Defining safety leadership and associated behaviours within the Australian construction industry

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DEFINING SAFETY LEADERSHIP AND ASSOCIATED BEHAVIOURS WITHIN THE AUSTRALIAN CONSTRUCTION INDUSTRY

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A thesis submitted to the Graduate College of Management of Southern Cross University, Australia, in fulfilment of the requirements of the degree of Doctor of Business Administration.

July 2015
Statement of Original Authorship

I Luke Adam Daniel hereby declare that this submission is my own work and that the intellectual content of the thesis is the product of my own work. To the best of my knowledge and belief, it contains no material previously published or written by any other persons nor material which, to a substantial extent, has been accepted for the award of any other degree or diploma of a university or other institute of higher learning, except where due acknowledgement is made in this thesis.

........................................

Luke Adam Daniel

July 2015
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2. Those who participated wholeheartedly and gave their candid responses and thoughts on the topic of Safety Leadership.

3. All those who work within the construction industry on a fly in, fly out basis. Their ability to juggle work, family and social lives in arduous environments is to be admired.

4. Lastly, I acknowledge the patience and background barracking from my family members: my wife Vanessa Daniel, son Jacob and daughter Zara. This work is the fruits of what is possible through hard work and perseverance.
Abstract

This research explores the tenets of safety leadership within the Australian construction environment. The scope of this research aims to establish a universal definition of safety leadership, as well as detailing the associated behaviours that allow safety leadership to thrive.

The literature review into this topic was governed by the parent disciplines of Safety and Leadership. Gaps were identified in the literature that indicated safety leadership is not a well defined concept and much of the work into safety leadership has been borrowed from other schools of leadership. The safety literature detailed the evolution from compliance based safety requirements to a transfer of personal ownership, which is influenced by the leaders of an organisation. From the literature review, a research problem was developed alongside three research questions. A proposed conceptualised model of safety leadership was devised which was labelled the RAVE model, which is an acronym for Relationships, Authenticity, Vision and Engagement. In specific terms, this model outlined the importance of developing relationships, being authentic, having a vision and engaging others as a means of safety leadership. The empirical foundation guiding this model was based upon the research around charismatic, authentic, transformational and third generational leadership. Safety research based upon the importance of human factors and safety culture was also considered when creating this model.

An exploratory research methodology was utilised which rooted the research into the post-positivist methodology. The philosophical paradigm that this research was conducted under was an interpretivist social science, grounded upon the ontology that reality is a projection of personal experience. The data obtained went through an extensive description and coding process that this interpretivist paradigm reflected. There were twenty interviews conducted for this research, with participants taken from various leadership positions across multiple construction projects around Australia.

Findings detailed a saturation of data that allowed for an empirical definition towards safety leadership to be established. As a person’s scope of responsibility increased, their view of safety leadership became synonymous with leadership, although differences did exist. These differences were attributed to the importance of demonstrating safety and working within the
legal framework of Australian construction projects. Other results showed that any safety vision associated with the wording of “zero harm” or “zero incidents” might be more destructive than constructive and that the RAVE model was validated as an accurate blueprint towards safety leadership. The importance of safety management systems and safety culture was shown to have a bearing on safety leadership while most safety leadership behaviours mentioned fell into separate categories of “engagement”, “safety” and “vision”.

It is proposed that this thesis offers a substantial contribution to knowledge, founded upon an accurate definition into safety leadership as well as a framework that can be exercised to promote safety leadership behaviours through the RAVE model. A distinction has also been made between safety leadership and other forms of leadership and the relevant influence on safety culture. Suggestions are made in this research that can enhance safety leadership and create a new framework into the development of evidence based methodologies aimed at increasing safety leadership. This can steer safety leadership into the next tier of success and innovation.
# Glossary of Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM</td>
<td>Construction Manager</td>
</tr>
<tr>
<td>FAI</td>
<td>First Aid Injury</td>
</tr>
<tr>
<td>GM</td>
<td>General Manager</td>
</tr>
<tr>
<td>HSE</td>
<td>Health, Safety, Environment</td>
</tr>
<tr>
<td>LMX</td>
<td>Leader-Member Exchange</td>
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<tr>
<td>LTI</td>
<td>Lost Time Injury</td>
</tr>
<tr>
<td>LTIFR</td>
<td>Lost Time Injury Frequency Rate</td>
</tr>
<tr>
<td>MTI</td>
<td>Medical Treatment Injury</td>
</tr>
<tr>
<td>OHS</td>
<td>Occupational Health and Safety</td>
</tr>
<tr>
<td>PEST</td>
<td>Political, Environmental, Social, Technological</td>
</tr>
<tr>
<td>PM</td>
<td>Project Manager</td>
</tr>
<tr>
<td>RAVE</td>
<td>Relationships, Authenticity, Vision, Environment</td>
</tr>
<tr>
<td>TRIFR</td>
<td>Total Recordable Injury Frequency Rate</td>
</tr>
</tbody>
</table>
## Contents

Statement of Original Authorship ........................................................................... 2  
Acknowledgement .................................................................................................... 3  
Abstract .................................................................................................................... 4  
Glossary of Abbreviations ....................................................................................... 6  

### CHAPTER 1 – INTRODUCTION ......................................................................... 13  
1.1 Background to Safety Leadership in the Construction Industry ....................... 13  
1.2 Research Propositions ....................................................................................... 15  
1.3 Justification for the Research ........................................................................... 17  
1.4 Overview of Methodology ................................................................................ 19  
1.5 Results of the Study .......................................................................................... 20  
1.6 Potential Contribution to Theory ....................................................................... 21  
1.7 Potential Contribution to Practice ..................................................................... 22  
1.8 Limitation of Scope ............................................................................................ 23  
1.9 Company Background ....................................................................................... 24  
1.10 Outline of the Thesis ......................................................................................... 25  
1.11 Conclusion ......................................................................................................... 26  

### CHAPTER 2 – LITERATURE REVIEW ............................................................... 27  
2.1 Introduction ........................................................................................................ 27  
2.2 Safety in the Workplace ..................................................................................... 27  
2.3 Safety Leadership .............................................................................................. 28  
  2.3.1 Research Question One (RQ1) .................................................................... 30  
2.4 Parent Discipline: Safety ................................................................................ 44  
  2.4.1 Safety Journey ............................................................................................. 31  
  2.4.2 Human Factors and Safety .......................................................................... 34  
  2.4.3 Safety Leadership and Climate .................................................................. 37  
  2.4.4 Safety Management ...................................................................................... 41  
  2.4.5 Summary of Safety Discipline ..................................................................... 43  
2.5 Parent Discipline: Leadership ......................................................................... 44  
  2.5.1 Third Generation Leadership and Locus of Control .................................... 47  
  2.5.2 Transformational Leadership ....................................................................... 50  
  2.5.3 Authentic Leadership ................................................................................... 53
3.11 Potential Limitations of Methodology ........................................................................ 108
3.12 Ethical Issues ........................................................................................................... 110
3.13 Conclusion ................................................................................................................ 112
CHAPTER 4 – FINDINGS ................................................................................................. 113
  4.1 Introduction ............................................................................................................... 113
  4.2 Descriptive Statistics ............................................................................................... 113
  4.3 Defining Safety Leadership (RQ1) ........................................................................... 114
      4.3.1 Safety Leadership v General Leadership ......................................................... 114
      4.3.2 Unique Components of Safety Leadership ...................................................... 115
      4.3.3 Defining Safety Leadership ............................................................................. 116
      4.3.4 Common Theme ............................................................................................ 118
  4.4 Specific Safety Leadership Behaviours (RQ2) ............................................................ 118
      4.4.1 Common Theme ............................................................................................ 120
  4.5 Proposed RAVE Model (RQ3) ................................................................................. 120
      4.5.1 Relationships ................................................................................................. 120
      4.5.2 Authenticity .................................................................................................... 122
      4.5.3 Vision ............................................................................................................. 123
      4.5.4 Engagement .................................................................................................... 125
      4.5.5 Common Theme ............................................................................................ 127
  4.6 Secondary Themes .................................................................................................... 128
      4.6.1 Safety Innovation............................................................................................ 128
      4.6.2 Challenges ...................................................................................................... 129
      4.6.3 Asking Strategic Questions .............................................................................. 129
      4.6.4 Values and Ethics ............................................................................................ 130
      4.6.5 Safety Management ........................................................................................ 130
      4.6.6 Safety Culture ................................................................................................ 131
      4.6.7 Employee and Cultural Impact of “Zero Harm” .............................................. 132
      4.6.8 Empathy ........................................................................................................ 133
  4.7 Safety Leadership differences Between Job Positions .............................................. 133
  4.8 Australian Project Construction Environment ......................................................... 135
      4.8.1 Australian Construction Workers .................................................................... 135
      4.8.2 International Comparisons ............................................................................ 136
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.8.3 Costs and the Project Environment</td>
<td>136</td>
</tr>
<tr>
<td>4.8.4 Common Theme</td>
<td>137</td>
</tr>
<tr>
<td>4.9 Quantifiable Data Based upon Safety Leadership Concepts</td>
<td>137</td>
</tr>
<tr>
<td>4.10 Conclusion</td>
<td>138</td>
</tr>
<tr>
<td>CHAPTER 5 – DISCUSSION</td>
<td>139</td>
</tr>
<tr>
<td>5.1. Introduction</td>
<td>139</td>
</tr>
<tr>
<td>5.2. Safety Leadership in the Australian Construction Context</td>
<td>139</td>
</tr>
<tr>
<td>5.3 Definition of Safety Leadership (RQ1)</td>
<td>142</td>
</tr>
<tr>
<td>5.3.1 Safety Leadership within Leadership</td>
<td>143</td>
</tr>
<tr>
<td>5.3.2 Defining Safety Leadership</td>
<td>145</td>
</tr>
<tr>
<td>5.3.3 Contribution</td>
<td>148</td>
</tr>
<tr>
<td>5.4 Safety Leadership Behaviours (RQ2)</td>
<td>148</td>
</tr>
<tr>
<td>5.4.1 Empathy and Safety Leadership</td>
<td>150</td>
</tr>
<tr>
<td>5.4.2 Applying Influence and Driving Safety Innovation</td>
<td>150</td>
</tr>
<tr>
<td>5.4.3 Contribution</td>
<td>151</td>
</tr>
<tr>
<td>5.5 Application of the Proposed RAVE model (RQ3)</td>
<td>151</td>
</tr>
<tr>
<td>5.5.1 Relationships</td>
<td>152</td>
</tr>
<tr>
<td>5.5.2 Authenticity</td>
<td>153</td>
</tr>
<tr>
<td>5.5.3 Vision</td>
<td>155</td>
</tr>
<tr>
<td>5.5.4 Engagement</td>
<td>157</td>
</tr>
<tr>
<td>5.5.5 Contribution</td>
<td>158</td>
</tr>
<tr>
<td>5.6 Safety Leadership Differences between Job Positions</td>
<td>160</td>
</tr>
<tr>
<td>5.6.1 Contribution</td>
<td>161</td>
</tr>
<tr>
<td>5.7 Aspirations or Goals related to “Zero Harm”</td>
<td>161</td>
</tr>
<tr>
<td>5.7.1 Working Context</td>
<td>161</td>
</tr>
<tr>
<td>5.7.2 Employee and Cultural Impact</td>
<td>162</td>
</tr>
<tr>
<td>5.7.3 Contribution</td>
<td>162</td>
</tr>
<tr>
<td>5.8 Recommendations and Application</td>
<td>163</td>
</tr>
<tr>
<td>5.9 Conclusion</td>
<td>165</td>
</tr>
<tr>
<td>CHAPTER 6 – CONCLUSION AND IMPLICATIONS</td>
<td>166</td>
</tr>
<tr>
<td>6.1 Introduction</td>
<td>166</td>
</tr>
<tr>
<td>6.2. Conclusions to Research Questions</td>
<td>166</td>
</tr>
</tbody>
</table>
6.2.1 Research Q1: How do leaders within the construction environment define safety leadership? ................................................................. 166
6.2.2 Research Q2: How is safety leadership demonstrated by safety leaders? .......... 167
6.2.3 Research Q3: Does the RAVE conceptualised model accurately encompass the core elements of safety leadership? .............................................. 167
6.3 Conclusions within the Australian Context (PEST) ........................................... 168
6.3.1 Political Context ......................................................................................... 168
6.3.2 Economic Context ...................................................................................... 169
6.3.3 Social Context ............................................................................................ 170
6.3.4 Technological Context ................................................................................. 170
6.3.5 Conclusions within the construction company used for this research ............. 171
6.4 Applications for Theory and Practice .............................................................. 171
6.5 Limitations of Research .................................................................................. 174
6.6 Suggestions for Future Research .................................................................... 175
7.7 Conclusion ....................................................................................................... 176
REFERENCES ....................................................................................................... 178
Appendix A: Interview Form ................................................................................... 203
Appendix B: Confidentiality and Consent Form ....................................................... 206
Appendix C: Information Sheet ............................................................................... 209
Appendix D: Confidentiality Form for Independent Parties ...................................... 211
Appendix E: Thank You Letter .............................................................................. 213
Appendix F: Coding Sheet ...................................................................................... 214

List of Figures
Figure 2.1: Working Interface of Safety ................................................................ 35
Figure 2.2: Model of Safety Culture within Construction ......................................... 38
Figure 2.3: Safety Interaction Culture Model .......................................................... 39
Figure 2.4: Areas of Leadership Specific to Safety Performance ............................... 46
Figure 2.5: Leader-Member Exchange Antecedants and Consequences .................. 60
Figure 2.6: Proposed RAVE Safety Leadership Model ........................................... 68
Figure 2.7: Conceptual Framework Developed for this Research Project ................. 78
Figure 4.1: Emerging Core and Secondary Themes based on Safety Leadership ....... 128
Figure 4.2: Safety Leadership between Job Positions ............................................. 135
List of Tables

Table 2.1: Safety Leadership Issues and Potential Impact                          80
Table 3.1: Foundations of the Subjective-Objective Debate within Social Science 83
Table 3.2: Philosophical Research Paradigms                                    85
Table 3.3: Purpose of Research Types                                          90
Table 3.4: Interpretive and Critical Qualitative Methodologies               92
Table 3.5: Qualitative Research Methods and Applicability to Safety Leadership 93
Table 3.6: Interview Schedule                                                102
Table 3.7: Coding Qualitative Data                                            106
Table 4.1: Mean Demographics based Upon Job Position                          113
Table 4.2: Comments Distinguishing Safety Leadership and General Leadership   115
Table 4.3: Defining Elements of Safety Leadership                              117
Table 4.4: Core Safety Leadership Behaviours                                  119
Table 4.5: Representative Comments and Data based upon the RAVE model         127
Table 4.6: Statistics based upon Data Collected                               137
Table 5.1: Contextualised Safety Leadership Behaviours                        149

Figure 5.1: Context of Safety Leadership within current Operating Environment 145
Figure 5.2: Integral Components to the Definition of Safety Leadership        146
Figure 5.3: Modified Conceptualised RAVE model                               159
CHAPTER 1 – INTRODUCTION

This study is based upon defining safety leadership within the construction industry and answering the core research question of what behaviours are evident in successful safety leaders? To answer this core question, the definition regarding safety leadership needs to be clarified. The focus of this chapter is to introduce the justification for this research in conjunction with key issues in its implementation. This chapter provides a brief review of safety leadership in the construction industry and provides background context to the research. A brief examination of the core research propositions will be undertaken and information pertaining to the justification of the research in relation to theoretical and practical applications will also be addressed. An overview of the research methodology and limitations to the scope of research will be carried out in conjunction with an overall mapping of the thesis structure. Lastly, a conclusion of this chapter will be summarised that captures the core information covered.

1.1 Background to Safety Leadership in the Construction Industry

The nuances of the construction industry can be broken down via the geographical location of each project, interaction with different stakeholders or the high-risk nature of the work performed. The intricacies of leadership within the construction sector have indicated a gap between effective leadership development for project managers or the lack of an effective leadership style (Hashim & Chileshe 2012). Any preference towards a directive leadership style within the construction industry may covertly influence employees to remain silent about safety concerns. In an effort to increase employee-voiced behaviour towards safety, a focus on safety leadership can be used to stimulate the workforce towards sustainable work outcomes (Read et al. 2010).

Over the last decade, Australia has experienced a rise in the number of construction projects associated with the resources boom (Glynn 2013a). Project work varies on account of different operational environments, varying life span of the project as well as the manning requirements of each project. Forecast completion dates and budgets have an added priority within the project world, and this can place safety lower on the list of priorities. Other key challenges within the construction project environment include commitment and responsibility, communication and organisational culture (Hashim & Chileshe 2012). With
these challenges being documented by Hashim and Chileshe (2012), the role of safety leadership can be the medium for influencing culture while enhancing accountability and strengthening communication. Through a preliminary Political, Environment, Social and Technological (PEST) analysis, the current external variables influencing the construction industry were identified. Such considerations included a transient workforce, changes in technology, the changing economic stability of China, and political discourse around climate change (Wittneben et al. 2012). The external environment influences the internal operations of a construction project due to factors that affect the broader strategy of the construction firm. This can pertain to safety leadership and safety culture.

The role that leadership plays within construction centres impacts project management because of the focus on budgets, schedules and quality (Toor & Ofori 2008). Safety leadership within itself is a concept that borrows heavily from the leadership framework with specifics based upon transformational leadership. Transformational leadership emphasises a personal empathy for employees through the demonstration of desired behaviours that translates to increased engagement and motivation from employees (Mullen & Kelloway 2009). Throughout this research, safety leadership will be built from other leadership studies, which comprise the theories of transformational, authentic, charismatic and third generation leadership as it pertains to leadership in safety. Authentic leadership has a specific focus on self-awareness (Kernis & Goldman 2006) while charismatic leadership specifies the importance of goal articulation and the inspiring a vision (House & Shamir 1993). Third generation leadership has a strong respect for personal ownership and responsibility (Long, 2013). Together, these theories form the basis for conceptualising safety leadership.

Other leadership theories were excluded due to their negative impact on followers’ behaviour. An example of this is autocratic or authoritarian leadership styles which are often defined by control and demand behaviours (Kiazad et al. 2010). An example of a leadership style which can be encompassed in broader leadership theory is supportive leadership. Supportive leadership is often characterised by a general support for employees (Newton & Maierhofer 2005) which therefore in this context will be synonymous with transformational leadership.

The detailed behaviours that constitute an effective safety leader are vague (Zanko & Dawson 2012). Further to this, the specific behaviours that constitute effective safety leadership
within the construction industry may be vastly different to other industries due to external and
internal variables. To help amplify safety leadership in the construction industry, a common
definition of what safety leadership and associated behaviours mean needs to be ascertained
prior to further conceptual development. The development of a conceptual model towards
safety leadership will be formulated through the two parent disciplines of leadership and
safety. Current literature within leadership has parallel contributions towards safety
leadership in terms of authentic leadership via self-awareness (Gardner et al. 2011) and
charismatic leadership by motivating a course of action (Levay 2010). Other areas of
leadership that reflect the needs of the construction industry are evident through the
engagement of employees and the exercise of personal responsibility, which is heavily
dependent upon an internal locus of control (Palamar, Le & Friedman 2012). The safety
paradigm towards safety leadership brings forward the sub elements of culture, systems,
practices and human factors. These factors link to safety leadership through the influence of a
safety culture centred upon leadership behaviours (Kath, Marks & Ranney 2010). The
amalgamation of safety into leadership can create a myriad of possibilities that go beyond the
construction industry.

The beneficial factors of safety leadership can cross over to the pillars of enhanced safety
outcomes, employee engagement or an increase in safe production (Wu, Chen & Li 2008).
The relevance of investigating the behaviours of effective safety leaders can infringe on
concentrated and accurate efforts of enhancing such behaviours. This can establish
consistency across different projects through a framework of desired and applicable
behaviours, while enhancing the leadership maturity within the construction industry, which
tends to be based upon transactional leadership behaviours (Barber & Warn 2005).

1.2 Research Propositions
The focus of this research is focused on exploring the core behaviours that make up effective
safety leaders. Borrowing from the parent disciplines of leadership and safety are the
emerging research questions that support and further explain this core research premise. This
research will be underpinned by a developed conceptualised theoretical model, which
pertains to safety leadership and will be labelled the RAVE model. RAVE is an acronym for
Relationships, Authenticity, Vision and Engagement. This model was constructed through
guiding literature and developed by the author as a core contribution to the literature. The
RAVE model is influenced by multiple leadership theories that are argued to be pivotal in shaping a safety culture and improving safety leadership behaviours.

The RAVE model is influenced by multiple leadership theories that are believed to be pivotal in shaping a safety culture through improving safety leadership behaviours. The components of the RAVE model are based upon the tenets of building an effective working relationship with the manager, which subsequently promotes increased accessibility and mutual reciprocity. The theoretical basis of safety leadership rests on the body of knowledge regarding the importance of relationships, especially within the transformational leadership research (Mullen & Kelloway 2009) and the importance of leader-member exchange in solidifying the work relationship (Volmer, Spurk & Niessen 2012). Authenticity is the next component of the RAVE model and is characterised by a sense of personal awareness and accountability which is well cited in the authentic leadership literature (Toor & Ofori 2008). The importance of a vision that is shared and expressed through rhetoric is a core factor of charismatic leadership (Murphy & Riggio 2004). These elements constitute the vision component of the RAVE model. Once the above components are in place, engagement is required to influence an individual, and it is this engagement that constitutes the last element of the RAVE model. Theories supporting the importance of engagement have been linked to behaviour based safety (Gellar 2001) and equity through procedural justice (Hsiung 2010).

