that I could encourage myself to push on when it became difficult.

Planning was always going to be an important part of the project and I can't emphasize this enough. MPP project plan in course 2, set out in six steps – literature review, learning agreement, ethical considerations, research methodology, employer approval and Maori consultation; I found this process invaluable and will continue to employ this in my professional practice. At times, the project felt overwhelming and I had to keep reminding myself to complete smaller tasks regularly, rather than try to accomplish everything at once.

The project plan also needed to be flexible, in that there were occasions when you have to re-evaluate where you are at, and what is needed to progress. For myself, I found that this re-evaluation process would take place almost every week. For example, the lack of respondents to my questionnaire part A was at first, very discouraging and I considered seriously giving up that section. However, after consultation with my facilitator, Dr Malcom McPherson, he suggested the possibility of researching company annual reports, something I had not previously considered. While the viewing of company reports did not achieve the result I required, it did lead me onto researching public news statements, comments and presentations, given by industry leaders that I engaged to strengthen the outcomes.

Once Hawkins CRP contract has finished, I intend progressing my Nelson based consultancy business. The skills and experience that I have obtained from both CRP and MPP processes will be transferred to compliment my business practice. The specialist area of business that is proposed to be further developed, is in health and safety consultancy, particularly working with contractors. With the implementation of the new Health and Safety Reform Bill, I see an opportunity to assist SME's develop systems and processes that not only assure compliance with the Act, but also improve their own health and safety outcomes. I have developed a comprehensive business plan to assist with development and implementation of this proposal and have included this in the research project.

Overall, the MPP process has been a valuable experience, giving me the confidence to attempt projects that not only extend my own capabilities, but have also provided the skills to view complex projects more holistically. I now consider that even the most complicated projects can be managed by breaking down into smaller and more manageable tasks, providing the overall outcome is considered. Planning is the key to this process.

References

1. *The Report of the Independent Taskforce on Workplace Health and Safety - April 2013.*
2. *Working Safer – A blueprint for health & safety at work - August 2013.*
3. *A Guide to the Health and Safety in Employment Act 1992 - July 2003.*
4. *Guide to the Model Work Health and Safety Act - October 2012.*
5. *Talk the talk – walk the walk, an evaluation of Olympic Park safety initiatives and communication: research report 12.1 Loughborough University 2012.*
6. *A Communication – Human Information Processing (C-HIP) approach to warning effectiveness in the workplace - Vincent C. Conzola and Michael S. Wogalter 2001.*
7. *International comparison of International Labour Organisation published occupational fatal injury rates - Dr Rebbecca Lilley, Dr Ari Samaranayaka & Professor Hank Weiss – March 2013.*
8. *Good Governance Practices Guideline for Managing Health and Safety Risks - Institute of Directors in New Zealand, Ministry of Business, Innovation and Employment – May 2013.*
9. *Health and Safety Reform Bill - New Zealand Government – 2014.*
10. *Tragedy at Pike River Mine - Rebecca Macfie – 2013.*
11. *New Zealand Institute of Safety Management - Submission on the Health and Safety Reform Bill 2014 – 2014.*
12. *Royal Commission on the Pike River Coal Mine Tragedy - New Zealand Government – 2013.*
13. *Essential Guide to Qualitative Methods in Organisational Research - Catherine Cassell and Gillian Symon – 2004.*
14. *Work Based Learning Pedagogies and Academic Development - Carol Costley and Mehmetali Dikerdem – 2011.*
15. *Developing regulations to support the new Health and Safety at Work Act - New Zealand Government – 2014.*
16. *Industry Statistics – Work-related Claims: 2012 - Statistics New Zealand- 2013.*
17. *Warnings and Risk Communication - Kenneth R Laughery & Amy Hammond.*
18. *Directors – walk and listen - Sjoerd Post – Chairman, CE Refining NZ – 2015.*
19. *Good to Great - Jim Collins -2001.*
20. *A Principal's Guide to Contracting to meet the Health and Safety in Employment Act 1992 – New Zealand Government 2010.*

21. *HB 327:2010 – Communicating and Consulting About Risk.*

22. *AS/NZS ISO 31000:2009 – Risk Management – Principals and Guidelines.*

23. *AS/NZS 4801:2001 – Occupational Health and Safety Management.*

24. *AS/NZS ISO 9001:2008 – Quality Management Systems – Requirements.*

Appendix

1. Raising the Bar – Part A
2. Raising the Bar – Part B
3. Information sheet – research project
4. Gantt Chart – project timeline
5. Employer consent letter
6. Letter to organisations
7. Peer Review (Craig Thornton)
8. Peer Review (Barbara Ford)
9. Peer Review (Andrew Confait)
10. Business Plan
11. Personal Profile