It is hypothesised that the RAVE model could be used to conceptualise the attributes and behaviours of effective safety leaders. This would be characterised in the safety leadership foundations of building relationships, being authentic, being visionary and engaging others. Without astute consideration of the supporting research questions, the organisational risk will foster misguided efforts in improving safety leadership. The core research questions that will guide this study include:

- **RQ1.** How do leaders within the construction industry define safety leadership?
- **RQ2.** How is safety leadership demonstrated by safety leaders?
- **RQ3.** Does the proposed RAVE conceptualised model accurately encompass the core behaviours of safety leadership?
On account of the nature of this research being exploratory and rooted within its phenomenological roots, any propositions supporting research questions one and two would be premature. Linking literature may suggest that the answers to research question three would favour the RAVE model.

1.3 Justification for the Research
The scope of this research has a range of benefits that filter into other areas of a company that are not purely safety related. This is centred upon the notion that safety impacts upon all areas of a business from a production, fiscal and client perspective (Krause 2005). Transforming the philosophical notions of a safety culture and safety leader into tangible outcomes can develop the supporting research into this field. As a potential outcome, a model of success can be built that can be emulated across different companies within the industry. Specific justification for this research can be governed by the following notions:

- **Human and Moral Purpose:** The loss of life within the workplace is a grim reality that still exists in the Australian workforce. Most of the associated costs with workplace injury and death go past the financial factor to impact the emotional stability of the families and friends of the injured person. A workplace injury could induce an individual to experience psychosocial issues such as marital stress, depression and other psychological factors. These psychosocial factors can adversely impact the individual and the workforce (Beus et al. 2010). Anticipated results and findings of this research can build a safety culture that can influence an individual’s behaviour to work safely while taking a preventative stance towards safety. The concept of preventing harm and promoting well-being has been linked to having a positive impact on a project whilst creating a safer workplace (Geller 2008).

- **Fiscal Cost:** The cost of workplace injuries to the Australian economy is in the billions of dollars (Safe Work Australia 2012). It has been estimated by Leigh (2011) that within the United States alone, workplace injuries cost the economy over $67 billion each year with indirect costs exceeding $191 billion. Even considering injuries that do not require any time off work, the average individual cost of minor injuries was $935. The fiscal impact of injuries can be broken down into the cost of rehabilitation, medical expenses, lost productivity, rehiring costs and workers’ compensation benefits. An adjunct to this are the human resource challenges in coordinating a return to work, replacing lost labour and the
costs of retraining new and current staff. Minimising these costs by ensuring the safety of employees will provide a buffer zone while allowing effective financial resource management. This can assist in meeting one of the core requirements of project managers to deliver a project on time and on budget.

- **Safe Production:** The outputs on a project may be measured by construction completion times, governance within health, safety and environment, and completion of project goals. The relationship between production and safety is well evidenced by Krause (2005) who stated that a company with a strong safety record tends to have strong production output. When safety is at the forefront of the project, production output is often high. The proposed research will create parameters towards enhancing safe production by identifying the behaviours of an effective safety leadership.

- **Extraneous Demands:** The complexities of a project are vast and relate to landholder management, client protocols, legislative requirements and environmental obligations. By improving the safety leadership capabilities within a project, the positive benefits will flow on to other relevant variables. A project that runs safely and on time can equate to an enhanced client/contractor relationship. This eliminates the unwanted factors of project creep and fiscal penalties due to project goals not being met. When outside safety pressures and client demands are minimised, then the result can be a safety culture that is self-governed and independent (Koh & Rowlinson 2012). The benefits and outcomes of this research may identify the warranted behaviours of effective safety leaders, and in turn improve the possibility of a company gaining future tendering work due to safety performance.

- **Developing Best Practice:** There is currently no universal or evidence based approach to applying best practice safety leadership behaviours across the construction industry. Specific leadership behaviours can be adapted through the work of Kouzes and Posner (2007), which can be symbolic of established leadership approaches. Safety specific behaviours remain vague or assumptive. This research can create the foundations of best practice, and lead to an industry-wide standard. As a result, safety leadership programs and training initiatives can be validated through empirical evidence that does not broadly borrow from the leadership discipline, but instead focus on a developed conceptual model that is contextualised for safety.
Creating a Robust Safety Culture: The leadership group is shown to heavily influence the culture of a company (Mengolini & Debarberis 2012). The development of effective safety leaders may cross over to a robust safety culture that is engaged, consultative and proactive towards safety related matters. Through high levels of interactivity, a culture of interdependence can be established that can have a beneficial effect on morale.

The above notions apply to different aspects of a company from a fiscal or cultural level. The exploratory nature of this research has its merits within both a theoretical and practical standpoint.

1.4 Overview of Methodology
Crafting the definition towards safety leadership was determined to be best suited to a post-positivist design. Post-positivism can be characterised by a focus on the participant’s reality which can be ambiguous, rich and complicated, with it centred on the person’s own experience (Clark 1998). This research design was chosen due to the flexibility and extent that can be generated from semi-structured interviews. The tone of the research is exploratory which lends itself to an interpretive framework that allows for the capturing of individual experiences into safety leadership and associated behaviours. This ontological paradigm is grounded on the notion that reality is constructed by individuals and their beliefs and a hermeneutical methodology where the researcher is an active participant with the world being investigated (Reiners 2012).

A qualitative methodology was chosen over quantitative methods due to the undeveloped state of current literature and the need for further grounding and conceptual development prior to the quantitative testing of assumptions. Further justification for the post-positivist methodology stems from leadership being contextual, the importance of language and rhetoric in defining experiences, as well as theoretical development being best suited for qualitative design (Flowers 2009). A mixed methods approach was deemed to be an inappropriate fit for this research on account of the exploratory nature of the research questions.

The sample size of participants was garnered from individuals within the construction industry who have a wide influence on a construction project. This included twenty interviews that were conducted with general managers, project managers, construction managers, and health, safety and environment (HSE) managers. This sample group was...
chosen in order to ascertain personal experiences and insights into safety leadership and the subsequent impact upon organisational policy. The chosen individuals have the autonomy and authority to shape the safety environment of their designated construction project or business unit and therefore were chosen compared to other informal leaders within the business. From this purposive sample group, participants were randomly chosen to minimise self-selection bias across a range of geographical locations across Australia that included both rural project sites and head office locations.

Information collected through the semi-structured interviews will be analysed via thematic analysis aided through a process of reflexivity to assist with the triangulation of results. A broad description of data will be captured through the interview procedures that help shape the participants when answering the core research questions. To further strengthen the empirical integrity of the data, preliminary results established around the thematic analysis will be independently reviewed for potential biases and validity. The chosen qualitative methodology will be safeguarded through the protection of research ethics and robust confidentiality procedures. This will include the utilisation of pseudonyms to protect the anonymity and identification of participants.

1.5 Results of the Study
Findings from this study provided a framework for the core research questions of defining safety leadership, identifying core safety leadership behaviours and assessing the validity of the proposed RAVE model. Data collected provided a basis for a definition of safety leadership based on the core factors of discipline, values, vision, honesty, engagement, promotion of safety and demonstration of safe behaviours. Participants alluded to the importance of the operating environment, particularly in regard to the legislative framework in which construction projects operate. Participants also identified specific safety leadership behaviours. Many of these behaviours focused on safety behaviours, engagement activities and promotion of a safety vision.

Results from this study validated the relevance of the proposed RAVE model and its potential impact in developing future safety leaders. Sub-components of the RAVE model were modified to reflect findings. The importance of empathy, ethical awareness and safety management systems were highlighted through the data collected. Overall findings from this research have provided a sound contribution to theory and application of practice
1.6 Potential Contribution to Theory
The current literature in the field of safety leadership is in an emergent stage with minimal expansion being present on the behaviours that make up an effective safety leader (Lu & Yang 2010). The contribution of this research can give dimension to the markers of an effective safety leader. The potential flow-on effects and contribution to current theory can cross over to the general field of leadership and safety culture in terms of developing best practice. Contribution to the leadership literature can be evidenced through the development and breakdown of the subfield of safety leadership. As identified by Zanko and Dawson (2012), the behaviours and attributes of a safety leader are scarce, if not heavily borrowed from parallel literature relating to general leadership (Mullen & Kelloway 2009). The focus of this research is based upon exploring how safety leadership is demonstrated through observable behaviours. To help build an empirical model of safety leadership and to guide the research methodology, safety leadership behaviours will be explored through the general components of leadership.

The results of this study can provide a pioneering perspective of the attributes of safety leadership as evidenced through adjacent literature with input and contextualisation from leaders within the construction industry. Further elaboration of the concept of safety leadership can distinguish the unique elements that highlight the difference of leading through safety, in contrast to broader leadership studies. The theoretical contribution to this research can be the foundation of further studies that explore the application of safety leadership within the workplace and its impact upon injury rates.

The proposed RAVE model can be the guiding platform to base safety leadership upon. Through this proposed model, the macro foundations of a safety leader can be mapped out and then further broken down through detailed sub-elements. With a guiding model, further refinements can be made or tested through future research.

Adding to the theoretical contribution is the role of safety leadership and the part it plays in influencing an organisation’s safety culture. As indicated by Fang and Wu (2013), a robust safety culture is driven by leadership and then filtered through perceptions, behaviours and the environment. The defining mechanics that constitute safety leadership can elucidate upon the safety culture literature through the interaction of leadership within the working interface. The working interface is defined as a cross-section of sustaining and enabling safety systems,
the environment, the individual, and processes (Krause 2005). Through identification of effective safety leadership behaviours, the integration into the field of safety culture can be amplified through core principles that can generate a robust safety culture by modelled behaviours.

A wide array of research within the safety field is focused on trend data and positivist research that examines lost-time injury rates or injury frequencies (Dekker 2014). Safety can be measured through lag indicators such as injury rates, but also lead indicators, which focus on at-risk behaviours or cultural cues. The contribution of detailing effective safety leadership behaviours may be embedded within the literature of lead indicators which act as precursors to injury rates (Hinze, Thurman and Wehle 2013). The development of safety leaders and the exhibiting of effective behaviours can be the precursor to desired safe behaviours within the workplace. Theoretical contribution towards safety can therefore be governed through contributions to lead indicator research, which ultimately influences injury rates within a workplace.

1.7 Potential Contribution to Practice

It has been argued that one of the major differences between a DBA and PhD is the notion that a DBA is more practical in nature and a vehicle for graduates becoming ‘knowledge entrepreneurs’ (Loxley and Seery 2012). This research into safety leadership has a number of practical benefits that flow on from the theoretical contributions within the field and are linked to the research questions. By answering the first research question based upon defining safety leadership within the Australian construction industry, a common framework can be reached that eliminates confusion and conjecture around the topic. Promoting safety leadership behaviours in the workplace can be an extension of human resources development. This can be demonstrated through workplace training or workshops, which are built around safety leadership behaviours. Such a practical application merges effectively with the second research question of detailing specific behaviours that constitute safety leadership.

With the plethora of training programs and coaching processes available within the realms of safety leadership, an empirically driven program would be more valid and relevant. This would translate to the applicable behaviours that foster safety within the workplace. As a result, training programs would not be centred on the borrowed theory of transformational
leadership. Instead, training programs can be developed or written with the key results of this research providing the added impetus for applicability and contextualisation.

The defining behaviours of safety leadership can be utilised as core factors or key performance indicators for leaders within an organisation. A practical outlet of this can be through employee performance reviews. Such performance reviews could check an individual’s performance against the desired behaviours, similar to how an individual follows and demonstrates an organisation’s company values. Further integration could be achieved through the inclusion of safety leadership behaviours as part of a 360-degree feedback assessment between leaders and their subordinates. Through these results, the basis for safety leadership coaching sessions can be formulated for either an internal or external coach.

Research question three, which aims to validate the proposed RAVE model, can serve as the backbone of such behaviours and assessment measures.

By focusing on the demonstrated behaviours of safety leaders, these behaviours can be identified as the core ingredients of a leader’s commitment to safety. This can then be applied to a personal safety action plan that is displayed and aligned between what safety leaders say and what they do. Communicating a person’s commitment to safety leadership behaviours can create an in-built element of accountability, specifically if a leader will be measured on such behaviours. The flow-on effect of increased safety leadership behaviours within the workplace can permeate the culture of safety and become the mode of operation while positively influencing safety statistics.

Prospective results of this research can be the structure for future quantitative research into safety leadership. Further exploration of the conceptualised RAVE model and the identification of safety leadership behaviours can be the foundation for the possible transference of the research results to other industries outside of construction. The practical contribution is then realised through the empirical testing of the results of this study to other heavy resource industries. One option to further explore these results could be through a mixed methods research approach of administering surveys combined with direct observation of behaviours and the associated impact upon employee behaviour.

1.8 Limitation of Scope
This research has been time-stamped in its current political, social, economic and technological environment. Changes within legislation or steep economic fluctuations may
Influence the current environment and perceptions of safety leadership. Any major limitations from the scope of this research will be addressed through the methodology chapter of this research, with all efforts made to ensure the reliability and validity are maintained. Most limitations may be centred on the transferability of any findings across non-resource sector industries, the exclusion of employees who are not in positions of leadership, and the research within one construction company as opposed to a cross-section of companies.

Issues of transferability of qualitative data across other sectors are often touted as the core limitation of a post-positivist research design (Shenton 2004). This research is based within the construction industry, and pending results may not be suited to other industries that vary in risk, scope of work or industry. As an example, safety leadership within the financial sector may have a different context than safety leadership within the construction industry. The transferability of any potential results needs to have this caveat in mind, given the nuances of the chosen industry.

The sample size has been captured within one large scale Australian construction company as opposed to many different construction companies. A potential influence on data may be governed by the overarching culture, processes and rituals of that parent company. To counter this, the decision to choose the one construction company was based upon the narrowing of such variances or outlying factors of safety leadership within the chosen sample size. If participants were chosen from a range of different companies, then the scope and integrity of this research may vary. This is due to the widely diverse nature among the many companies.

The perception of what constitutes effective safety leadership has not been sourced from employees in non-leadership roles. This may be suppressing a wealth of untapped knowledge and data from individuals not in leadership positions. As a potential consequence, employee perceptions of safety leadership and how safety leadership is translated down the organisational structure and chain of command may be neglected.

1.9 Company Background
The organisation that was chosen for this research is considered a leader in the Australian construction industry in terms of safety performance and employee turnover. This can be evidenced in the company’s many safety awards and minimal serious injuries occurring on their projects. In the history of the company, there has never been a workplace fatality,
where, in comparison, the rolling Australian construction fatality rate over a ten-year period from 2003–2013 was 3.89 fatalities per 100,000 workers (Safe Work Australia 2013, p. 7). The national injury frequency rate within construction for the years 2012–2013 was 8.4 (Safe Work Australia, 2014 p.53) while the company’s injury frequency rate for the same time period was 3.43.

The company will be de-identified for confidentiality reasons, as it is a publicly traded company at the Australian Stock Exchange. The total number of employees is well over 5000, with work being conducted across multiple areas in Australia within seven separate business units. The construction projects are varied from oil and gas projects to mining and minerals projects. The organisation is certified to international auditing standard ISO 9001 and has a robust document control and record management system. Safety targets and goals are reviewed on a regular basis and the company was considering implementing a safety leadership process but it was postponed at the time of this research.

1.10 Outline of the Thesis
This research adopted a six-chapter research structure that aims to delineate, explain, verify and adopt the research findings into broader application within the construction industry. The summary and outline of each chapter is as follows:

Chapter 1 Introduction – provides the context and background of the study followed by the statement of the research problem and associated research questions. It also highlights the potential contributions from the research, methodology and the research limitations.

Chapter 2 Literature Review – examines the concept of safety leadership through the parent disciplines of safety and leadership. An extensive review of the literature is carried out which details gaps in the literature and further refines the research questions. The literature review will construct a conceptualised framework into safety leadership and detail the core research questions that will be investigated through the research.

Chapter 3 Research Methodology – describes and outlines the post-positivist paradigm and the research methodology used for this research. The researcher’s ontology, data collection techniques and elements of validity and reliability within a qualitative framework will be described in this chapter. Information pertaining to the specific procedures carried out for this research will also be detailed as well as techniques used for data coding and tabulation.
Chapter 4 Findings – details descriptive statistics gathered through participant demographics and qualitative findings. This includes specific information on core themes, secondary themes and the core research questions. The findings are placed within the operating context of the Australian construction environment.

Chapter 5 Discussion – discusses the outcomes of this research centred on the core themes and emerging issues. Links are made back to the literature with contributions to the field being detailed. Recommendations and implications from the findings are made in light of the research findings.

Chapter 6 Conclusion and Implications – Final conclusions about the research are summarised in reference to the research questions and operating environment. The theoretical and practical contributions of the research are summarised with suggestions for future research being made.

1.11 Conclusion
This research is embedded within the construction industry and through a thoroughly planned methodology and scope, the anticipated applications are expected to provide clarity and worth within the field of safety leadership. Developing best practice strategies towards safety leadership may limit or prevent the number of ongoing injuries or fatalities occurring within the construction industry. After establishing the general snapshot of this research, the next chapter will explore current literature and provide a theoretical basis for the proposed safety leadership model and identified gaps within the literature.
CHAPTER 2 – LITERATURE REVIEW

2.1 Introduction
The ethos of Chapter 2 is grounded within current and past literature concerning the parent and immediate disciplines which relate to the following research problem: *What behaviours are evident in successful safety leaders?* A subset of research propositions will fall under this broader question. To help place this research into context, safety in the workplace will be firstly defined which will then set the tone for the current research into safety leadership. The ethos of safety leadership will be explored under the hallmarks of the two parent disciplines of safety and leadership. The synthesis of the proposed RAVE model will be adapted from the guiding literature. Once this information has been detailed, the external operating environment will be reviewed with its application to safety leadership. Lastly, the conceptual framework will complete the chapter, amplifying any specific safety leadership issues and their potential impact upon an organisation.

2.2 Safety in the Workplace
The spread of safety across the workplace has seen a shift in thinking in terms of ensuring the health and safety of employees. This has been established through legislation and workplace health and safety laws that specify occupational health and safety is everyone’s responsibility (Barr and Welch 2012). Safety in the workplace is often characterised by the overt physical hazards and associated injuries, with little regard given to mental health or emotional safety (Huggard and Nichols 2011). Other considerations that can fall under the banner of workplace safety pertain to the physical environment through inadequate ergonomic design, workplace noise, temperature extremes and light intensity (Animashaun and Odeku 2014). With safety incorporating a number of these different elements, the perceptions of employees on how these risk factors are managed can shape the safety culture of a company (Luria and Yagil 2010). The breadth of workplace safety within this research will include the physical, mental, emotional and environmental elements of safety. The social link that ensures all of these safety elements are in alignment is dictated by the actions of the workplace leaders.

Effective workplace safety leaders identify potential areas of redress or harm, and take adequate action to minimise the risks involved (Luria 2010). How this is achieved can be compliance driven through legislation, or commitment driven through factors of leadership
and trust (Luria and Yagil 2010). The scope of this research will examine safety leadership by ensuring workplace safety in all aspects through the leadership of safety management processes and behaviours that lead to the desired safety outcomes. The prominence of safety leadership is at the root of these safety outcomes.

2.3 Safety Leadership

The crux of this research pertains to safety leadership and defining the characteristics and behaviours of an effective safety leader. As previously detailed by Zanko and Dawson (2012), the specific definition and focus on safety leadership seems to be scarce. In comparison, leadership is defined as “The art of influencing people by persuasion or example to follow a line of action” (Durban, Dalglish and Miller 2006, p. 3). Safety leadership seems to be spoken in the same sense as general leadership, without taking into account the nuances of safety. To assist in the stocktake and understanding of safety leadership, it is best to start with current research within this domain, to help establish the current paradigm that exists towards safety leadership.

A recent study into effective safety leadership defined the construct as “the process of defining the desired state, setting up the team to succeed, and engaging in discretionary efforts that drive the safety value” (Cooper, 2015, p.49). The details behind this definition were investigated and traced back to a website of a consulting company that offers services within the field of safety leadership. Their definition of safety leadership was neither research based nor contextualised for the Australian construction environment. A lack of a clear definition is further reflected through other research by Read et al. (2010). They detailed the importance of safety leadership when engaging the workforce, although no clear definition of what safety leadership means was provided. There is a general sense that the definition of safety leadership is implied, innate or linked to broader leadership studies.

In a study undertaken by Lu and Yang (2010), the impact of safety leadership upon safety behaviour was investigated within terminal operations. Safety leadership was defined within three main dimensions, including safety motivation, safety policy and safety concern. It was identified that safety leadership is a sub-system of organisational leadership, where visible leadership behaviours provide opportunities for safety issues and concerns to be discussed. The findings from Lu and Yang are based upon specific components of safety leadership being combined under transformational and transactional leadership. Deeper elements of
safety, culture and safety systems appear to be negated when considering the wider construct of safety leadership and its distinction from other leadership fields.

Research conducted by Wu, Chen and Li (2008) investigated the impact that safety leadership has upon a company’s safety climate and performance. Their definition and construct of safety leadership was established around safety caring, coaching and controlling. The inclusion of coaching has links within the field of relational leadership but was not detailed specifically towards safety. Their operational definition of safety leadership was borrowed from a safety leadership scale assessment, without an explanation of what safety leadership entails. Results from this study showed that managers who demonstrated safety commitment, positively influenced safety performance, with safety climate being the moderating component.

In a more recent meta-analytic review, safety leadership was explored under the guise of transformational and transactional leadership (Clarke 2013). Results showed that transactional leadership is important in ensuring compliance with rules and regulations, while transformational leadership is associated with encouraging employee participation in safety. These elements were shown to have a mediating effect on safety culture. Other relevant findings included:

- Leadership style is an important activator towards safety perceptions and behaviour from both a transactional and transformational paradigm.

- Active transactional leadership has a role within the arena of safety leadership due to compliance and safety management systems, although they have little impact on employee participation.

- Suggestions for further theoretical development into the concept of safety leadership should be undertaken to further explore leadership flexibility and its application within the safety domain.

A powerful argument can be deduced from the research by Clarke (2013) with regard to the importance of transactional leadership and its role with safety, also interchangeably known as transactional safety leadership. The view that transactional safety leadership is warranted can be applied along with some of the project based minimum safety standards. This pertains to the compliance of minimum standards of work which employees need to observe, sometimes
colloquially called ‘lifesaving rules’. The argument against transactional safety leadership may be based upon the potentially negative impact of employees working towards individual goals without considering other team members (Hamstra et al. 2014). From a safety context this may translate to the protection of one’s self as opposed to the protection of self and others.

The application of general transactional leadership within the construction industry may serve as a continuation of the status quo and a remnant of the less mature environment. This is echoed by the research of O’Dea and Flin (2001) that outlined leaders within the resources sector have a predilection towards directive leadership, and even with knowledge of effective leadership behaviours, still chose to be directive. This in turn has an impact on motivating and controlling some of the more crucial aspects of safety.

Another test for safety leadership in the construction industry was through the research from Toor and Ofori (2008). Their findings outlined that many construction managers have a limited understanding of leadership and that their role is focused on meeting deadlines and ensuring the fiscal budget is met. Given these results showed a lack of clarity around general leadership, then it may be extended to a lack of clarity around safety leadership due to its vague definition within the literature.

2.3.1 Research Question One (RQ1)
Within the realms of safety leadership, the clarity of specific behaviours seems to be a melting pot of different leadership and safety principles. This echoes the need to detail and develop a robust conceptualised model of safety leadership that is contextualised for the construction environment. Before this can occur, a clear definition of safety leadership is needed which warrants the emergence of the first research question:

**Research Q1: How do leaders within the construction environment define safety leadership?**

This research question is aimed at defining what safety leadership means for the current leaders within the construction industry. This will be delineated from construction managers and above within a construction project. The importance of exploring the definition of safety leadership lies within a common factor and definition that will create a valid application of safety leadership behaviours. By comparing and contrasting the safety and leadership
disciplines, the similarities and differences, that help shape further research questions, can be amalgamated.

2.4 Parent Discipline: Safety
The management of construction projects has been previously linked to compliance and error prevention with prescriptive punishment being served for safety violations (Podsakoff et al., 2006). This approach has not successfully minimised injuries or improved safety outcomes as evident through current injury rates within Australia that showed that for every 100,000 workers there are approximately 1.9 deaths in the workplace from 2009 to 2010 across all industries (Safe Work Australia 2012). Given the span of safety, a specific focus will be placed upon human factors, safety culture and management of safety. These areas have strong links towards the leadership literature. A review into the safety literature places any proposed contextualised model of safety leadership into context. The importance of reviewing the parent discipline of safety and other sub-elements is pivotal when exploring the role of safety leadership on employee behaviour.

2.4.1 Safety Journey
To understand the journey into safety, it is important to see the safety evolution over the last century or so. This provides background context into the roles and responsibilities of HSE professionals and designated safety leaders. There are legislative requirements across the Western world that pertain to safety within the workplace. From an Australian context, these requirements are linked to workplace rehabilitation, employer and employee responsibilities (Brauer 2006). Within Australia, legislation was introduced in the 1980s with constant revisions being made. The Work Health and Safety Act 2011 outlines employer and employee legal safety requirements, which includes the provision of a safe workplace. There was a time though, when legislative requirements to safety were non-existent.

Starting from the early 1900s, industries had minimal work practices or environmental safeguards that resulted in people often being injured (Zinn 2003). It was further documented by Zinn that the unions made a movement for improved working conditions. This witnessed an increase in environmental controls such as barriers and guards. Emerging from the 1930s was the iceberg model of safety first introduced by Heinrich. It was found that each fatality on site was caused by a range of contributing factors and these factors could be mitigated before an injury occurred. Analysis from Manuele (2003) has criticised the relevance of this
theory on account of the era of the research in which it was based and how the raw data and other original files were never sighted. As a result of these files not being sighted, one must question the validity of Heinrich’s initial research. In addition, the cause of such accidents was not further explained. This cause and effect relationship opened up the way to consider other influencing factors such as human behaviour.

The next safety evolution arose from the foundations of behavioural psychology and was applied within the safety paradigm. Behaviour Based Safety (BBS) was made popular by Krause (2005) who developed the importance of feedback through the observation of employee behaviours. A behaviour can be defined as any overt observable activity by an organism (Weiten 2004). In contrast an attitude is an orientation of thought based on judgment, while a characteristic is a feature or quality of an individual (Weiten 2004).

To mitigate risk, the hierarchy of safety was introduced which has close links with engineering design principles and theories identifying such steps as elimination and substitution to enhance personal safety (Brauer 2006). Numerous studies have outlined the positive impact that BBS has had in reducing incidents and increasing worker engagement (Geller 2001). Despite the advances in such systems, fatal injuries have still occurred within the workplace. A sole focus on behaviours negates other contributing factors such as system design, client guidelines and market variables.

Another explanation for injuries on site has been linked to the often cited Swiss Cheese Model, developed by Reason (1997). This model outlined that a wide array of holes in a safety management system or organisation exist and these gaps can line up and create the conditions for a serious injury to occur. Other explanations that pertain to the prevention of energies include the Energy theory, which emphasises the mitigation of energy transfer, as well as the single to multiple theory of accidents (Brauer 2006). True to the multiple theory of accidents, there are a many variables that influence the probability of an injury occurring. This fits in well with the complexities of a safety culture and other influencing components.

The above models and explanations of why injuries occur have increased awareness although they have not negated the reality that injuries are still occurring within the workplace. Explaining why injuries occur provides context, although tackling the how we can prevent injuries is where the challenge lies. Over time processes and procedures have mitigated risk through various forms of risk assessments and engineering controls. This is often done
through engineering the risk out, educating others and then enforcing the changes (Manuele, 2003). Despite robust safety management systems, few organisations have been able to reach the target of zero incidents, as it still remains an organisational quest or aspiration with little or no research existing that supports its premise (Long 2012b). When organisations consider the implementation of safety management systems, leadership is often discussed separately while the goal of zero incidents is branded as the ultimate safety goal.

The goal of zero incidents within the workplace started to emerge in the 1990s and may be an offshoot of socio-cultural policies of zero tolerance. The vision of zero incidents is closely aligned with high-reliability theory that states all injuries are preventable if suitable organisational practices are implemented (Weick & Sutcliffe 2001). Zero incidents started to set the ultimate safety goal, which contradicted normal accident theory that explains injuries are an unwanted natural process of hazardous work due to a complex socio-technical system (Cooke & Rohleder 2006). When used as a metric as opposed to a vision, the goal of zero incidents may denigrate safety efforts and cause disillusionment.

Behaviours that constitute a zero incident culture have been linked to people feeling empowered to take action, being knowledgeable and having the right attitude (Vecchio-Sadus 2012). These behaviours may not be directly observable or tangible, especially when looking at covert factors of attitude. The importance of a strong safety culture in achieving zero incidents is evident though espoused slogans and associated organisational artefacts and posters. Relating to the goal of zero incidents or zero harm are the overarching elements of zero tolerance.

Outside the realms of safety, zero tolerance can be applied to criminal misdemeanours, gun control or drug policies. Research from Evans and Lester (2012) conclude that the results of such strategies vary upon the context and application of the policy. Further to this, Evans and Lester found zero tolerance policies do not cater for the social, emotional and behavioural support that provides long term change. Similar notions can be applied within the safety culture realm.

The benefits of zero tolerance include outlining clear consequences for deviating from a clear mandate as well as enhanced collaboration across all departments (Blair 1999). Although the intentions may be clear for the desired behaviour, it creates a clear dichotomy for all behaviour that falls outside this scope. Other socio-technical influencers can be operating.
From a safety paradigm, zero tolerance can be inclusive of zero tolerance of injuries. In an absolute framework, the factors of safety culture and safety leadership are not considered; just the outcome is measured. Human behaviour is complex and satellite factors of social influence, personality, client demands and production pressures provide the grey area that does not fit into the goal of zero incidents (Long, 2012b). Achieving a culture of zero incidents has been the aspirational ideal that many organisations continue to seek, as detailed by Long (2012b). The importance of human factors has started to shape the landscape of safety and has been taken into consideration when devising the conceptualised model of safety leadership.

2.4.2 Human Factors and Safety
When investigating why organisations continue to have incidents, the research from Choudhry and Fang (2008) attributed unsafe work behaviour to a lack of safety awareness, work pressures, or co-workers’ attitudes towards safety. This becomes a factor when exploring the argument for effective safety leadership and its application within the Australian construction industry. The results from Choudhry and Fang link into the discipline of human factors which considers the human elements that contribute to an incident. This includes such factors as mental slips, errors and violations. Eliminating all risks within a workplace environment may not be fully achievable due to the socio-technical systems in place. Human beings play an integral role based upon risk mitigation through the choices and expertise that humans bring to the work front.

Over the last decade, the importance of human factors has been greatly expanded upon due to the importance of the individual at the working interface (Krause 2005). When approaching safety from a strategic point of view, the role of leadership sets the safety culture which is then influenced by safety enabling and sustaining systems that feed into the organisational culture. Krause further expressed that safety is apparent at the cross-section between the person coming into contact with the processes, facilities and equipment. This has been detailed in Figure 2.3. Deeper exploration into the differences between organisational culture and safety culture was absent from Krause as safety culture was loosely referenced as the outcome of the interface of all the elements detailed in Figure 2.1.
The prevalence of safety occurs at the working interface. BBS aims to address some of the human factors of safety at this cross-section of the worker at the working interface. Research from Kaila (2010) indicated that out of 50% of unsafe behaviours that occur within the workplace, up to 25–30% of these behaviours are due to an employee’s lapse in safety awareness. Mitigation of this human factor is dealt with through BBS that is epitomised by an observer watching a worker perform a range of behaviours. After a short period, effective feedback is provided on both safe and at-risk behaviours. The benefits of a robust BBS system are cross-cultural, with a recent study detailing the longevity of a BBS system across an Indian workforce over a twelve-year period (Kaila 2011). Results manifested the importance of a BBS system that takes into account the preventative nature of safety while acting as a medium for healthy safety conversations. The core elements of BBS can be a pivotal factor when formulating a safety leadership model that takes into account human factors and enhanced safety communication. Further evidence of the importance of safety
leadership has been shown through ending complacency by breaking the bond between safety compliance and speaking up against mistakes in relation to safety protocols (Leroy, et al. 2012).

The extensive work of Geller (2008) outlined the importance of the person component being taken into account when enhancing safety. This is further attributed to 90% of incidents being due to human error and violations (Shi and Shiichiro 2012). These findings mark the context of analysis for this research topic, as individuals make up the workforce, which in turn comprise the broader workplace environment. With the incorporation of human factors and ergonomics into safety systems, improved efficiency and safety can be brought to completion (Duffy 2009). This can be broken down to managing fatigue, mental errors and violations and understanding elements of safety control. Further findings by Huang et al. (2012) reveal that employee safety control mediates safety climate and occupational injury within the workplace.

The role of safety knowledge and motivation can have an influence on safety behaviour. Findings suggest that safety training predicts motivation while management commitment influences the employee perception of safety (Vinodkumar and Bhasi 2010). The work of Vinodkumar and Bhasi was conducted within an operational environment based in India where different legislative requirements exist compared to Western nations. Safety training within the Australian context is often infused with roles and obligations that are focused on compliance requirements as opposed to ascertaining individual commitment towards safety (Dingsdag, Biggs and Sheahan 2008). In acknowledging this safety-training trend, there has been a recent movement towards relationship based safety that is characterised by creating a psychological safety climate (Koh and Rowlinson 2012). This is further amplified if it is paired with a leader’s commitment towards safety (Toor and Ofori 2008). How different safety systems are applied and amalgamated for the worker may be influenced by factors of cognition.

Re and Macchi (2010) outlined the influence that cognitive psychology has had within the safety sphere by taking into account attitudes and neurology. To expand upon the role of cognition within safety and human factors, Re and Macchi put forward the following notions:
• With the socio-technical structure in place, a future focus should be shifted away from reliability to variability, given the rich source of organisational variables within a company.

• When workers are taught new processes or procedures they should also go through why such processes are in place in order to build a helpful mental model. This may influence future behaviour.

Safety leadership that incorporates the cognition of workers can create a broader perspective for the intricacies of enhancing safety leadership via human factors. Attitudes are covert and may be influenced by a number of different factors. A lot of the safety literature has been addressing why safety incidents occur, although advancements on how to manage these factors through the facets of safety leadership and enhanced safety culture seem to be philosophical and vague. The scope of this research aims to provide clarity as well as the proposed influence of safety leadership on safety culture.

2.4.3 Safety Culture and Climate
The notions of a safety culture have been well documented and can be explanatory for specific safety failures that may not be understood through conventional safety systems or environmental controls (Mengolini and Debarberis 2012). The definitions of a safety culture can range from the accepted way things are done to the attitudes, beliefs perceptions and values that employees share in relation to safety (Guldenmund 2010). As Guldenmund commented, the depth and subtlety of what the term ‘safety culture’ means has been diluted over time without reference to the true behaviours of a safety culture. From this premise, Guldenmund outlined three different approaches to understanding a safety culture, which are founded upon the academic, analytical and pragmatic approach. In turn, each approach focuses on an organisation’s past, present and future. The focus of this research will be centred on the pragmatic approach to safety culture.

The abundance of safety literature has been structurally mapped across the construction industry. A specific reference to the safety culture, safety management system and safety behaviours is visually represented in Figure 2.2 via the work of Choudhry, Fang and Mohamed (2007).
The role of leadership in the above safety culture model is not accurately captured, even though the influence of leadership on a culture is paramount. Behaviours are linked to environmental factors and an individual’s perceptions which enhance safety culture. Building upon this model was the work completed by Fang and Wu (2013). From their research a Safety Culture Interaction (SCI) model has been devised that incorporates the...
dynamism between subcontractors, contractors and clients within an accelerated working environment. This model was expanded from Gellar’s (2008) previous work into a robust safety culture model that takes into account the environment, behaviour and person. Fang and Wu detailed that specific management behaviours were not outlined in their safety culture interaction model. Such behaviours were loosely captured under the BBS system within the construction project environment. The SCI model includes the role of leadership under the subset of management and the impact upon an individual’s environment, behaviour and perception. Safety leadership can be exercised through the management of perceptions and the different levels of interaction between the client, contractor and subcontractor.

The inclusion of key stakeholders in the SCI model reflects the unique operating environment that construction projects operate within. The safety culture interaction model can be the backbone in which a conceptualised model into leadership can be exercised. The advancement of the safety culture interaction model is displayed in Figure 2.3:

Figure 2.3: Safety Interaction Culture Model

(Source: Fang and Wu 2013)
behaviours is one of the core focal points of this research which can therefore influence the project’s safety culture. A measurement of culture is a quantitative indicator to the strengths and opportunities of a project. Through a comprehensive safety culture survey, elements of leadership and management credibility can be measured via the perception of team members and colleagues. The importance of safety leadership within an organisation’s safety culture can set the mood as well as the long term vision of a project or work environment (Beus et al. 2010).

In an extensive study with over 25,574 participants, a confirmatory factor analysis found twelve hierarchal aspects of safety culture within the work force (Frazier et al. 2012). The primary factors revolved around management concern, personal responsibility, peer support and safety management systems. Some of the second order factors included respectful feedback, cautioning others, supervisor concern, senior management concern, work pressure and communication. When looking at the constructs of safety culture, the findings from Fugas, Silva and Melia (2012) reveal that social mechanisms mediate the relationship between safety environment and compliance and proactive safety behaviours. In further detail this can be focused towards perceived behavioural control and attitudes towards safety. These results can be linked to the SCI model detailed by Fang and Wu (2013).

Some indicators of organisational culture are derived through organisational stories, cultural legends and physical artefacts such as posters and awards (McShane, Olekalns and Travaglione 2010). From the safety paradigm, cultural indicators could be evidenced through previous stories of people who were injured or the display of safety statistics and safety corrective actions on site. The leaders of a company often set the organisation’s culture and this is also applicable when setting a safety culture (Krause 2005). Safety culture can be firmly established in long-term operational environments. In contrast, the safety culture within the project environment may be more suitably dictated by a safety environment where the terms have been used interchangeably in the past, although definitional differences do exist. One such explanation is that a safety environment is a distal antecedent for workplace injuries and it can be set by the actions and thoughts of management within the immediate environment (Kines et al. 2010).

A meta-analysis into safety environment and workplace injuries indicated that injuries are more predictive of the current safety environment as opposed to it being predictive of injuries.
One possible interpretation of these findings suggests that injuries need to occur prior to assessing the safety environment of a project. It has been revealed that a safety environment can be assessed prior to an injury occurring by looking at such variables as management commitment to safety, return-to-work policies and safety training (Huang et al. 2012). The role that HSE professionals play in setting the safety environment or culture within a project was not further considered in the above research into safety environment.

Some of the later work from Toor and Ofori (2008) revealed that a culture that has transparent and honest communication alongside an openness to share ideas, tends to create a strong safety culture. This is based upon an increased likelihood of reporting injuries and sharing important information pertaining to safety. This culture of openness is developed by the site leaders who influence a safety culture through their actions and deeds and those who invite suggestions from employees (Mengolini and Debarberis 2012). From the constructs of a robust safety culture, the elements of safety leadership can come to the foreground through general leadership behaviours. These behaviours can be selected through the core leadership paradigms identified in the parent discipline. The influence that leadership has on safety culture can set the focus, legacy and outcomes of how safety is managed. Safety management systems can be either conducive to a healthy organisational safety policy or a hindrance to its core function.

2.4.4 Safety Management

Effective safety management systems can form part of the ethos of a healthy safety culture. If not managed well, they could adversely impact safety and in turn set the motto of compliance as opposed to establishing a commitment towards safety. Astute consideration into supporting safety systems will help foster this vision into a reality while improving safety performance (Bottani, Monica and Vignali 2009). Safety management systems or adherence to such systems may be linked to personal accountability, which reflects an internal locus of control.

Within construction projects, it has been indicated that many projects do not establish an effective safety management system due to an array of internal and external factors such as costs, competence or market demands (Benjaoran and Bhokha 2010). In a study undertaken by Cheng, Ryan and Kelly (2011), the perception of what specific safety management practices are most important with construction practitioners was undertaken. The results indicated that safety management practices that involved dissemination of information and
safety committees were associated with positive project performance. In addition to these results it was concluded that the construction industry has paid minimal attention to safety management committees (internal safety and project safety) and it was suggested that construction companies should promote the criticality of such forums. Safety leadership can be the voice to tout the critical elements of safety committee meetings as well as promoting consultation and interactivity. Such mediums can improve motivation, knowledge and autonomy, which have been linked to beneficial safety outcomes, even in the face of potential burnout due to job demands (Nahrgang, Morgeson and Hofmann 2011).

Capitalisation of knowledge across industries can be a way for organisational learning and application. In a study by Grote (2012), the core components of safety management systems were analysed across a range of high risk industries. Findings from this research outlined the following:

- Safety management systems need to take into account standards and procedures, training, incident reporting, investigations and safety culture.
- A call to action has been made for the transferability of safety management systems across industries to support cross-industry learning.

Safety leaders who focus on management systems will set the safety environment while their behaviours will lead safety on site. Other safety management systems such as audits within a construction project can drive the expected behaviours that will establish the minimum standards.

An over-reliance on auditing systems can create de-motivation for craft workers, and administrative strain. Swuste (2009) outlined that over-reliance on administrative measures can act as an excuse for management avoiding responsibility for accidents which negates the fundamentals of the foundation of an effective safety leader.

The importance of management commitment and communication was highlighted through a study that investigated the antecedents and consequences of safety behaviour on Occupational Health and Safety Advisory Services (OHSAS) certified organisations. The key elements included the promotion of employee satisfaction and firm competitiveness (Fernandez-Muniz, Montes-Peon and Vazquez-Ordas 2012). Further to this it was outlined that OHSAS certification is a starting point in improving safety on a site. Safe behaviour was
determined as a direct output of communication. A true comparison between OHSAS certified companies and non-OHSAS certified companies would have been a strong indicator of the role of international audit systems. The theme of communication and management commitment is well referenced in terms of safety management systems.

Another output of how safety is managed from a systems or technical viewpoint is through safety investigations. In defining research from Stoop and Dekker (2012), it was shown that safety investigations are neither reactive nor proactive, but rather a combination of the two. This was attributed to the key learnings from an accident being pivotal in systemising new knowledge or insights into organisational policy. When tracking the evolution of safety management systems, Stoop and Dekker identified that safety management has gone through three evolutions. The first generation is concentrated around accident modelling and seeking the causes of accidents as part of technological systems. Following from this is the evolution of accidents occurring within a socio-technical structure where the social and psychological components need to be accounted for. This is often achieved through the provision of training and effective feedback. Stoop and Dekker also highlighted the notions of non-linearity within working environments and how that needs to be considered when completing safety investigations. This non-linearity did not include notions of safety leadership that may fall outside the cause-and-effect relationship.

The evolving maturity of safety management systems has witnessed a linear approach to incidents being transformed into the greater complexities of risk and decision making. Similarly, leadership is not one-dimensional, but rather a product of the environment, person, individual and values that compel others towards a vision or achievable goal. The empirical schools of safety and leadership can be brought together to create the concept of safety leadership.

2.4.5 Summary of Safety Discipline
The breadth of safety is large with offshoots that expand beyond management systems and into factors of human behaviour, safety culture and compliance activities. These unique elements are the building blocks of safety leadership. The vehicle of safety leadership may be balanced around the integral components of safety and leadership combined. Through the proposed model of safety leadership, a blueprint may embed the safety systems and processes in place to decrease the number of injuries on a construction project.
2.5 Parent Discipline: Leadership

To set the scene of leadership, it was shown from the work of Long (2013) that the board of directors sets the tone of leadership through governance, while the chief executive officer (CEO) personalises the message with operational performance and the senior leadership team applies the strategy. The focus of this research will be built around the application of safety leadership with senior leaders as opposed to setting the governance or establishing organisational policy through the board of directors or CEO. This establishes a practical application in defining the behaviours that are evident in successful safety leaders within the construction environment.

The initial investigation of broader leadership studies as it pertains to safety was warranted through the research of Zanko and Dawson (2012). Conclusions from this research showed that traditional occupational health and safety (OHS) has focused on policies and systems and there is a notable lack of research on OHS management behaviours. It was reported that OHS leadership is often lumped into the Human Resources (HR) field, and further conceptual development is needed. Through the review of the leadership literature, a contemporary working model into safety leadership can be confirmed and applied within a working context.

Much research exists within the leadership arena that can be linked to the aspects of this research. In a recent review on leadership articles over the last decade (2000–2009), it was stated that the “field of leadership research is more diverse, more robust, more multi-faceted and more multi-focused than at any time in recent decades” (Gardner et al. 2010, p.952).

With the amount of information available, a narrowing of the literature is needed to focus on those elements that are pertinent towards the aim of this research. This allows effective comparison between safety leadership and general leadership. In the context of this study, general leadership will be a term used to describe a group of leadership theories in comparison to safety leadership. The theoretical foundations of general leadership include research into authentic, charismatic, transformational, leader-member exchange and third generational leadership.

The evolution of leadership has adapted over time to cater for today’s societal and organisational needs. The passage of leadership has been detailed by Long (2012a), who explained three separate generations of leadership. This evolution started with the autocratic style of command and control. Over time this style transformed to the conformance
leadership style of rewards and punishment. The third generational style of leadership is positioned around an internal locus of control, commitment and accountability. Long’s generational style of leadership links in well within the safety realm, where the prime goal for many organisations is for individuals to take ownership of their own safety.

Under the macro guise of third-generation leadership, specific components of leadership will be explored which exclude leadership models aligned to Machiavellian processes that often leave the employee bruised (Kiazad et al. 2010). Elements of trust, inspiration and empowerment are pivotal in driving safety and organisational policy and therefore will be explored in more detail (Conchie, Moon & Duncan 2013). The leadership components that help shape these outcomes have been detailed below in Figure 2.4 and have been grouped under general leadership.
Collectively, the components of transformational, authentic, charismatic and third generational leadership interspersed with leader-member exchange will constitute general leadership and be the foci for the scope of this study. From this, the components and behaviours that constitute general leadership can be scrutinised for relevancy, comparison and application towards safety leadership. Third generational leadership has its links with safety through the focus of responsibility and ownership (Long, 2013) which can translate to increased commitment towards safety. The research behind transformational leadership is being included due to the focus on collective goals and employee wellbeing (Hamstra et al 2014) which transitions effectively into safety influence. Authentic leadership has strong ties with self-awareness and honesty (Kernis & Goldman 2006) which can constitute the foundation of safety influence through the awareness of one’s own behaviours. Charismatic leadership was chosen as a focal point because if one is to influence others, they may need to utilise rhetoric and engage others through a collective vision (Davis & Gardner 2012). The application towards safety leadership could be based on compliance behaviours and influencing resistant employees by providing the broader vision and purpose. Leader-member
exchange was deemed pivotal in developing safety relationships and improving work satisfaction (Mueller & Lee 2002) via the demonstration of safe behaviours. Grouped together, these leadership disciplines are deemed most suited towards the application of safety leadership behaviours.

2.5.1 Third-Generation Leadership and Locus of Control

Third-generation leadership was coined by Long (2012a), with the behavioural components fixed in the leader by being collaborative, commitment based and self-directed. These behaviours are underpinned by the psychology of the person having an internal locus of control. Locus of control refers to the degree to which the events and outcomes of a situation are perceived to be within that person’s control (Joseph, Reddy & Sharma 2013). Safety leadership can be underpinned by a strong locus of control in regard to one’s actions and behaviours. Under the parentage of third generation leadership, an initial focus will be placed upon locus of control in relation to safety leadership prior to expanding to other models of leadership. Third-generational leadership can be transposed over individual safety with its foundations being built through transparency and empowerment.

The link towards locus of control and safety leadership can be exhibited through a proactive leader as opposed to one who is reactive towards safety. A reactive safety leader that has an external locus of control may only implement changes when others direct them. In contrast a proactive safety leader relies on their own internal drive to ensure the safety of themselves and others. As highlighted by Long (2013), the natural default of many individuals is to have a “red zone” or external locus of control characterised by primal instincts, reacting and not being cognisant of the consequences of one’s actions. The term “red zone” thinking and external locus of control will be used interchangeably. Acting on a safety issue after someone has been injured could be an example of “red zone” thinking as the focus on safety is after the workplace injury. The desired state of effective leadership is within the “blue state”, which taps into reason and response as opposed to reacting. Possessing an internal locus of control is synonymous with “blue state” thinking (Long 2013) and proactive leadership. When a safety incident occurs on site, the “red zone” thinking may take over and impact upon the social relationships with others. The flow-on effects can then negatively influence the safety on site. Currently, there are no further studies that explore the neurological tracing of locus of control in regard to safety leadership. Without a clear definition towards safety leadership, it may be challenging to neurologically map such processes, although links have been made.
with locus of control, transformational leadership and safety (Jones & Wuebker; You, Ji & Han 2013).

Evidence of “red zone” thinking was shown through the research of Joseph, Reddy and Sharma (2013) who investigated locus of control and attitudes of aviators in relation to hazardous events. Results showed a positive correlation between an external locus of control and involvement in hazardous events alongside lower safety orientation and high levels of anxiety. In contrast, an internal locus of control was associated with increased self-confidence and safety orientation. Research from the aviation industry has indicated that risk perception may be the mediating factor of locus of control and safety operation behaviours (You, Ji & Han 2013). From a leadership perspective, the ability to be conscious of one’s actions and mediate behaviour is linked to self-control and “blue zone” thinking. These findings may help address the current gap in safety leadership based upon the absence of any defined behaviours of safety leaders. Self-control could be regarded as a safety leader managing their emotions when leading others.

Locus of control has been a construct that has been around for well over four decades since the seminal work of Rotter (1966). The link between safety and locus of control was demonstrated by Jones and Wuebker (1993). From this study, a statistically significant link was established that showed hospital workers with an external locus of control had significantly more accidents and injuries compared to those employees with internal safety attitudes. Since this research, other studies have further validated the importance of having a strong locus of control in relation to areas of work, health and safety. A concise summary of the seminal work in this area can be sourced through the meta-analysis conducted by Wang, Bowling and Eschleman (2010). These researchers investigated common linkages between work and locus of control. Key themes and findings from this meta-analysis included:

- Individuals with an internal locus of control have been shown to have better work outcomes. This has been linked to a strong relationship between job satisfaction and organisational commitment.
- Locus of control is positively correlated towards life satisfaction and levels of burnout.
- General personality measures into locus of control acted as a strong predictor towards work-related outcomes.

Through this meta-analysis, the medium of work could have an impact upon the choices an individual makes towards safety and leadership. This was further reinforced through the Findings from De Hoogh and Hartog (2009) that stated that neuroticism and locus of control mediated leadership behaviour and levels of burnout. Further to this, charisma was associated with lower levels of burnout. Given that the construction industry operates within a temporary environment and project managers are faced with multiple demands in relation to project timelines and fiscal constraints, the possibility of burnout may start to emerge. Previously cited research from Toor and Ofori (2008) outlined the predilection of leaders within construction projects to operate in a transactional way when dealing with employees. The mediating factor of locus of control can minimise burnout in an individual while enhancing the focus on leadership. Further research into locus of control and self-awareness can start to build the definition and behaviours of safety leaders which is an area that is minimally investigated (Zanko & Dawson 2012).

Within the rich reservoir of third-generational leadership is the inclusion of accountability and ownership. How this translates to safety can be evidenced through one being proactive in safety efforts and taking responsibility for one’s actions. It has been put forward that ownership comes from the efforts of labour that are underpinned by responsibility (Palamar, Le & Friedman 2012). Further to this, responsibility was linked to the intent of the agent. Within this study’s research context, the agent may be classified as the leader of an organisation. From a safety context, the responsibility of one’s own safety can be a galvanising factor when considering the advantages of health and wellbeing. One measurement of this can be through the reporting of incidents within the workplace and how the leaders of a project or company encouraged this. Incident reporting and other overt measurements were not referenced as specific actions of safety leaders within the work of Read et al. (2010) or Lu and Yang (2010). Alternatively, the likelihood of employees to report incidents was the measured impact of safety leadership.

In a study investigating the reporting culture within a healthcare environment, it was posited that frontline clinicians remain the pivotal agents in enacting and enabling incident reporting (Hor et al. 2010). These comments have merit when considering that each worker or leader in
a company is the core stakeholder in reporting safety incidents or enabling one’s safety on a project. Other key findings from this research indicated that accountability has multiple conceptualisations and that the reporting system is interwoven with local enactments of accountability. This was demonstrated through ethnographic data and examples where senior doctors were communicating to the teams the impact and consequences of failing to report patient incidents. From a safety leader paradigm, this can be the equivalent of a project manager detailing the consequences of not reporting safety incidents on a construction site to the client. Through accountability and responsibility, the elements of an internal locus on control are strengthened and can evidently make up the core ethos and character traits of a safety leader. Further ingredients that make up a safety leader may be garnered through the vast array of empirical data targeted around transformational leadership.

2.5.2 Transformational Leadership
The paradigm into transformational leadership has been dominant in the literature over the last twenty-five years and its practical offshoot has had a beneficial effect on employees and an organisation’s performance (Judge & Piccolo 2004). Transformational leadership is often defined as the actions of a leader who inspires others towards a commitment of larger group goals (Hamstra et al. 2014). From a safety paradigm, the larger group goal could be the absence of injury or harm within the workplace. The markers of a transformational leader range from the articulation of strongly held beliefs to an overall commitment to the organisation (Bass & Bass 2009). In some instances, the components of transformational leadership have been carried over to incorporate safety leadership and have been rebranded as Safety Specific Transformational Leadership (Mullen & Kelloway 2009). It was further outlined by Mullen and Kelloway that there is a considerable lack of transformational based leadership interventions targeted towards safety within the leadership literature. This gap will be addressed through this research in light of other leadership concepts that will flow into a theoretical model. Advancements in technology have further outlined the merits of transformational leadership through the mapping of neural activity.

In the midst of the technological revolution, neurological imaging was able to distinguish between transformational and non-transformational leaders (Balthazard et al. 2012). It was indicated that the frontal and temporal lobes are likely to be significant predictors of effective leadership behaviours based upon the role of cognition (Balthazard et al. 2012). The neuropsychology links of transformational leadership may cross over to the other notable
works in the field by such pioneers as Rock (2008), who tapped into biological elements of influence through organic linkages to cues of influence. These cues of influence were based upon status, certainty, autonomy, relatedness and fairness (SCARF) that have been the ethos of the neuropsychology model of leadership. Even with the emerging evidence of leadership and neuropsychology, it is important to recognise the wider range of behaviours that are complex and may not succinctly be pinpointed towards one discrete location within the brain (Cacioppo et al. 2003). These sentiments are more recently echoed by Lindebaum and Zindel (2013), who stated that establishing “good leadership” into a brain model is reductionist and runs the danger of forming organisational policy prematurely without due consideration of social sciences. Applying this stance into safety leadership may also run the risk of safety leaders focusing on end outcomes without considering employee relationships or the greater environment. The work completed into neuro-leadership can form the background science for leaders to influence employees. This study will consider general leadership when further developing the safety leadership core attributes and behaviours. The importance of safety management systems, as detailed by Cheng, Ryan and Kelly (2011), may shape the safety leader’s ability to influence others.

It has been shown through exploratory research that the concept of transformational leadership within a project environment is countered by environmental uncertainty (Tyssen, Wald & Spieth 2014). Further to this, a recent call to arms into the deeper analysis into the advantages of transactional (task oriented) leadership within project settings was put forward. This was grounded on the proposition that transactional leadership would be more beneficial in goal clarity environments. Within the construction environment, multiple internal and external factors are apparent which can shift goal posts and make the future uncertain. As a result, this study will continue to focus and incorporate transformational leadership characteristics on account of such project uncertainties and how that translates into safety leadership behaviours.

A look at temporary work environments has highlighted that both transactional and transformational leadership can be present within a project (Barber & Warn 2005). It was recommended that project managers need to utilise transformational leadership in order to guide team members with passion. A by-product of transformational leadership is trust, which can be a core ingredient of safety leadership owing to the tasks of incident reporting and the sharing of safety concerns.
The important role that transformational leadership plays in enhancing team performance and job satisfaction was found to be mediated by trust within team members and supervisors (Braun et al. 2013). Leaders who demonstrate honesty and transparency have been shown to generate a culture of trust and openness (Conchie, Taylor & Charlton 2011). This in turn, increases the chances of safety incidents being reported by employees. As a future indicator it was highlighted that transformational leadership training should be undertaken to sensitise leaders to the merits of positive leadership skills and the importance of building trust. Safety leadership that envelops the core components of transformational leadership can develop an increase in employee voiced behaviour that is manifested in challenges to the status quo (Liu, Zhu & Yang 2010). Increased voiced behaviour may explain the generic definition of safety leadership provided by Cooper (2015) who stated that “discretionary safety efforts” that add safety value, help define safety leadership. Further exploration of such safety leadership behaviours and the elements of trust remain limited.

The work of Kouzes and Posner (2007) echoed the importance of effective leadership in encouraging employees to challenge the status quo. This was matched with the benefits of being value driven, creating a vision and encouraging the heart. The ability to challenge the status quo can be linked back to an individual’s ability to speak up. Research of Liu, Zhu and Yang (2010) outlined that the markers of voice behaviour include speaking out (voice towards peers) and speaking up (voice toward supervisor). Specifically, speaking out or speaking up were moderated through the dual importance of social and personal identification with the supervisor. Safety leadership may therefore have a basis within social identification that allows employees to raise safety concerns. Such a correlation of social identification and the raising of safety concerns links in well with the Safety Specific Transformational Leadership framework detailed by Mullen and Kelloway (2009). How this can be achieved by safety leaders remains absent and warrants further exploration.

The impact that transformational leadership has on voice behaviour could be demonstrated through the channels of open communication and perceived organisational support. The longevity of such a leadership style will need to be interspersed with daily conversations that engage employees and mediate self-efficacy and optimism, which can correlate to daily employee engagement (Tims, Bakker & Xanthopoulou 2011). Within the safety leadership paradigm, a vehicle for such conversations can be through daily meetings, safety interactions.
or management walk-throughs. Such safety behaviours need to be validated and explored to check for accuracy and relevance.

The importance of leadership and its links to safety can be outlined through the notion of care reasoning (Simola, Barling & Turner 2012). Three different levels of care reasoning have been outlined. The first care model starts with a focus on self, then others at the expense of self and lastly caring for one’s self and others (Simola, Barling & Turner 2012). Further to this, transactional leadership may exist within the foundations of justice reasoning while transformational leadership is indicative through the higher elements of care reasoning. Through an environment of care, the ethical climate of employees is mediated via authentic transformational leadership (Zhu et al. 2011). When comparing these results with the defining factors of safety leadership, the importance of empathy and care may prove to be pivotal.

2.5.3 Authentic Leadership
A recent spike in the literature pertaining to authentic leadership has become more prominent over the last decade (Gardner et al. 2010). A strong internal locus of control requires self-regulation and self-awareness, which could be considered variables to safety leadership. Some early pioneering work by Kernis and Goldman (2006) outlined that authenticity is encompassed by such awareness, unbiased processing and relational orientation. The orientation towards interpersonal relationships and deep self-understanding can create the structure of strong organisational policy that is nurturing towards safety and the reporting of safety incidents. Authentic leadership that promotes a commitment to safety has shown to increase an employee’s overall commitment to safety (Toor & Ofori 2008). Embracing the core elements of transformational and authentic leadership can stimulate the theoretical model of safety leadership. A meta-analysis of the empirical findings of over ninety-one publications into authentic leadership has been reviewed (Gardner et al. 2011). The summary of antecedents, outcomes and mediators of authentic leadership detailed the following:

- Leader outcomes of authentic leadership include contingent self-esteem, heightened ethics, positive modelling, increased psychological wellbeing, idealised influence and inspirational motivation.

- Impacts upon followers include reduced burnout, increased empowerment, identification with the supervisor, enhanced job satisfaction and motivation, development of trust, and supportive team work.
The summary of findings from Gardner and his colleagues indicated the growing empirical research that transposes over transformational leadership and synthesises into safety leadership. An example of this relevance can be shown through the work of Wu, Chen and Li (2008), who linked safety leadership with caring and commitment. Explicit details and actions of the safety leader still remained absent. Sometimes the notions of leadership can be glossed over through broad descriptions that may not be behavioural based or observable. To give context to the notion of authentic leadership, a life-stories approach was developed by Shamir and Eilam (2005), which is a research methodology often deployed by anthropologists. Leaders within Shamir and Eilam’s study made comments about authentic leadership, which tapped into factors of self-identity, self-realisation and an honest self-assessment. Applying these foundations to safety leadership in a finite time span was demonstrated by the work of Conchie, Moon and Duncan (2013). It was detailed that each conversation that a leader has that is firstly directed around safety and then production will quickly shift the importance of safety within the project. If the leader is genuine and honest, these comments would carry more authority. Linkages between authentic leadership and safety can start to be formulated around the importance of trust.

The importance of trust and sustaining motivation via authentic leadership was outlined by Walumbwa, Christensen and Hailey (2011). Findings showed that within the knowledge economy, where information is readily available, the truthfulness of information becomes paramount. An internalised moral perspective is the catalyst for an authentic leader to be transparent, and whose values are aligned with the organisation. Within the space of a safety leader and the goal of zero incidents, the belief and moral alignment with such goals will influence the behaviours of employees. This link can be further examined when looking at the psychology of employee behaviours as a result of authentic leadership as well as the reoccurring theme of trust.

The mapping of authentic leadership across follower behaviour was shown to be consistent with a climate of procedural justice and strengthened work relationships that moderated voiced behaviour (Hsiung 2012). The work of Hsiung also identified that voice behaviour is a manifestation of authentic leadership and such leaders are most capable of spreading positive affective states through positive social exchanges. Such a leadership style has also been shown to increase organisational citizenship behaviour and work engagement (Walumbwa et al. 2010). Through identification with the leader, an individual is more likely to follow...
through with requests and demonstrate the desired behaviours. From a practical level, Kouzes and Posner (2007) detailed that this can be achieved by sharing stories that outline your personal values, animated promotion of the company vision as well as challenging team members to reject the status quo. Given the limited research into safety leadership, these findings can help to demonstrate the importance of leaders creating a trusting environment in order for employees to raise safety concerns. Safety leadership behaviours can create the environment of a robust safety culture. A lasting impact on safety culture can be influenced by the leadership behaviours between all key stakeholders on a project (Fang & Wu 2013) which can be further maximised by incorporating the factor of trust.

In a recent study, the impact of authentic leadership upon innovation and creativity was found to be strongly mediated by the perception of support towards innovation (Cerne, Jaklic & Skerlavaj 2013). A direct influence over a team member’s individual creativity was also noted. This study was conducted within a manufacturing business, where innovation may not be as apparent compared to information technology or business development professions. Similarly, different approaches towards safety may be based within the conservative paradigm. The influence that a safety leader has upon an organisation may create a shift in employees’ voiced behaviour and the way that safety is approached.

Authentic leadership can generate a series of behaviours that promote safety leadership. This may be due to the synergy between voiced behaviour and increased social exchange constituting the peak of employees speaking out against unsafe working conditions. The connection between authentic leadership and risk perception within a safety climate was investigated through the work of Nielson et al. (2013). The authors demonstrated that authentic leaders can have a direct influence on risk perception by positively influencing employees’ understanding of safety issues and motivation to follow safety procedures. The key mediating factor influencing risk perception was found to be safety climate with authentic leadership being a moderating element. By further detailing safety leadership in light of an organisation’s safety culture or safety climate, the moral and ethical enhancement of improving safety can be eventuated. This becomes a distinguishing factor in the pursuit of corporate social responsibility.

The ability to operate within a strong frame of ethics and responsibility is when the authentic leader comes to the foreground. In an adjunct to this, a safety leader should act ethically in
order to influence team members, matched with self-awareness, trust and transparency. The ability to inspire and engage team members as a safety leader, may call for the foundations of charismatic leadership to be brought to fruition.

2.5.4 Charismatic Leadership
Within a safety context, charismatic leadership can be the conduit that endears a workforce towards a safety vision and creates a sense of purpose. Through the branches of transformational and authentic leadership, a charismatic leader may have characteristics which include goal articulation, high expectations, and emphasis on the collective and an inspiring vision (House & Shamir 1993). These traits are then turned into effective follower performance and positive follower attitudes (Barling, Weber & Kelloway 1996). Existing literature suggests that charismatic leadership may be precipitated by a crisis or a time of distress (Trice & Beyer 1986). Adding to this is the notion that a crisis may be a facilitating but unnecessary requirement for charismatic leadership to emerge (Halverson, Murphy & Riggio 2004). From a safety leadership perspective, a crisis could be anything that relates to the potential to cause harm or injury. As a result, the transition of a crisis that becomes an antecedent for charismatic leadership can also serve as the stimulus for safety leadership. Responding to workplace incidents post-injury would fit into the “red zone” thinking that was posited by Long (2013) on account of the reactive nature of the scenario. The application of charismatic leadership to safety leadership could be based upon the activities that prevent an injury or incident.

Research from Davis and Gardner (2012) revisited charismatic leadership under crisis through leader rhetoric that formulated part of charismatic leadership. Findings from this research were sourced from reviewing numerous speeches following the 9/11 tragedy and the Hurricane Katrina natural disaster in North America. Comments from such tragedies could be transposed against comments from work-related safety tragedies or incidents. Findings outlined the following:

- Constructs of charismatic rhetoric were more prevalent after the tragedy, and included such characteristics as a collective focus, temporal orientation, followers’ worth, similarity to followers, values and moral justifications, tangibility, action and adversity.
• Other common rhetoric that is based upon similarity to followers included information relating to children, family, friends, parents and relatives. These key life drivers are often used when discussing the reasons why someone chooses to be safe.

Safety incidents that occur within construction projects vary from level one (minor treatment) to level five (potential fatality). Based upon the above characteristics of a crisis, charismatic leadership can be the key driver to minimising injuries on a construction project while leading with safety. The charismatic leadership rhetoric established around the similarity to followers can be a leveraging tool when driving the value of safety and its flow-on benefits to friends and relatives. Arising out of charismatic leadership is the ability for the leader to influence or even pressure team members to conform. If applied to a safety leadership paradigm, this could promote transformational behaviours from the individual and thus lead to group goal attainment (Hamstra et al. 2014). The lasting result from the safety leader could be that safety requirements conform on a construction project.

The work undertaken by Samnani and Singh (2013) illustrated the negative side of charismatic leadership through the use of influence to facilitate group pressure to conform. Through the use of personal charm, attractiveness and persuasive communication, charismatic leaders may inspire an articulated vision. It was hypothesised by Samnani and Singh that personalised charismatic leadership will be associated with stronger group pressures to conform when the target’s confusion about the behaviour is high. Unless moderated effectively, it was shown by Samnani and Singh that charismatic leadership can lead to a pathway of victimisation by shaping how group members behave towards a target. The application of their findings can be integrated towards voiced safety and safety leadership through group pressure. Applying group pressure for individuals to speak out against unsafe behaviours can create a safety climate that is focused on addressing safety concerns and achieving the goal of zero incidents (Liu, Zhu & Yang 2010). When blended with general leadership, the intent and actions of the safety leader will act as a moral compass and minimise the factors of victimisation to which Samnani and Singh allude.

When a call for change arises towards safety, there may be resistance. Charismatic leadership can be the change agent that can reduce someone’s resistance to change, which may be amplified in a state of crisis (Levay 2010). Secondly, Levay also found that charismatic leadership can be utilised to uphold the status quo in scenarios where change is needed. These
results indicated the prominent role that charismatic leadership plays when implementing organisational change. If managed well, the charismatic leader can lead the team into change or solidify a grounded position. Both of these findings can be effective within a safety leadership setting. This can be demonstrated through upholding effective safety management systems or calling upon a need for change to reinforce safety within a project. Given the temporary environment in which construction projects operate, the demonstration of charismatic leadership could prove appropriate within the operating environment. The long-term effects of charismatic leadership on an organisation’s culture can add to the subset of charismatic behaviours being included in the proposed RAVE safety leadership model. Safety leadership may then become the marker for change when resistance is present. Further support could be based upon the work from Lu and Yang (2010), who outlined the importance of safety motivation as a component of safety leadership.

Recent research conducted by Wilderom, van den Berg and Wiersma (2012) investigated the longevity effects of charismatic leadership on organisational culture and corporate performance. From this longitudinal study, it was revealed that culture and charisma were significantly related to perceived performance, and there was an interrelationship between culture and charisma. More specifically, charismatic leadership was found to increase financial performance. It was noted that other external variables could be influencing the fiscal performance of the company, although charismatic leadership was key. Within a safety leadership framework, if charismatic leadership is incorporated into the safety arena, one may expect an increase in safety performance. No further research exists to support or disparage the impact of charismatic leadership within the safety discipline.

The personality of team members can be an influencing variable when charismatic leadership is in use. Ehrhart and Klein (2001) revealed that followers differ in their attraction to charismatic and other leaders. If the team member is aligned with the charismatic leader, it was suggested that the individual would want to work for that leader, be satisfied working for that leader and perform effectively under supervision. The role that charisma plays in this interplay includes the leader mediating high performance expectations, articulating a value-based vision and taking calculated risks. Safety leadership could be the overarching pathway in catering for different personalities and unifying a group through a shared safety vision. The pathway to enhancing safety leadership through safety communication and rhetoric can create
a platform for enhanced leader-member exchange. Leader-member exchange is often defined as the quality of the supervisor/employee relationship (Volmer, Spurk & Niessen 2012).

2.5.5 Leader Member Exchange

Strong supervisor to employee relationships can be the foundation of leader-member exchange (LMX). The quality of such relationships has been shown to strongly influence employees’ satisfaction in interpersonal, group and organisational contexts (Mueller & Lee 2002). The role that leader/member exchange has within safety has been highlighted through the work by Hofmann and Morgeson (1999). Results from their study showed that upward safety communication between team members and their supervisor can be related to adverse safety events. In follow-up research by Kath, Marks and Ranney (2010), it was further described that the factors that influence leader-member exchange within the safety sphere included perceived management attitudes towards safety, and job demands interfering with safety. In order to heighten leader-member exchange within a company, it was suggested that a focus towards building a safety environment be pursued. These findings emphasise the importance of the relationship being built between an employee and their line manager. Defining safety leadership may therefore be built around the importance of relationships, which has been shown to be a mediator of trust for voiced safety behaviour (Hsiung 2012).

The LMX relationship can have a parallel impact upon culture through the concept of perceived organisational support (POS). The importance and prevalence of LMX and its influence on POS has been shown to mitigate factors of bullying and harassment, which in turn strengthens wellbeing (Nelson et al. 2014). Wellbeing can be a term that can be synonymous with safety and therefore used interchangeably within the safety leadership context. Additional research has shown the link between the strength of supervisor/subordinate relationships and POS being positively correlated with the psychological wellbeing of employees (Xerri, Nelson & Brunetto 2014). These findings voiced the importance of the employees’ connection with the organisation compared to the relationship with their supervisor. The foundations of safety leadership can therefore be built upon the quality of the worker/supervisor relationship, which then acts as a moderator towards perceived organisational support.

Through the examination of the antecedents and consequences of leader/member exchange, the applicability towards the theoretical and behavioural concepts of safety leadership can be
applied. In a review of over 247 studies detailing the elements of leader/member exchange, twenty-one antecedents and sixteen consequences of leader/member exchange were highlighted (Dulebohn et al. 2012). The leader/member exchange framework developed by Dulebohn and his colleagues is detailed in Figure 2.5.

**Figure 2.5: Leader-Member Exchange Antecedents and Consequences**
(Source: Dulebohn et al. 2012)

The antecedents generated from this research tap into the areas of personality, third generational leadership, as well as charismatic and transformational leadership. The
consequences of empowerment and procedural justice can be the impetus to develop an organisational policy that aims to increase safety. This can be orchestrated through the mediating role that a safety leader adds to the leader-member exchange relationship, as prompted by the above antecedents. Safety leadership may therefore be influenced by external factors in the environment and the leader’s own personal characteristics. An awareness of such characteristics link in well with the literature around authentic leadership and having a deep personal awareness in order to assist others (Kernis & Goldman 2006).

An enhancement to organisational policy through the medium of LMX can lead to the strengthening of perceived organisational support. Epitropaki and Martin (2013) stated that team members who have transformational leaders are more inclined to utilise soft and rational upward influence tactics, which is an output of relative leader/member exchange. Such soft techniques can include ingratiation and bargaining. Team members may have to utilise tough upward influence tactics such as assertiveness and coalition for transactional leaders who may be more focused on production. Within the framework of leader/member exchange, the role of influence can be a dyadic relationship for both the leader and the team member. Building an organisational policy driven by safety may entail both tough and gentle influence between all members of an organisation. Orbiting factors of influence aligned to leader-member exchange can include job autonomy and creative work involvement. In consideration to organisational policy and safety management systems, the scope of safety leadership may start to differ from other leadership disciplines. Further empirical exploration can either confirm or negate this notion.

Research from Volmer, Spurk and Niessen (2012) outlined that job autonomy is needed in order to develop an interactional approach towards a creative work environment. The high quality of supervisor and employee relationships fosters creativity. Work involvement is higher when such conditions exist. Extensions from the leader/member exchange model can be targeted around tactics that build alliances such as enhancing skill levels, changing reward systems or recognising those who model effective leader behaviours (Schiemann 2012). These enhancements to leader/member exchange theory have been labelled the “leadership-motivated excellence theory” with a focus on targeting new generational members through team development and effectiveness (Graen & Schiemann 2013). The synergy between leadership-motivated excellence theory and third generational leadership is tightly detailed through building unique alliances via driving alignment, enhanced capabilities and
engagement. Graen and Schiemann outlined that their conceptual model is unique to the grounding elements of leader/member exchange through the following foundations:

- A focus is on enhancing team member opportunities via the achievement of team excellence where traditionally leader/member exchange has focused on the relationship between managers and employees.
- Rewards are contextualised to encourage managers and co-workers to form strong teams and engage in new behaviours.

The above modifications to LMX have a wide array of crossover benefits towards safety leadership, which helps formulate a conceptualised model to safety leadership. With a focus on developing teams and achieving goals, the correlation towards achieving zero incidents and creating safe teams can be achieved. The relationship between leaders and team members can run parallel to safety and wellbeing. In contrast, inequitable treatment can adversely impact job satisfaction and group harmony (Hooper & Martin 2008). Wellbeing and safety can be synonymous terms, with upward communication being the vehicle of trust. While the literature is greatly slanted towards the leader’s role within the leader/member exchange transaction, some emerging research outlines the role of the team member. This has broken out to the field of followership.

A follower can refer to someone that holds a position of lesser responsibility relative to their position in the organisational hierarchy. Arising from third generational leadership that encourages empowerment and responsibility is the argument towards transcendent followership (Cunha et al. 2013). From this research, a marker of such followership is someone who expresses competence in terms of their management of themselves and self-awareness of their interactions. The impact on organisational policy can be the creation of a sustainable organisation where leader-member exchange is reciprocated through degrees of self-awareness and candour. If followers are emotionally masking their true feelings to their leader, it has been shown to negatively impact upon the leader-member exchange (Xu, Liu & Guo 2012). When applying these findings to the safety leadership paradigm, employees not expressing their feelings may lead to the acceptance of ineffective safety processes or systems. As a result, an employee may be placed at risk which starts to highlight the importance of safety leadership in developing a robust safety culture (Read et al. 2010). The
empirical findings of leader-member exchange streamline effectively into the research surrounding leadership and organisational safety policy.

2.5.6 Leadership and Organisational Safety Policy
The role that leadership plays in an organisation has a significant influence on employee engagement and organisational culture (Krause 2005). A lasting legacy of leadership can be based upon organisational policy that is created and implemented during a leader’s tenure within a company. It has been detailed that the role of leadership in formulating policy is a unique challenge that involves the engagement of key stakeholders who may be engrossed in their own historical and organisational context (Oborn, Barrett & Dawson 2013). Further to this, it was commented by Oborn and his colleagues that policy implementation requires the rigours of legislation, finance and politics. These rigours were addressed via the benefits of distributive leadership and how it aids policy formulation through effective consultation. This is undertaken prior to organisational policy being centralised as a core mandate. From a safety paradigm, this can be aided through safety governance within the Australian legislation framework. Craft and Howlett (2012) summarised that policy formulation originates from partisan advice that tends to be political or technical in nature and is influenced by the location of policy makers. An outcome of this historical approach was deemed to generate the ‘political v. administrative’ predicament. When applied to a safety dimension, the administrative side of undertaking work may distract individuals from utilising their own resources to assess risk. The role that safety leadership plays could be linked with the consultative approach in developing policy and the review of organisational governance.

Organisational culture can have an influence on policy formulation and employee attitudes (Mullins 2004). Whether organisational policy is going to be accepted may be heavily influenced by organisational culture and different management systems in which leadership plays an integral part (Pors 2008). Culture may be defined as the collection of traditions, beliefs, attitudes and processes that dictate each person’s way of thinking and behaving in an organisational environment (McLean & Marshall 1993). The importance placed upon organisational safety policy may therefore be driven by leadership and the culture of an organisation. The safety focus set by leaders can influence the safety culture of a company (Krause 2005), which differs from overall culture due to the aspects of safety and safety management systems and behaviours.
When evaluating the effectiveness of safety policy, its fundamentals can be traced to behaviours that are typical of the leadership styles that constitute a model of safety leadership. Continuity is needed in the role that the leader plays in developing organisational policy, governing such policies and reviewing the effectiveness and applicability of existing and emerging policies. The role that safety leadership plays can be integral when developing long lasting safety policies that will govern future worker behaviour and be institutionalised as best practice.

2.5.7 Research Question Two (RQ2)
The leadership components and behaviours detailed under general leadership are not wholly safety specific but do carry transferable applicability. To distinguish the difference between safety leadership and general leadership, a breakdown of specific behaviours is needed. Current gaps in the literature highlight the lack of definition behind safety leadership which therefore makes the modelling of safety leadership behaviours challenging. Examples were shown of effective leadership behaviours based upon the general leadership disciplines, although their detailed application towards safety is absent. Through an understanding of how safety leadership can be demonstrated, the positive impact can flow into a strengthened safety culture, reduced incidents and improved efficiencies. With this justification in mind and the current gap in research, the formation of research question two has been formulated:

**Research Q2: How is Safety Leadership demonstrated by Safety Leaders?**

By ascertaining specific examples of safety leadership, this concept can then be transferred to the behavioural as opposed to the visionary or hypothetical elements of general leadership. The detailing of specific behaviours can assist with the measurement and accountability of specific leadership behaviours that senior leaders exhibit. The identification of such safety leadership behaviours can be an extension of the parent discipline of safety.

2.6 Proposed Model of Safety Leadership

Emerging from the literature is this study’s proposed model towards safety leadership that is centred upon the pillars of Relationships, Authenticity, Vision and Engagement (RAVE) that have been driven by the discussed general leadership studies. Common aspects of the literature have been brought together to empirically support this framework. From these elements, everything has been underpinned through the domain of safety, and each component of the RAVE model has sub points to achieve that outcome.
2.6.1 Relationships
Relationships defined through the RAVE model incorporate the worker/manager relationship via sub elements that allow the safety relationship to thrive. Relationships can therefore be seen as the outcome of the behaviours exercised to achieve this end point. The sub elements of relationships include leader-member exchange, assertiveness, social identification and similarity. The importance of relationships within the RAVE model will be based within the leader-member exchange paradigm and the importance of tapping into the social capital of work groups and influencing employees’ satisfaction (Koh & Rowlinson 2012; Mueller & Lee 2002). This is coupled with the compliance requirements of management safety systems, which can be executed through assertiveness from the safety leader. Assertiveness was specified as a core element for team members when conversing with transactional employees (Epitropaki & Martin 2013) as well as a vital tool for effective communication (Scott 2004).

The importance of persuasion can be shown through the identification of shared working goals, which can help establish a relationship of trust (Vlachoutsicos 2011). Trust can be developed through similarity of interests and goals as well as social identification of common activities. It is expected that the development of rapport can be the key to developing a relationship that will later flow through to the other components of the RAVE model (Kouzes & Posner 2007). The research behind the importance of social identification and similarity was governed by the research covered under charismatic leadership (Ehrhart & Klein 2001).

The importance of safety leadership and relationships can be warranted through the development and validation of a psychological contract towards safety. A psychological safety contract is defined as an individual believing that employer and employee safety obligations are contingent upon each other (Walker 2010). The validation of such a cognitive contract was based upon transactional obligations developed through an obligation scale. This scale included measurements such as following safety rules, not taking shortcuts and raising safety concerns. Through reciprocity, the psychological contract of safety can be strengthened through direct application towards safety leadership. When safety leadership is applied and demonstrated, the reciprocal effect may shape the safety culture of a project and enhance safety relationships.

2.6.2 Authenticity
The RAVE component of Authenticity has the foundations of authentic and third-generational leadership embedded through it. Authenticity as an element of this proposed...
model is defined as the personal attribute of the safety leader that comprises accountability, personal awareness and transparency, with these outcomes leading to enhanced trust.

A focus on personal accountability towards safety is expected to reflect a strong internal locus of control (Palamar, Le & Friedman 2012). This can therefore influence others towards taking ownership towards their safety from a systems and personal point of view (Joseph, Reddy & Sharma 2013). The markers of an effective safety culture are expected to be demonstrated through the facets of transparency and trust (Toor & Ofori 2008). To set this as the modus operandi, a safety leader must be forthcoming with information and transparent in all of their actions within their environment. A by-product of this is to share a culture of learning which can be best demonstrated by recognising personal cognitive biases, strengths and weaknesses (Leary and Tangle 2003).

Through self-awareness, it is expected that safety leaders can maximise their influence and lead others towards the main goal of working within a safe environment or a workplace free of injury. A review of the literature outlined that sharing one’s own shortcomings can be the vehicle of transparency while modelling authenticity (Shamir and Eilam 2005). From a behavioural perspective, the identification of safety shortcomings can act as an antecedent for colleagues to focus on specific behaviours while that person is working within the working interface (Krause 2005).

2.6.3 Vision
The Vision component of the proposed RAVE model is established upon the premise of safety leaders possessing a safety vision that they convey clearly to employees. This is made up of the sub elements of a clear vision, commitment and suitable rhetoric. The importance of a vision has been linked to achieving main goals and aligning employees (Kouzes & Posner 2007; Long 2013; House & Shamir 1993).

When an incident occurs within an organisation, this may be the kind of crisis that motivates charismatic leadership by the setting of a new goal or vision for the future (Halverson, Murphy & Riggio 2004). Specifically, within a safety leadership paradigm, it may be the kind of language utilised or the rhetoric that captures the attention of workers (Davis & Gardner 2012). Inspiring team members may be fostered through expressive language and commitment to the cause. A commitment to safety can be expressed through a clear vision,
which is often pivotal within transformational and third generational leadership (Long 2012a).

2.6.4 Engagement
One of the core components of the RAVE model has been based upon Engagement. Under the proposed RAVE model, Engagement is defined as the overall outcome or behaviour comprising communication, openness and distribution of justice. Without meaningful engagement, it is expected that safety issues and concerns will decline, while organisational trust would be jeopardised (Cunliffe & Eriksen 2011). It has been shown that the tenets of behavioural-based safety through safety interactions can strengthen employer/employee relationships and improve communication (Gellar, 2001). Engagement driven by open and honest communication may build capital trust between the safety leader and team member (Lapierre, Naidoo & Bonaccio 2012). It is theorised that equality and consistency with safety management systems will lead into effective engagement and interaction between key stakeholders through an emphasis on feedback and learning systems (Hale et al. 2010).

Through openness to new ideas, it is forecast that the incorporation of feedback can strengthen a relationship and therefore improve a discourse into safety. In order for relationships to be built around safety, safety leaders will need to be present and accessible to their team members and colleagues. Without face-to-face presence, it is forecast that relationships will not be as strong or solidified (Cunliffe & Eriksen 2011).

When there is equity and a fair distribution of justice in place, it has been shown that employees are more likely to speak out and that the ethical environment is conducive to increased engagement (Hsiung 2012; Zhu et al. 2011). These findings have parallel importance to safety leadership. It is forecast that if a safety leader demonstrates fairness, it may increase the likelihood of workers speaking out against unsafe acts or behaviours. A visual representation of the RAVE model has been represented in Figure 2.6.
Figure 2.6: Proposed RAVE Safety Leadership Model

(Source: Developed for this research)

**Relationships:**
Importance of social interactions and development of trust: (Kouzes & Posner 2007)
- **Similarity:** Social identification via shared interests and goals (Vlachoutsicos 2011; Ehrhart & Klein 2001)
- **Leader-member exchange:** Identification of social capital within the team and leader’s influence on employee satisfaction (Koh & Rowlinson 2012; Mueller & Lee 2002)
- **Assertiveness:** Ability to establish boundaries with others (Epitropaki & Martin 2013; Scott 2004)

**Authenticity:** Unbiased processing and awareness of one’s self in relation to others (Kernis & Goldman 2006)
- **Personal awareness:** Honest self-assessment and self-realisation (Shamir & Eilam 2005)
- **Transparency:** Being open with one’s own shortcomings and biases (Leary & Tangley 2003)
- **Personal accountability:** Commitment towards safety and ownership (Toor & Ofori 2008; Palamar, Le & Friedman 2012)

**Engagement:** Leadership interaction with colleagues that is genuine (Cunliffe & Eriksen 2011).
- **Communication:** Open and honest sharing of information (Scott 2004; Hashim & Chileshe 2012)
- **Openness:** Ability to adopt new ideas and implement new suggestions (Lapierre, Naidoo & Bonaccio 2012)
- **Distribution of justice:** Fairness and equity based upon speaking out and delegation of tasks (Hsiung 2012; Zhu et al. 2011)

**Vision:** Detailing a desired state and pathway forward (Long 2013; Kouzes & Posner 2007)
- **Clear Vision:** Alignment of expectations and communication of expected goals (House & Shamir 1993; Halverson, Murphy & Riggio 2004)
- **Commitment:** Following through with detailed actions and displaying leadership motivation (Vinodkumar & Bhasi 2010)
- **Rhetoric:** Persuasive use of language to help influence others (Davis & Gardner 2012; Levay 2010)

Safety Leadership
With research being taken into account from both parent disciplines, the scope of safety leadership through the RAVE model can be tested for applicability and validity which links into the final research question.

2.6.5 Research Question Three (RQ3)
A synthesis of the literature has been grouped to develop the proposed RAVE model of safety leadership. With empirical research into safety leadership being undeveloped, the applicability of the RAVE model to the Australian construction industry needs validating. From this, the last research question has been developed:

*Research Q3: Does the proposed RAVE conceptualised model accurately encompass the core behaviours of safety leadership?*

Through a crosscheck with current leaders, further theoretical development or refinement can occur with the proposed RAVE model. All of the research undertaken will be based within its current timeframe with external factors influencing the current internal operating environment.

2.7 Contextual Background
Overarching macro-environmental factors can influence the scope of research and embed it within a time period that will reveal its juncture in time. The scope of this research into safety leadership will be based in the resources sector within Australia, specifically work within the construction environment. Construction work is often ephemeral in nature and brings along its unique combination of challenges and nuances, which include tight time frames or budget constraints (Fang and Wu 2013). To understand safety leadership, it is prudent to understand the framework that it will be investigated within. The main reason for this is to contextualise the results within the current point in time. A review of the project construction environment within its present timeframe will be undertaken through a PEST analysis.

2.7.1 Construction Projects within Australia
Over the last decade the resources boom within Australia has accelerated employment within a range of hazardous environments across numerous different projects (Garnett 2012). Australia has experienced a sustained period of economic prosperity, which has been driven by record commodity prices and a once-in-a-century mining investment boom (Glynn 2013b). This period of growth appears to be coming to a correction as resource prices are sharply dipping, businesses are finding it harder to obtain funds, and expansion projects are
being deferred (Hewett 2013). This has impacted the construction industry, as a contraction in activity seems to be influenced by employment, selling prices and international activity (Glynn 2013a).

Despite the noted contraction in the industry, other commentators have stated that Australia is entering the third stage of the resources boom, which is focused on exports (Colebatch 2013). It was further outlined by Colebatch (2013) that mineral exports in March 2013 rose by 11% while imports for construction machinery are estimated to fall by 44% year on year. These figures reflect the focus on exports as opposed to construction activities. Other forecasts estimate that the engineering construction industry will plateau as opposed to collapse, with respective yearly drops of 2.5% in 2012–2013, 0.8% 2013–2014 and 0.6% by 2014–2015 (Martin 2013). The current situation indicates that leadership within the construction industry will be exercised under declining conditions after a period of constant growth. In combination with this are the specific challenges in managing multiple construction projects within Australia.

The research of Hashim and Chileshe (2012) investigated the top 22 construction project challenges across various industrial sectors. Results revealed the following:

- Challenges that were rated the highest importance included “commitment and responsibility”, “leading projects”, “planning” and “conflict and communication”.

- Most important challenges were related to aspects of organisational culture, resource allocation and competencies of project managers.

One of the unique characteristics of construction projects can be the location of the project. The challenge of resource allocation can be applied to the factors of the project location. Other associated challenges with location can include the proximity of the work site and home location of the workers (Evaristo & van Fenema 1999).

From the findings of Hashim and Chileshe (2012), it may be surmised that a focus on leadership from a project manager perspective is an emergent need within the construction industry. Interestingly enough, safety was not listed as a potential challenge, and further exploration into safety from a leadership perspective can help set the scene for further analysis. In addition, Toor and Ofori (2008) stated that project managers are more seen as managers as opposed to leaders due to the achievement of short-term goals and their focus on
budgets, schedules and quality. This context sets the stage for the RAVE model to be investigated for safety leadership development.

2.7.2 Political, Environmental, Social, Technological (PEST) Analysis
The construction industry operates within an environment that is influenced by external and internal variables. The features of safety leadership and the influence on employee behaviour will be the focus of this research. However, when considering internal variables, it is also prudent to consider the external variables that interact with an organisation or industry. All elements of the external environment should be considered to ensure effective strategic planning (Mintzberg 1996). This holds true when planning the research methodology and core research questions surrounding safety leadership. A PEST analysis will be undertaken in order to break down the political, economic, social and technological factors influencing safety within the construction industry. By understanding the current external environment, an understanding of the outlying factors influencing safety culture and safety behaviours can be taken into consideration.

2.7.2.1 Political Influences
Within Australia, the two major political parties have a range of policies, which differ widely from such topics as industrial relations and business investment as detailed in The Canberra Times (May 16, 2013, p. 1). The political issues that shape the construction environment include climate change, energy efficiency and international investment.

Increased awareness of climate change and steps towards action have been set up by the United Nations Framework Convention on Climate Change (UNFCCC). With no legally binding agreement in place and in the wake of the global financial crisis, resurgence in climate denial has occurred owing to a collapse of public budgets and rising unemployment (McCright & Dunlap 2011). It has been posited that climate change does not act as an exercise towards corporate social responsibility, but instead is a political issue that involves industries, state agencies and multilateral organisations (Wittneben et al. 2012). How this relates to the construction industry is through prospective facilities and mines that need to be built, and how the end product will contribute to carbon emissions. If there is a slowdown in heavy resource projects on account of carbon taxes, a rolling impact may hit the construction industry.
It was further posited that transformative action into climate change is needed to eliminate the wider business response towards apathy and inertia (Witneben et al. 2012). Future legislative changes towards climate change may influence project costs for the construction industry and how leaders present these changes to the overall workforce. Australia’s carbon emission trade scheme has come under fire since its inception and continues to be modified by the government to appease businesses and other industries (Haijing 2013). In a changing political environment, the eventuality of prospective projects coming to fruition may be in jeopardy as a result of increased operating costs.

The importance that regulation plays with foreign investment and development of resources has been detailed in the work conducted by Ibarzabal (2011). Key findings outlined the following:

- Research has shown that international investment into resource projects is being influenced by the cross-section of independent regulations and external competition.
- Australia has seen stable growth within the natural gas industry, which has been strengthened through the discovery of huge coal seam gas reserves that will transform Australia into one of the top five liquid natural gas exporters in the world.

Regulations and changing foreign investment can influence the industry through capital work, compliance requirements, and leading teams across international subsidiaries. Political variations may start to influence safety management systems which can in turn impact leadership behaviours and the overall safety culture. Changes in political policy may be driven by underlying economic factors.

### 2.7.2.2 Economic Influences

Australia has been in the midst of a resources boom for more than a decade. This has comprised high terms of trade, strong investment and increased resource exports, which may be attributed to the economic rise of Asia (Sheehan & Gregory 2013). Sheehan and Gregory (2013) have commented that the boost in incomes has offset the high Australian dollar. They added that resource investment and terms of trade will fall and the economy will face a deflationary shock. As a result, Sheehan and Gregory (2013) outlined that a sustained policy will be needed to stimulate fiscal investment and to ensure infrastructure investment rises. This has considerable impact on the construction industry due to future project investment.
and the tendering of future projects. These economic variables may influence the vision for a safety leader due to external variables of future prosperity and growth.

Across the globe, commodity prices are formed by the interaction of economic growth and the costs of expanding the supply of commodities (Garnaut 2013). The high resource demand arising from China has resulted in high investment and continued growth that will continue and eventually recede at current levels. To strengthen the views that economic policy needs to be re-evaluated, Garnaut (2013) outlined that continued strong growth in China and around the world is going to be placed in a precarious position. This is particularly true if adequate policies are not adopted to break the link between economic growth and pressure on the environment. The limit of growth may reach a plateau and provide an interesting conundrum due to the number of workers who work fly-in, fly-out (FIFO) rosters and the remote towns that support the resources industry. The resources boom appears to be in a period of consolidation and the economics of continued growth has been deemed unsustainable and therefore the push for economic reform continues to be on the agenda.

The economic factors that influence project performance within a construction project were outlined by Li, Arditi and Wang (2012). Financial costs were outlined to start at the pre-contract phase, which includes conducting market research, exploring financial opportunities, feasibility studies, tendering and administration. Results from this study found the following economic markers that can influence project performance:

- Minimise economic uncertainty of the current environment by making sure that engineering design is complete prior to seeking out bids from contractors.
- Involvement with the contractor in regard to the design of the facility can reduce design flaws and severity of change orders.

Companies are set up to provide services or products while being sustainable and profitable. If economics affects the bottom line of a company, a project manager may be focusing on how to save costs compared to their views on driving safety. This is further credited by the work of Toor and Ofori (2008) that showed project managers are concerned about meeting timelines and keeping to budgets as opposed to the finer points of leadership. Economic concerns may start to generate frugal behaviours based upon the current changes in the economic environment. This may start to generate a cost saving safety culture.
2.7.2.3 Social Influences

The impact of a transient workforce that works within the resources sector on a FIFO basis has been shown to undermine sustainable community development based on economic diversification (Gallegos 2005). The proposed elements of the RAVE model have relationships and engagement as key aspects of a safety leader. The social variables of the environment can play a significant role in establishing leader/member exchange relationships. An example of this is local town populations that may boom overnight due to the intake of workers who then place a burden on local services such as housing costs and the cost of living (Haslam et al. 2008). To cater for these increased costs are the high wages for the workers in the mining industry. This in turn creates a dual economy for residents who may not be working within the resources sector or earning the same wages as their counterparts.

The state of the economy and demand for resources is infiltrating different pillars of society. With a documented skills shortage, an increase in non-resident workers will continue, which will continue the divide between resident and non-resident town populations (McIntosh & Carrington 2011). The social impact of the resources boom was well documented in a study undertaken by Carrington and Pereira (2011). Some of the key findings outlined the following:

- Community support for new projects is strong when there is a 25% or less non-resident workforce, and diminishes quickly for projects planning on recruiting a non-resident workforce in excess of 75%.

- Adequacy of local infrastructure and local services are negatively perceived in regard to FIFO worker requirements, and the overall wellbeing of the community is being put at risk.

There is a government focus to secure the benefits of the mining boom for future generations through regional development on long-term capital expenditures. The social factors facing the resources sector have significant influence upon employee wellbeing and safety. These social variables closely operate alongside the construction project. Their influence may need to be closely considered when considering defining safety leadership and the impact on organisational policy.
The demographics of many construction sites are heavily biased towards men and there are few ethnic minorities or women in site management positions (Styhre 2011). As a result, Styhre argues that the construction industry needs to critically evaluate how to create more balanced leadership positions for women within construction to minimise the masculine ideology. In this research there were a total of two females interviewed out of a sample size of twenty, which is indicative of such findings from Styhre. An investigation into cultural diversity on Australian construction projects indicated a level of comfort with diversity with operators and managers (Loosemore et al. 2010). However, in terms of normalisation, negative issues such as racist joke telling were referenced as an inevitable daily outcome of diversity within the construction industry. Such findings may indicate the maturity of the construction industry and the unique culture that can influence attitudes and behaviours, which leaders need to take into account.

2.7.2.4 Technological Influences
The growth and innovation in technology has infiltrated organisational life and the way we go about our daily activities. Innovation is a core element of the RAVE model, which may need to take into account technological advances within the safety and leadership realms. This could be shown through the utilisation of smart phones, wireless internet or satellite tracking. In this technological revolution, the era of the ‘knowledge economy’ has been coined and refers to knowledge and expertise being the major commodity (Kontoghiorghes, Awbrey & Feurig 2005). Harnessing this information into the safety sphere has given rise to some creative evolutions into typical safety systems and the ability to neurologically track leadership (Re and Macchi 2010). With information being on tap, the recipients of safety leadership may be more receptive than previous generations where communication and technology mediums were limited.

In an investigation into emerging technologies to improve safety within the construction environment, the benefits of game technologies have been found to be beneficial (Guo, et al. 2012). Guo and his colleagues outlined that safety training assists in the prevention of incidents but can be further enhanced through the adoption of virtual technology to emulate the construction environment. When these technologies are combined with safety training, the performance of safety is significantly improved through behavioural modification demonstrated by mock scenarios. These findings were further replicated in a later study conducted by Guo, Li & Li (2013). It was outlined that the three core components of
enhancing safety with the aid of virtual technology include modelling and simulation, the identification of unsafe factors, and safety training. Such advancements in technology can be utilised when developing safety leaders through different modalities.

The information age we live in has been heightened by social media applications such as Twitter and Facebook. As a result, individuals expect a high level of interactivity by businesses (Berthon et al. 2012). Construction companies now operate within an environment where any negative news can spread rapidly. Ineffective safety leadership can therefore quickly become known across multiple platforms and possibly impact the brand of a company (Trainor et al. 2014). Research by van der Meer and Verhoeven (2013) investigated the public framing of crisis situations through the competing forms of social and news media. Some of the key findings of this research showed that in the event of an evolving crisis, social media manifestations play a crucial role in grounding the crisis with real-time information. The construction industry is now operating within an exposed environment. Any misfortunes can be openly voiced and seen by many, compared to the days of yesteryear. This may therefore become an antecedent for the demonstration of correct safety leadership behaviours for the leaders of a project.

2.7.3 Application of the Current Environment to this Research
The mining and minerals boom has created a range of opportunities alongside many challenges. Opportunities can range from domestic job growth to enhanced fiscal rewards for both an organisation and the individual. In contrast, the associated challenges may be based upon the rigours of fly-in, fly-out work (FIFO), production pressures, client demands and maintenance deadlines. As a by-product, the safety and wellbeing of the workforce can be a determining factor on whether a project will be delivered safely and on time. From a humanistic and moral perspective, an increase in injuries may cause a personal impact upon an individual’s wellbeing and the morale of the workforce. Without consideration of the external environment, the analysis of the safety culture may be viewed in isolation. This may create a narrow-minded viewpoint of subsequent safety leadership behaviours.

The emerging challenge is being preventative in mitigating this impact whilst considering the changing scope of the environment. This research will be rooted in its period of time which can be a stronghold for future research that will be influenced by further enhancements and policies provided by the political, economic, social and technological environment.
2.8 Conceptual Framework
With consideration of the parent disciplines, a conceptualised model of safety leadership has been developed. The moderating factors of the external environment can have an outside influence and evolve according to further technological, political, social and economic changes. It is for this reason that a PEST analysis was undertaken to investigate the defining features of this research. The focus of the framework will be measured within the internal operations of a safety culture in the construction environment in conjunction with observable behaviours and the developed research questions.

Further qualitative crosschecking can build upon the research questions and refine them for contextualised use within the construction industry. The conceptual framework has been detailed in Figure 2.7, which has been developed for this research project.
Information shaping the core research questions is based upon the plethora of research within the leadership and safety discipline. A review of the literature has highlighted the lack of definition behind safety leadership and associated behaviours. The safety literature highlights the importance of leadership when establishing a safety culture. An organisational risk exists if safety leadership initiatives are implemented without a validity check or due consideration given to the current operating environment. To mitigate the organisational safety risk, the three core research questions have been developed. By answering the core research questions, the effectiveness of safety leadership can be increased and therefore positively influence safety culture and safety leadership behaviours.

This study will explore behavioural markers that will constitute effective safety leadership in line with the proposed RAVE model. These behaviours will be cross-referenced through qualitative design. Details of safety leadership will be displayed through empirical research and contextualised within the parent disciplines of safety and leadership.
2.9 Issues Pertaining to Safety Leadership and Organisational Application

When applied well, the successful application of leadership on organisational governance can increase accountability, enhance priority setting and performance monitoring (Smith et al. 2012). The impact of organisational policy may be based within the safety environment, which can be ephemeral compared to the overall safety culture. In this research the terms will be used interchangeably, as the core focus will be on answering the research questions relating to safety leadership. The current literature has identified gaps in the conceptualisation of what a safety leader does and the characteristics they possess. The majority of the research into safety leadership is based in general leadership studies where perhaps a more contextualised approach is needed. Without an adequate definition of safety leadership, organisational design implementations and safety initiatives may falter due to a lack of defined parameters.

The importance of safety leadership has been linked to a well performing safety culture. Specific observable behaviours are indistinct except for vague traits such as leading with integrity and trust. A possible challenge with such a loose description is that safety leadership may be spoken with the application of catchphrases without the observable behaviours being demonstrated. Through the conceptual framework, detailed in Figure 2.7, the defining of safety leadership and associated behaviours can help to minimise the organisational risk of incidents or injury. The practical application of safety leadership behaviours that are customised for the project sector can influence the overall safety culture.

The influence of leadership upon an organisation’s culture is pivotal due to the vision being set and the core behaviours being modelled (Gellar 2008; Fang & Wu 2013; Krause 2005). The link between leadership and culture is clear, although current models of safety leadership may not be valid owing to the aspects of safety leadership differing from general leadership models. With the parent discipline of safety being an overarching figure within safety leadership, the incorporation of safety into leadership needs to be applied. With a well-defined and contextualised safety leadership model, further organisational programs centred on the development of a safety leader can be incorporated, evaluated and implemented. The emerging issues and potential impact of safety leadership upon an organisation have been summarised in Table 2.1.
Table 2.1: Safety Leadership Issues and Potential Impact
(Source: Zanko & Dawson 2012, Lu & Yang 2010, Clarke 2013)

<table>
<thead>
<tr>
<th>Safety Leadership Emerging Issue</th>
<th>Potential Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Safety leadership is currently well embedded within the literature of transformational leadership without taking into account the context of safety.</td>
<td>- Myopic focus of the role of safety leadership</td>
</tr>
<tr>
<td></td>
<td>- Negating other relevant areas of leadership that pertain to safety</td>
</tr>
<tr>
<td>2. Specific behaviours of safety leaders have not been detailed, as definitions are more engrained within traits</td>
<td>- Safety leadership becomes a nebulous term that is not quantifiable</td>
</tr>
<tr>
<td></td>
<td>- Similar to zero harm, safety leadership becomes a goal as opposed to a demonstration of behaviours</td>
</tr>
<tr>
<td>3. The application of safety management systems and the discipline of safety seems loosely applied to the role of safety leadership</td>
<td>- The practical application of safety leadership does not merge well with safety management systems</td>
</tr>
<tr>
<td></td>
<td>- Instead of building safety commitment, offshoots of the business may be targeted</td>
</tr>
<tr>
<td>4. The role of power in safety leadership is not well defined in terms of influence and what level of responsibility is needed to become a ‘safety leader’</td>
<td>- Application of safety-leadership programs may be targeted to the wrong audience</td>
</tr>
<tr>
<td></td>
<td>- The view that safety is up to the safety leader may minimise diffusion of responsibility</td>
</tr>
</tbody>
</table>

To resolve the issues and turn them into solutions, the framework of safety leadership will be developed and tested in combination with the devised research questions.

2.10 Conclusion
Out of the expanding literature that pertains to safety and leadership comes the discipline of safety leadership. Safety leadership as a concept has been utilised within applied leadership,
although borrowing from general leadership theories. The construction industry operates within a unique external environment, which is influenced by global commodity prices, natural resources and demand for product. Various researchers have called for further exploration into safety leadership given the influence upon a company’s safety culture. Through the proposed RAVE model, a framework has been set up that can be used to test the role of safety leadership within the project environment. Merging the theoretical with the practical can provide the pathway forward for effective safety leadership.
CHAPTER 3 – RESEARCH METHODOLOGY

3.1. Introduction
This chapter provides an outline of the theoretical issues that underpin the research processes of the present study. The guiding research problem was defined as “What behaviours are evident in successful safety leaders?”, with associated research questions being developed. In consideration for the formulated research questions, this chapter specifically details, describes, discusses and justifies the use of a qualitative (post-positivist) exploratory research design.

The specifics of the chosen research philosophy will be expressed as well as the justification for utilising a qualitative research design as opposed to a positivist research methodology. The parameters surrounding exploratory research will be explored in combination with the data collection technique, sampling and interview design. A description of the procedures undertaken in this study and the data analysis methods utilised will be explained and critiqued. Lastly, this chapter will describe the potential limitations and ethical issues of the research with concluding remarks summarised.

3.2. Interpretivist Social Science
Research is often based in the paradigm or belief system of the personal world view of the researcher, which can guide the methodology of the study (Guba & Lincoln 1994). Emerging from the researcher’s philosophy will be the associated epistemology, ontology and methodology that will drive the research. This section will justify the philosophy of the interpretive social science as the most suited paradigm for this research.

A review of the social science research indicated there are two core types of social science. These archetypes are founded on abstract explanation and empathetic understanding, which is characterised by an understanding of the motives and feelings that guide decisions (Neuman 2011). This has given rise to hermeneutics, which emphasises socially constructed meaning, which can be the pinnacle of interpretivist social science (Angen 2000). This ontology complements the proposed research questions and identified problem area. In order to understand the ingredients that make up an effective safety leader, we will need to account for the experiences and social meanings of the individual. Exploring the participant’s world view will place their current reality within their social context. It is posited that within this
social context, the safety leader shapes their team members’ behaviours and contributes to the overall safety culture. In contrast to this view is the philosophical paradigm that reality is objective and human beings are a product of external forces in a concrete determinate relationship (Morgan & Smircich 1980).

Table 3.1 summarises the basic philosophical assumptions that characterise the subjective-objective debate encapsulating the scope of this research methodology. By undertaking a broad comparison, the noted differences and suitability of the interpretivist and phenomenological research philosophy can be placed into context.

**Table 3.1: Foundations of the Subjective-Objective Debate within Social Science**
(Source: Morgan & Smircich 1980)

<table>
<thead>
<tr>
<th>Core</th>
<th>Subjective approaches to Social Sciences</th>
<th>Objective Approaches to Social Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ontological Assumptions</td>
<td>Reality as a projection of human imagination</td>
<td>Reality as a social construction</td>
</tr>
<tr>
<td>Assumptions about Human Nature</td>
<td>Man as pure spirit, consciousness being</td>
<td>Man as a social constructor, the symbol creator</td>
</tr>
<tr>
<td>Basic Epistemological Stance</td>
<td>To obtain phenomenological insight, revelation</td>
<td>To understand how social reality is created</td>
</tr>
<tr>
<td>Some Favoured Metaphors</td>
<td>Transcendental</td>
<td>Language game, accomplishment, text</td>
</tr>
<tr>
<td>Research Methods</td>
<td>Exploration of pure subjectivity</td>
<td>Hermeneutics</td>
</tr>
</tbody>
</table>
The swing from a subjective to objective approach to social research can portray the overall research methodology of a study. The ontology, which explains that reality is a social construction, ties in with the ontological nature of this research. Therefore, this study supports a subjective approach to social science. Specifically, the research paradigm for this study can be reinforced around an interpretivist/hermeneutics perspective. This perspective was formed on the notion that individuals and groups make sense of the world through their own individual experiences, memories and expectations (Flowers 2009). It has been highlighted by Neuman (2011) that this research paradigm aims to address a series of fundamental questions, which can include:

- What is the basic nature of human beings?
- What constitutes an explanation or theory of social reality?
- What is the ultimate purpose of conducting social scientific research?
- How does one determine whether an explanation is true or false?

The above questions relate to safety leadership through the understanding and exploration of what constitutes an effective safety leader while exploring the behaviours that constitute safety leadership. Leadership can be seen as a process of achieving goals through people (Durban, Dalglish & Miller 2006) and therefore the formulation of social relationships can be shaped by individual variances of attitude, culture, values and behaviours. Safety leadership as an overarching field may be seen as embryonic in terms of empirical integrity. As a result, the explanation of this concept as a social theory directly pertains to the aspects of an interpretivist research paradigm. There are various research paradigms that exist, and all research needs to be set within its philosophical origins. A summary of the different research philosophies has been detailed in Table 3.2.
<table>
<thead>
<tr>
<th></th>
<th>Positivism</th>
<th>Realism</th>
<th>Critical Theory</th>
<th>Interpretivist</th>
<th>Paradigmatic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ontology</strong></td>
<td>Reality is concrete and tangible and assumed to exist. A focus is purely on facts, validity and truth with cause and effect accounting for results to be generalisable</td>
<td>Real structures exist independent of human consciousness, but knowledge is socially created. Triangulation needed</td>
<td>Reality is shaped by history and variables that are political, social, economic and cultural which are embedded over time</td>
<td>Reality is constructed by individuals through their personal beliefs, attitudes and experiences. Multiple realities exist as a result</td>
<td>Reality is based upon outcomes, and interests are built around determining the meaning of things which can be both contextual and generalisable</td>
</tr>
<tr>
<td><strong>Epistemology</strong></td>
<td>Researcher is independent and insular from reality</td>
<td>Modified objectivity, mutual interaction with the researcher and research participants</td>
<td>Findings are value-mediated, where the researcher shares knowledge and social action with participants</td>
<td>Results are created through interactive links between researchers and participants. Shared partnership</td>
<td>Researcher can follow the pillars of objectivity or subjectivity through their own research lens</td>
</tr>
<tr>
<td><strong>Methodology</strong></td>
<td>Quantitative methodology through experiments, surveys and verification of hypotheses</td>
<td>Mixed methods utilised which include interviewing and interpretation through both qualitative and</td>
<td>Dialectical: researcher is a ‘transformative intellectual’ who changes the environment in which participants work within.</td>
<td>Hermeneutical, where the researcher is an active participant with the world being investigated.</td>
<td>Mixes characteristics of both qualitative and quantitative methods with a focus on practical solutions.</td>
</tr>
</tbody>
</table>
The above paradigms span the broad range of research philosophies and fundamentals. Justification for the interpretivist paradigm for this research was based on the notion that leadership is relationship based and reliant upon an individual being able to influence others.

The interpretivist paradigm may be seen as a subset of the phenomenology philosophy, which is seen as an inductive qualitative research tradition (Reiners 2012). It was further detailed by Reiners (2012) that interpretive social science is essential to incorporating experiences into a phenomenon. Adding weight to this perspective is the notion that personal awareness is intrinsic to the phenomenological approach. When applying the phenomenological approach, it was outlined by Hoffman, Bennett and Del Mar (2010) that descriptive or interpretive phenomenology needs to be delineated by the researcher. This research was completed through the lens of interpretive phenomenology as an exploration into the meaning of safety leadership. Through the format of semi-structured interviews, this researcher was enmeshed with the experience, and their expertise assisted in data interpretation.

The exploratory nature of safety leadership was captured through individual experiences, beliefs and thought processes towards this area of research. This constituted the leader’s human understanding and underpinned the interpretivist paradigm. Coding and weighting were governed by individual realities due to the research questions being based around defining safety leadership and exploring associated safety leadership behaviours. When brought together, these individual realities revealed common themes, which added substance to the theoretical concept of safety leadership.

The choice towards an interpretivist paradigm can be further supported by the concept of situational leadership and the individual’s choice to adapt and choose their actions according to the variety of different problems that may arise (Durban, Dalglish and Miller 2006). In contrast to this is the richness of organisational culture and variables of the external environment that can influence an individual’s behaviour. In the context of this research, individuals work and live in a socio-technical work environment. This environment is conducive to the individuals interplaying with all different components of their environment and other individuals. In consideration of the aspects of individual experience, the interpretivist ontology was deemed most suitable for this qualitative research study.
3.3. Justification of Post-Positivist Research Design

A qualitative approach was chosen for this topic due to the exploratory nature of the research and absence of a defined theory or descriptive foundation. A deeper understanding of what behaviours constituted safety leadership was captured through in-depth interviews with a cross-section of the senior leadership team. This research design ties in well with the philosophical paradigms shared in Table 3.1, particularly around the core ontological assumption that reality is a social construction. Understanding how social reality is created is the core epistemological stance which warrants exploration of subjectivity via a hermeneutical perspective or post-positivist approach (Shannon-Baker 2015). Qualitative methods of interviews, focus groups, observations or case studies allow the researcher to generate themes and similarities across a specific topic (Howell 1997).

Leadership can be an abstract concept that is focused around influence and reach (Goleman 2001). It is for this reason that safety leadership needed to be explored in more detail via the nodes of information discovery and the personal impact that safety leadership has upon an individual. Quantitative research methods may be able to quantify the presence of traits through extensive surveys, although an exploration of what differentiates a safety leader from other leaders has yet to be defined. With this gap identified, further exploration was needed and qualitative methods allowed for that exploration to occur in varying different ways, based upon the ontology of the researcher. Stentz, Plano-Clark and Matkin (2012) have shown that qualitative research can support quantitative analysis, especially in regard to exploring individual behaviours. It is interesting to note that the mood of qualitative research has changed from the preferences of quantitative research from the 1970s and 1980s. In a review of qualitative research methods over a course of three decades, Bryman (2004) noted the following factors:

- There was a noted tendency for researchers not to build upon previous qualitative research that has been undertaken within the field of leadership.

- Leadership research has been dominated by a single source of data collection through the format of self-administered questionnaires. This format of data collection would not provide leniency into the exploration of safety leadership behaviours.
There has been considerable growth of qualitative studies within the field of leadership, which includes an absence of detailed data analysis. Content analysis is the most popular technique that was reported to be amplified by positivist methods due to its objective and reliable persona.

The acceptance of the post-positivist approach fits neatly with the exploration of novel information. Qualitative methods allow for a greater depth and detail of data being captured, gathered by the subjective experiences of participants. This information is collected via interviews. The emphasis of language and rhetoric are factors that make up the conceptualised theoretical RAVE model, and the exploration of this model was better suited for a qualitative design. Theoretical issues tend to drive research design, and in the case of safety leadership further elucidation was needed to shape the impact of safety leadership upon employees, as well as detailing specific safety leadership behaviours.

Consideration of positivist research methodologies has not been undertaken in complete isolation of this research design. To minimise a restricted stance, due consideration was undertaken to positivist methods. Persson (2010) outlined that the most common mistakes in regard to positivist research design included disagreement that the world out there is unproblematic, and therefore leads to the rejection of positivism. Other misconceptions outlined that there is disagreement that positivist research is aimed at identifying cause and effect, which results in rejecting positivism. With regard to these misconceptions, acknowledgements of such misgivings are duly noted and were placed into context for this research design.

Quantitative research methodology is not being rejected, just forgone due to the surface information and lack of theoretical development that incorporates safety leadership and proposed influence on safety culture (Zanko and Dawson 2012). As leadership incorporated a significant focus on leader/member exchange, the interpretive nature of one’s reality was shaped by the socio-technical structure of people, environment and the systems in place.

Evidence that the positivist research design is not suited for this study can be shown through the taxing resources and limited availability to observe potential safety leaders within the workplace. Further to this, clinical settings may thwart the value of data and build reluctance for individuals to share their true beliefs and opinions in regard to safety leadership (Zikmund et al. 2010). This is further compounded by the identified lack of clarification of what
behaviours constitute an effective safety leader, which would be hard to directly observe in a clinical setting. Qualitative design can complement future positivist research by defining certain parameters once the discovery mode of research has been completed. With consideration to research design, the suitability of a post-positivist research design can be warranted on account of the following research factors and considerations:

1. Further defining of safety leadership is needed prior to the observation of safety leadership behaviours within the workplace. Further exploration and theory development is best suited towards an open discovery of ideas through discourse and rhetoric.

2. Leadership can be contextual, and the scope of this research is within construction. As a result, individual experiences can formulate specific examples of safety leadership behaviours unique to the sample size.

3. The importance of language can be captured through in-depth interviews and then cross-referenced and analysed for emerging themes or differences. The naturalistic setting can be conducive to the integrity of the information obtained (Shenton 2004).

4. Because of the explorative nature of this research, further probing and discovery lends itself to an interview design that can be a hallmark of a post-positivist research (Howell 1997).

5. The proposed benefits of safety leadership cannot be directly observed until there is a shared understanding of what these proposed benefits are. Theoretical development and conceptualisation is better suited to qualitative research as further theory development can later be tested through positivist methods.

6. The individuals in senior leadership positions can be the best agents for defining safety leadership. This could be shaped by their span of influence upon an organisation’s work culture, and personal involvement with safety. The accuracy of such viewpoints and behaviours can be later tested through direct engagement with employees.
7. As referenced by Tesch (1990), words utilised by participants can act as data through the focus of irregularities, patterns and other themes. Rhetoric can be emancipating for the individual, which then allows for a greater flow of information surrounding the ideas and thoughts pertaining to safety leadership.

This study can formulate the structure for future mixed research methodology or positivist research once a greater understanding and definition of safety leadership is accounted for. Taking into account the misconceptions for quantitative research, the qualitative research design was still suited for this research area due to a variety of logistical, ontological and epistemological reasons. This coincides with the interpretivist paradigm that reality is created by the perceptions of the participants (Flowers 2009).

3.4 Exploratory Research
Determining the type of research utilised in a research project can heavily influence data collection methods, findings and overall conclusions. Sekaran (1992) outlined that the choice in research types can be determined by the stages of advancement of knowledge within the research domain. A summary of research types has been detailed in Table 3.3 alongside the purpose of each research type.

**Table 3.3: Purpose of Research Types**
(Source: Neuman 2011)

<table>
<thead>
<tr>
<th>Exploratory</th>
<th>Descriptive</th>
<th>Explanatory</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Become familiar with the rudimentary facts,</td>
<td>- Provision of a detailed highly accurate</td>
<td>- Test a formulated theory’s principles or predictions</td>
</tr>
<tr>
<td>surroundings and concerns</td>
<td>picture</td>
<td></td>
</tr>
<tr>
<td>- Create a general mental picture of conditions</td>
<td>- Locate new data that is contradictory to</td>
<td>- Elaborate or build upon established theory</td>
</tr>
<tr>
<td></td>
<td>past data</td>
<td></td>
</tr>
<tr>
<td>- Help formulate focus questions for future</td>
<td>- Creation of categories or types</td>
<td>- Extension of a theory to emerging topics or</td>
</tr>
<tr>
<td>research</td>
<td></td>
<td>issues</td>
</tr>
<tr>
<td>- Generate new ideas, conjecture or hypotheses</td>
<td>- Clarify a sequence of steps or stages</td>
<td>- Support or refute an explanation or hypothesis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
With regard to the above research types, it was determined that this research will be
categorised as exploratory due to the empirical depth of the subject matter being shallow.
This research into safety leadership was focused upon theory building as opposed to theory
testing. The development of preliminary ideas aids the grounding for future research
questions, which can be the foundation for exploratory research. Such developments of
theory are often conducted through qualitative means (Neuman 2011).

The suitability of exploratory research into this topic can be further promoted through the
defining nature of the concept and understanding the nature of the problem (Sekaran 1992,
Zikmund et al. 2010). Neuman (2011) stated that when adopting this research type,
researchers need to be flexible, creative and explore unexpected areas. The conceptualised
RAVE model was designed through the literature and was utilised as a parallel hypothesis
into the core research question.

Adhering to the nature and integrity of exploratory research, this research was driven by the
participant. The research questions were explored through a process of appreciative inquiry
and well formulated questions through the free-flow of conversation. The adage of expecting
the unexpected lends its applicability to exploratory research. With the purpose of this
research being based within exploratory means, it has accounted for the suitability of the
correct data collection technique.

3.5 Data Collection Technique
There are numerous qualitative methodologies available that can be used to investigate the
avenues of safety leadership. As mentioned by Hoffman, Bennett and Del Mar (2010),
qualitative research that focuses on individuals’ experiences and concerns can assist them to
tell their stories within the backdrop of their environment. The data generated can therefore
help describe human experience and meaning. To unearth the factors that make up safety
leadership, a thorough exploration into the individuals’ experiences and thoughts were undertaken. Prior to selecting the most suitable data collection technique, a macro perspective into the qualitative methodologies needed to be undertaken in order to choose the methodology that then acted as the research compass for this study. Table 3.4 details the common qualitative interpretive and critical methodologies that relate to the core research questions detailed in this research.

Table 3.4: Interpretive and Critical Qualitative Methodologies

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Description and Applicability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Grounded Theory</td>
<td>An inductive approach where data is collected and information is utilised to construct a theory. This is an ongoing process from all sources until there is a stage of data saturation. This approach was forgone due to the extensive literature review undertaken into safety leadership and the conceptualised RAVE model that has been developed.</td>
</tr>
<tr>
<td>2. Phenomenology</td>
<td>This approach is embedded with understanding human existence and human meaning. In essence, it is based upon exploring unfiltered phenomena. Exploring the foundations of safety leadership through the subjective experiences of leaders within a large tier construction firm lends itself well to this approach. Deriving meaning and knowledge can assist in answering the core research questions posited.</td>
</tr>
<tr>
<td>3. Ethnography</td>
<td>Understanding others through an immersion into their environment and experiences constitutes this methodology. This can include participant observation, observation of social, cultural elements as well as obtaining an inside view. The accessibility of participants over a prolonged period of time may limit the applicability of this approach for this particular research. Total immersion into the environment may increase researcher bias, which needs to be minimised for the purposes of scientific rigour.</td>
</tr>
<tr>
<td>4. Action Research</td>
<td>This can be epitomised by the researcher working collaboratively on describing the social world while being an active participant in order to</td>
</tr>
</tbody>
</table>
change it. This approach needs full consent from the research group. This approach was deemed not suited for this research due to the nature of the research being exploratory and due to project duration and financial constraints.

5. Feminist Research

This paradigm is built on the premise that most research and science is gender biased, and empowerment is needed by established feminist principles. An argument can be put forward for this research approach due to the male dominated construction industry. In contrast, the validity and transferability of the results may not be suitable for this research owing to this common reality.

With respect to the above methodologies, the phenomenological approach was best suited for this research into safety leadership on account of the exploratory nature of the research and interpretivist paradigm within which the research was undertaken. The phenomenological approach can then encompass a number of different data collection methods available. The range of qualitative data collection methods and their applicability to safety leadership have been summarised in Table 3.5. By looking at the range of suitable qualitative data methods available, the selection of the right method for this research design can be prudently chosen through the numerous techniques available to the researcher.

Data collection techniques relating to archival searches, artistic expression, journal keeping, photography, storytelling and case studies were excluded because they were not suited to this research. This was influenced by the chosen research paradigm, exploratory nature of the research and scarcity of available written records.

**Table 3.5: Qualitative Research Methods and Applicability to Safety Leadership**
(Source: Richardson-Tench et al. 2011)

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fieldwork</td>
<td>Combining observation, participation, documentation and analysis in understanding behaviours and viewpoints. This method would work well in detailing the observed behaviours of safety leadership based upon the RAVE model. The challenge is the observer-effect, and the</td>
</tr>
</tbody>
</table>
time needed to collect such robust information across the geographically sparse population sample may prove difficult.

### 2. Focus Groups

A collective group of individuals who have been gathered to explore ideas and concepts presented by the facilitator. Focus groups can be a way to triangulate results although factors of group thought or social idleness may be present. In terms of this research, the aim is to capture the essence of safety leadership independent of the participants being influenced by others.

### 3. Interviews

The free flow of words, ideas and concepts can be explored in a structured, semi-structured or unstructured format with a participant. The skills of the interviewer can be paramount in encouraging and teasing out key ideas from the participant. This method has been deemed integral in the exploration of safety leadership and the answering of the fundamental research questions behind it.

### 4. Observation

Through structured or unstructured observation, a direct observation of behaviours can be captured and cross-referenced against key concepts. This technique can greatly contribute to safety leadership, although at this point in time, an understanding of what behaviours need to be observed against the literature needs to be established.

In light of the above data collection methods, many of the methods involve an observation of behaviours. In the case of safety leadership, such behaviours need to be identified and polished prior to observation occurring. In this study, a semi-structured interview was employed to cater for topic exploration and to foster a free flow of concepts and thoughts into safety leadership. This interview style was flexible, which allowed for open dialogue that extended outside the parameters of the interview schedule while investigating the core research questions (Broom 2005). Given that the empirical foundations behind safety leadership are relatively limited, the semi-structured interview tool was deemed well suited for this research design. Once the data collection method was chosen, attention turned to selecting the most suitable participants. The participants interviewed elaborated the concepts, theories and behaviours that constitute safety leadership.
3.6 Sampling
An exploratory research design has been selected owing to the lack of a well-defined concept of safety leadership. To explore this concept from a place of validity and rigour, the importance of selecting the right individuals to interview becomes paramount. In light of the literature, the importance that leaders have on a safety culture is pivotal (Krause 2005).

Within a construction project, leadership is driven by the project manager and construction manager. Paradoxically, as mentioned by Hashim and Chileshe (2012), the development and exhibition of leadership skills within project managers tends to be absent. Highlighting these demographics and the positions of general managers, construction managers and HSE managers can further explore the notion of safety leadership within the construction industry.

To assist theoretical development, random sampling was forgone in order to target the population sample that is best suited to influence employee behaviour. The interviewees were randomly chosen from a large list of prospective safety leaders within the business according to their position and performance. Criteria in which participants were classified as a safety leader included safety performance, completion of personal safety action plan, client management skills and communication ability. The scope of positional influence for each participant was deemed most suitable in exposing the phenomenon investigated.

Purposive sampling is best suited for exploratory research, and such sampling can produce specific information from a population that could be challenging to reach (Neuman 2011). Purposive sampling is also known as judgment sampling in which individuals are selected based upon some personal judgment (Zikmund et al. 2010). This premise adds to the importance of interviewing the chosen sample size of leaders within the construction company.

Even with purposive sampling, a random selection of participants, numbering 117 individuals, was undertaken from the total pool of participants available. This was achieved through a list being provided to the researcher of all the potential participants that fit the purposive sampling mould. Once the list was provided, the participants were then broken into separate groups of leadership designated by job title. The breakdown of job titles included 35 project managers, 12 general managers, 35 construction managers and 35 HSE managers. After this, a random selection of participants was undertaken. This process eliminated any
self-selection bias based upon potential participants volunteering themselves which could then create the ‘good participant’ role (Minium, King & Bear 1993).

In the construction company that is the focus of this research, a general manager would have jurisdiction over multiple projects within their business unit as well as other non-project departments such as human resources, information technology and accounting. Within a construction project the core leaders in terms of the scope of influence and responsibility would be the project and the construction manager. These leaders within a project would subsequently lead other departments which include engineering, quality, administrative staff, HSE, logistics and the employee relations department.

The sampling of participants within this study included general managers, project managers, construction managers and health, safety and environment managers. The inclusion of health, safety and environment managers was undertaken given their breadth of influence across all disciplines within a construction project and specialised skills within safety. The added technical expertise provided by HSE managers was cross-referenced against the data collected from other participants when developing and refining the theoretical framework towards safety leadership. With the selection of participants being chosen, productive ground for analysis can be established through alignment or misalignment across the leadership group, with common aspects being highlighted.

The total number of participants interviewed targeted a point of data saturation. Data saturation was determined through the notation of similar themes being noted across the sample size without any new or emerging themes being generated. A total of twenty safety leaders were initially chosen to act as the data benchmark. If data saturation was absent, further participants were available for selection. Variance and debate exists over the ideal number of participants to be interviewed in a qualitative study, and this debate is amplified when there are as few as six interviews being conducted (Carson et al. 2001). In addition, Nair and Riege (1995) indicated that data stability occurs when there are at least six people interviewed. To increase the transferability of key themes and exploration of safety leadership, the sample size was driven by data. A sample size of twenty participants were interviewed which included a total of five general managers, five project managers, five construction managers and five HSE managers. If data saturation did not occur with this sample size, more participants would have been interviewed.
The sample size was taken from varying projects across Australia within an Australian top-tier construction company that has over 5000 employees. Interviews with the participants were undertaken at their place of work and within their environment to aid relaxation and increase comfort. This may act as a precursor for collecting open unguarded data, which is often touted as the pinnacle of effective data collection when a researcher is interviewing participants (Delattre et al. 2009). Other demographics collected from each participant were collated and detailed in Chapter 4 with pseudonyms being utilised to aid anonymity and confidentiality for the participant. Once the sample size was accounted for, the importance of the interview design becomes integral in collecting robust data that was then analysed. With the sample size and population group being chosen, the design of the interview can then be tailored to the population sample.

### 3.7 Interview Design and Protocol

It has been mentioned by Broom (2005) that qualitative interview-based projects are often characterised by poor design and analysis. This can include interview excerpts that are ill-guided and uncritical analysis without sophisticated critique. To bypass some of these follies, a well-formed and chosen interview style is needed. As indicated by Bryman (2001), interview styles can be semi-structured, unstructured or structured. The structured format is often utilised for standardised interviews that are often typical of survey research, which can assist quantitative analysis (Howell 1997). Alternatively, semi-structured interviews comprise an interview schedule with a list of key themes and potential questions (Minium, King and Bear 1993). In contrast is the unstructured interview where the researcher has a brief topic guide that allows for considerable freedom (Bryman 2001). In this instance, a semi-structured interview design was used, with the proposed RAVE model acting as a guiding theme for the interview schedule. This provided flexibility but structure to the interview.

Further justification for the use of a semi-structured interview can be based on the lack of scope surrounding the area of safety leadership while crosschecking the face validity of the proposed RAVE model. Broom (2005) stated that sometimes the distinctions between each interview typology can become unclear. This strengthens the importance and impetus of the information being captured by the interviewer to be accurate. Coupled with this is the importance of the participant feeling comfortable and relaxed. The same interviewer interviewed each participant according to the same interview protocols. This increased reliability and internal validity while minimising the researcher's influence on participant
responses, compared to multiple interviews being used. Due diligence was carried out by the researcher through a process of reflexivity that was carried out during the interview process. This was undertaken by monitoring non-verbal and verbal feedback and acknowledging any feelings that might have emerged during the sharing of information, a technique supported by Shenton (2004).

Throughout the interview process, the strategy utilised open and probing questions. The use of open questions is more conducive to exploring concepts and allowing participants to share their experiences (Carson et al. 2001). Probing questions were asked to allow participants to further elucidate upon a point and to allow for a free flow of information. Asking questions provides an insight into the other person’s world. The answering of questions was deemed a natural brain process of the reticular activating systems (Maltz 2006). Throughout the interview process, this researcher was very aware of specific questions that may reinforce previous results from other participants, and also mindful of his own body language.

Each interview was recorded to assist in developing a full transcript of the interview, which assisted coding and thematic analysis. Given that we are living in the midst of a technological and knowledge revolution (Kontogiorghes, Awbrey & Feurig 2005), a non-obtrusive smartphone with a voice recording application was used instead of a traditional tape recorder. This allowed for easier back-up of data and instant storage through a secured account. As outlined by Carson et al. (2001), possible misgivings caused by the Hawthorne Effect and the reactivity caused by the interview being recorded might have still existed with some participants, regardless of the technology utilised.

The increased use of social media over recent years has increased transparency and interconnectivity, with virtual online profiles providing a view into the lives of others while being used as background checks for potential employers (Abril, Levin & Riego 2012). This new level of openness may have an indirect effect of negating the previous anxiety that might have been caused by interviews being recorded. If any participants chose not to have their data recorded, their data would have been excluded from the research for the reasons of accuracy and the fact that the extent of information would be absent. No interviews were excluded from this research.

The semi-structured interview form that was used for this research was developed in line with Broom’s (2005) detailed methodology of using interview questions that were developed
through research themes. The interview form developed for this research allowed for exploration into the definition of safety leadership and associated behaviours that were matched up against the RAVE model for confirmation or theoretical negation. A copy of the interview form has been provided in Appendix A. Questions were independently formulated based upon the core research questions and the literature review which focused on “general leadership” studies and lack of safety leadership definition. Each question was designed to be broad in nature which provided maximum opportunity to explore each construct (Broom 2005). If narrow close-ended questions were asked to start each interview, the information being elicited from participants may not be as rich in detail. The questions asked were employed as a guide, with the flexibility of the interview garnered by the participants’ responses through further probing and exploration by the researcher. Any distinct non-verbal cues were recorded on the interview form, and minimal note taking was undertaken to minimise disruption to the natural conversation flow.

Questions that constituted the interview form were formulated with consideration to the contextual model detailed in Figure 2.7. The parent disciplines detailed in the contextual model outlined the importance of leadership when establishing a safety culture. The identified gaps in knowledge which were referenced in 2.1 of the contextualised framework help shape the questions that pertain to defining safety leadership and how safety leadership differs from general leadership. An investigation into the behaviours of safety leaders which was showcased through such interview questions as “what would be some specific behaviours that someone would be demonstrating if they were leading with safety?”, merged effectively into the importance of leadership behaviours in establishing a safety culture (2.2 of conceptual framework). The ethos of this research and the interview questions asked was to negate the negative organisational elements of an ill-defined process and definition towards safety leadership. As shown in the contextual model, the answering of the core research questions aimed at improving safety within an organisation.

Each of the interview questions was designed to provide insight and data based upon the three core research questions. How leaders in the construction industry define safety leadership was explored through such questions as “What does safety leadership mean to you? How would you define safety leadership?” and “How does safety leadership differ from other forms of leadership?” Further questions based upon the role of statistics and exploration of “zero harm” were included to account for the safety management literature and its impact.
on safety leadership. Exploration into core safety leadership behaviours was directly linked to such questions as “How would you know that you are influencing others through safety leadership behaviours” and “What would be some specific behaviours that someone would be demonstrating if they were leading with safety?”. Validation of the RAVE model was broken up into a series of questions that looked at relationships, authenticity, vision and engagement behaviours. Examples included “How would you describe the importance of creating and developing relationships within safety leadership?” Follow-up questions were then used to pinpoint specific behaviours such as “How do you develop relationships with your team?” Through careful consideration, the interview form was orchestrated to allow depth and flexibility during the interview process.

Interviews were conducted from the first quarter of 2014 across a number of different locations including the office environment or on the site of the construction project. The interview protocol focused on setting up a supportive environment that was free of distractions while being comfortable for the participant. The length of each interview was between fifty and eighty minutes. Prior to the interview starting, the participant was provided with a copy of the Confidentiality and Consent Form (Appendix B) and Information Sheet (Appendix C). The confidentiality form also included demographic data to aid data analysis, which has been detailed in Chapter 4. Once the participants were reassured of their confidentiality and anonymity, they were then invited to sign the Consent Form. The voluntary nature of the research was prefaced by the fact that the participants could withdraw or stop the interview at any time they chose. Alternatively, at a later date, the participants could withdraw their interview data from the research project. To foster transparency during the interview, the researcher outlined that any notes taken during the interview were available for perusal by the participant.

Throughout each interview, each participant was made aware of this researcher’s background. In some instances, specific questions pertaining to a work challenge or situation would often arise, where input was sought from this researcher. Any advice or consultation was taken outside of the research paradigm and was set up through a separate conversation. The researcher was also aware of opportunities to provide advice throughout the interviews, and refrained from doing so in order to bypass the shaping of data and to ascertain uncorrupted raw data.
3.8 Procedures
In order to replicate and emulate the research methodology and to enhance transparency and transferability, a detailed scope of the research procedures was undertaken. With the arguments against post-positivist research design based in the lack of transferability and generalisability, the importance of explaining specific steps in the research process becomes even more important. The merits of test-retest reliability can be brought to completion through careful emulation of the procedures carried out within a research design (Minium, King & Bear 1993). The procedures listed within this study are aimed at detailing the logistical, operational, ethical and practical elements of the research that need to be accounted for. The procedural steps undertaken within this research included the following:

- **Step One:** A top-tier construction company based within Australia was chosen due to its geographical reach, size of the workforce and applicability towards the scope of this research. A meeting was held with the executive leadership team informing them of the study, foundations of anonymity and ethical considerations. The benefits of the research and applicability to the company were shared. Once agreement was made for the researcher to undertake the research within their construction business, further development and interview planning followed.

- **Step Two:** An Information Sheet was developed for dissemination to the company and to prime individuals that certain people may be randomly chosen and invited to participate in the research. Confidentiality forms and nature of the research relationship were developed which outlined factors of anonymity and the safekeeping of data.

- **Step Three:** A core contact person was assigned from the construction company to help assist with the sourcing of potential participants. A list was provided of general managers, HSE managers, construction managers and project managers from each geographical location within Australia. From this list, a random selection of participants was chosen as potential candidates.

- **Step Four:** Once participants were chosen, direct contact was made with each participant to introduce the research topic in more detail and to ascertain their interest in participating. Once each participant provided verbal consent, details of their availability for being interviewed were gathered.
• **Step Five:** As shown in Table 3.6, an interview schedule was developed which outlined dates and geographical location for each interviewee. Each interviewee was coded to a number to maintain confidentiality, with personal details being kept within a secured electronic copy as a reference point for the researcher. To minimise the costs of travel, multiple interviews were planned within each geographical location.

**Table 3.6: Interview Schedule**  
(Source: Developed for this research)

<table>
<thead>
<tr>
<th>Interviewees</th>
<th>Position</th>
<th>Work Place</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>Construction manager</td>
<td>Brisbane</td>
<td>28/01/14</td>
</tr>
<tr>
<td>R2</td>
<td>HSE manager</td>
<td>Brisbane</td>
<td>28/01/14</td>
</tr>
<tr>
<td>R3</td>
<td>General manager</td>
<td>Brisbane</td>
<td>29/01/14</td>
</tr>
<tr>
<td>R4</td>
<td>General manager</td>
<td>Brisbane</td>
<td>29/01/14</td>
</tr>
<tr>
<td>R5</td>
<td>HSE manager</td>
<td>Surat Basin</td>
<td>18/02/14</td>
</tr>
<tr>
<td>R6</td>
<td>Project manager</td>
<td>Surat Basin</td>
<td>18/02/14</td>
</tr>
<tr>
<td>R7</td>
<td>Construction manager</td>
<td>Surat Basin</td>
<td>19/02/14</td>
</tr>
<tr>
<td>R8</td>
<td>General manager</td>
<td>Perth</td>
<td>11/03/14</td>
</tr>
<tr>
<td>R9</td>
<td>General manager</td>
<td>Perth</td>
<td>11/03/14</td>
</tr>
<tr>
<td>R10</td>
<td>General manager</td>
<td>Perth</td>
<td>12/03/14</td>
</tr>
<tr>
<td>R11</td>
<td>Construction manager</td>
<td>Pilbara Region</td>
<td>15/04/14</td>
</tr>
<tr>
<td>R12</td>
<td>HSE manager</td>
<td>Pilbara Region</td>
<td>15/04/14</td>
</tr>
<tr>
<td>R13</td>
<td>Project manager</td>
<td>Pilbara Region</td>
<td>16/04/14</td>
</tr>
<tr>
<td>R14</td>
<td>Construction manager</td>
<td>Barrow Island</td>
<td>06/05/14</td>
</tr>
<tr>
<td>R15</td>
<td>HSE manager</td>
<td>Barrow Island</td>
<td>06/05/14</td>
</tr>
<tr>
<td>R16</td>
<td>Project manager</td>
<td>Barrow Island</td>
<td>07/05/14</td>
</tr>
<tr>
<td>R17</td>
<td>Construction manager</td>
<td>Gladstone</td>
<td>16/06/14</td>
</tr>
<tr>
<td>R18</td>
<td>HSE manager</td>
<td>Gladstone</td>
<td>16/06/14</td>
</tr>
<tr>
<td>R19</td>
<td>Project manager</td>
<td>Gladstone</td>
<td>17/06/14</td>
</tr>
<tr>
<td>R20</td>
<td>Project manager</td>
<td>Brisbane</td>
<td>02/07/14</td>
</tr>
</tbody>
</table>

• **Step Six:** Confirmation of the interview time, date and location was made with each participant prior to the construction company arranging site accommodation and access. Travel and accommodation was booked and funded by the construction company with the itinerary being sent through to the researcher as confirmation.
• **Step Seven:** Prior to the interviewer flying to each location, each participant was provided with a courtesy phone call reminding them of the upcoming interview. It was at this point in time that details of the site induction and site requirements were provided to the researcher.

• **Step Eight:** Upon arrival at each location a separate office was allocated for the interview. The environment was set up with good lighting and adequate cooling. Other materials included a small round table, two chairs, jug of water, interview and consent form and smart phone which had the voice recorder application which was used to digitally record the interview.

• **Step Nine:** Prior to the interview being undertaken, time was spent building rapport through the asking of non-research questions such as ‘how has everything been?’ and ‘any concerns or challenges about today?’ The interview started once the voice recorder application was turned on. Once the interview was over, the interviewees were provided with an opportunity to find out the preliminary results of the research once they become available, and to confirm that they may withdraw their interview data from the date of the interview for up to a two-week period.

• **Step Ten:** After the interview, the digital file was sent over a secure connection to the researcher’s email inbox. From here it was transferred to an encrypted folder, which was then password protected.

• **Step Eleven:** Once the interview procedures were repeated for each participant, all of the digital files were transcribed verbatim and then the transcripts were printed out for coding and analysis.

• **Step Twelve:** Each transcript was then coded with thematic analysis being undertaken. During this process a thick description of data was carried out with a process of self-reflection to aid reflexivity and to help triangulate results. Further information expanding upon data analysis and research findings has been detailed in Chapter Four.
• **Step Thirteen:** Once themes were identified and data reached a point of saturation, an independent review was carried out to crosscheck the themes. The person carrying out the independent review signed a confidentiality form (Appendix D) to ensure empirical rigour. The third party reviewing the research was a registered psychologist with a solid background in research.

• **Step Fourteen:** Findings of the qualitative data were then cross-referenced across the conceptualised RAVE model with similarities and differences being noted down. During this stage, self-reflexivity was still undertaken to help minimise any self-bias.

• **Step Fifteen:** With the findings of the research being developed, a discussion about the potential theoretical and pragmatic implications was undertaken. After this a thank-you letter to each participant was sent out with the option to contact this researcher to discuss the results of this research (Appendix E).

• **Step Sixteen:** A presentation was made back to the executive team once the safety leadership results were finalised. This was undertaken as a return on investment and courtesy thank-you to the participating construction company that assisted with the research. This was undertaken within the Brisbane office with a videoconference hook-up with fellow executives based in Perth.

The above procedures act as a compass for further replication. The features of each interview are captured during the transcribing of the interview, and further detail behind the analysis and discussion of the data has been detailed in Chapter 5.

### 3.9 Data coding and tabulation

It was posited by Gough and Scott (2000) that there is no universally agreed view to the coding process and most processes tend to condense the bulk of data sets into units that can be analysed by creating categories from the data. Two commonly adopted approaches to the coding of data can be classified as techniques of “code and retrieve” and techniques relating to the “emergence and interrogation” of data (Richards & Richards 1994, p.168).

The coding and retrieving of data assists with managing data to pre-determined categories while the emergence and interrogation technique assist in generating concepts from the
information obtained (Gough & Scott 2000). This research adopted a mix of the two techniques, generated by the conceptual framework and ontology of the researcher.

Computer software packages are available that assist with the coding and retrieving of information. Such programs can assist in the speed and efficiency of coding. This could be at the risk of compromising the analytical skills required to interpret themes, relationships and agendas (Burton & Steane 2004). A data rich interview process that utilises computer software programs for the assistance of data coding can reduce words to numbers and minimise the reality of the participant’s voice (St Pierre & Jackson 2014). For this study, there was an absence of computer programs that were utilised for coding. Instead, a focus on pre-coding categories was employed which acted as a foundation before further emergence and interrogation of data was employed. Pre-coding is where the researcher has *a priori* construction of the social setting of the research, which in this case will be the RAVE model. This researcher’s background as a registered psychologist and experienced in reading subtext was a core driver in not utilising computer programs as well as wanting to be fully immersed with the data.

Coding was conducted through the scope of the conceptual model developed for this research into safety leadership, with other categories being added for further analysis. Specifically, the categories were grouped into contained relationships where one category is contained into one larger category (Tutty, Rothery, & Grinnell 1996). An example of this could be with the safety leadership category of Values including elements of empathy and morals. This process allows for a unified interpretive concept to be developed and works well with the comparative method. This comparative method entails comparisons of different categories and text established by themes, similarities and differences (Rabinovich & Kacen 2013). This method is particularly warranted in this study due to the sample size involving individuals with different positions and spans of influence. The interviews were analysed in agreement with this process.

The coding process was undertaken in three separate stages utilising different coding techniques in each stage. Each coding technique will follow the methodology of Open Coding, Axial Coding and Selective Coding (Neuman, 2011). Details of these coding processes in relation to safety leadership have been detailed in the below table.
Transcripts of the interviews were printed out and the process of open coding was undertaken. A variety of themes were identified including safety leadership, relationships, statistics, safety management systems and a variety of others. Axial coding was conducted by writing abbreviations next to each comment that represented an identified theme. As part of selective coding, the identified themes were then written onto an excel spreadsheet under separate categories. Different colours were utilised in the excel spreadsheet to assist with the separation of data according to job position. A representation of the coding process has been detailed in Appendix F.

Once the coding process has been undertaken, a separate checking of themes was undertaken by an independent third party to allow for inter-rater reliability. It has been put forward that a single third party reviewing the coding of data can achieve high reliability but at the cost of data value with the possibility of superficial analysis (Sweeney et al. 2012). Sweeney and his colleagues further outlined that multiple coding can build team consensus and identification of further themes that can improve the quality of data analysis. In contrast, a multi-disciplinary team in coding data has been viewed as a superficial marker of the positivist

Table 3.7: Coding Qualitative Data
(Source: Neuman 2011)

<table>
<thead>
<tr>
<th>Open Coding</th>
<th>Axial Coding</th>
<th>Selective Coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Initial identifying of themes</td>
<td>- Follow-up screening of data</td>
<td>- Closer examination of examples that illustrate themes</td>
</tr>
<tr>
<td>- Condensing mass data into categories</td>
<td>- Assigning labels to themes</td>
<td>- Completed after core concepts have been defined</td>
</tr>
<tr>
<td>- Pulling out abstract concepts from hard data</td>
<td>- Examination of initial themes identified</td>
<td>- Elaboration of major themes</td>
</tr>
<tr>
<td>- Most themes identified while reading data</td>
<td>- Organising the codes and links between themes</td>
<td>- Making comparisons post data collection</td>
</tr>
<tr>
<td>- Extends to initial write-up of memos during process of self-reflection</td>
<td>- Culling or expanding upon themes identified</td>
<td>- Consolidation of data through coding process</td>
</tr>
<tr>
<td></td>
<td>- Consolidation of codes and culling of irrelevant concepts</td>
<td></td>
</tr>
</tbody>
</table>
paradigm within a research methodology that is fully based in the human experience (St Pierre & Jackson 2014). Mitigating the risk of superficial analysis will be countered by the expansive description of data through analysis and deep familiarisation of the data gathered (Guba & Lincoln 2008).

Once patterns with the data were identified, the next step was the interpretation of the data through the social and environmental context in which the data was gathered. Analysis techniques are varied and differed based upon the researcher’s ontology and the nature of the study. The data for this study was analysed through the techniques of Successive Approximation and the Illustrative Method. Successive Approximation is when the data is reviewed multiple times, where vague ideas become more concrete with broader generalisations (Neuman 2011). This technique allowed the data to be probed to see how it linked with the conceptualised model of safety leadership. A natural flow from this analysis technique is the Illustrative Method, where the theoretical concepts of safety leadership can be filled with empirical examples and descriptions. A sub-element of the Illustrative Method is Parallel Demonstration where the juxtaposition of data across multiple participants can show robustness in the theory (Neuman 2011). The application within this research was shaped by initial theory clarification and then parallel comparison of participants according to their job title. This allowed greater discussion of the findings in accord with the unique and common variables across the sample size.

3.10 Methodology Triangulation

Triangulation is built upon the tenet that one can learn more from observing through varying perspectives than having a sole focus point, which in turn enhances data accuracy (Neuman 2011). To harness a macro perspective, triangulation in this study was undertaken through self-reflection and peer-review of the data. Throughout the interviewing, transcribing and coding data process, this researcher underwent a process of self-reflexivity. The aim of this was to increase the accuracy and integrity of information as detailed through the work of Guba and Lincoln (2008). Another by-product of self-reflexivity was to view the data from different perspectives.

Data was further triangulated through peer review of the themes to aid inter-rater reliability. A colleague with similar characteristics to the researcher but separate to the research was engaged to review the themes generated from the transcripts. During this process, there was
an alignment of themes, and confirmation of accuracy of data was obtained. As recommended by Shenton (2004), a thick description of data was described to aid the transferability of information. This equated to direct quotes from participants to support any associated themes and help with the dependability of data.

3.11 Potential Limitations of Methodology

The positivist paradigm assures the markers of validity and reliability are captured through rigorous methods. It is often believed that the post-positivist stance is lacking such validity and reliability on account of the research concepts being addressed through different means (Shenton 2004). The pillars of reliability and validity within a qualitative framework were adhered to via the guidelines and research from Guba and Lincoln (1994), which has since evolved to today’s standards of credibility, transferability and dependability. Further to this, it has been noted that the research question and theoretical issues should guide the sampling procedures as opposed to statistical criteria guiding the research (Glazer & Strauss 1967).

Factors of credibility are often tied in with internal validity and the notion that the research is measuring what it is intended to measure (Shenton 2004). Credibility in this proposed area of research was achieved by selecting the right research and operational method and early exposure to the culture, which aided trust (Erlandson et. al. 1993). Throughout the planning phase of the research, exposure to the construction company’s culture was made through interactions with the leadership team and by attending site inductions. It has been suggested by Patton (2002) that the background of the researcher should be linked to the research topic, given that the researcher will be the instrument of data collection. In this instance, the author’s background is embedded within the safety leadership industry. Other markers of credibility were adhered to through peer reviews and obtaining an extensive scope of informants (Shenton 2004).

Transferability is often discussed in conjunction with the elements of external validity, which can be difficult to generalise in a qualitative study due to the nature of the sample size (Zikmund et al. 2010). As suggested by Shenton (2004), results of the study can still be transferred if sufficient and full context is provided to the readers. This information can pertain to the number of participants in the study, where the study was carried out and the time period when the research was collected. The research questions proposed earlier were made under the context of construction project work within the oil and gas industries as well
as the mining industry. This was undertaken across four different projects currently operating within rural areas of Australia, with a multitude of different clients. With this context provided, the reader can then make a choice of whether or not the results can be transferred to their work setting.

Dependability can fall under the same school as reliability, which can be challenging to capture in any qualitative study. This is due to participants having varying degrees of experience, which may vary greatly across the general population. Guba and Lincoln (1989) suggest that overlapping methods such as focus groups and interviews may assist in the dependability of results, and therefore were utilised to aid the dependability of this study. Following on from the research by Shenton (2004), the dependability of this study can act more as a prototype for future studies, given that the content was fixed in time through the interviews gathered and methods used.

Angen (2000) suggested that validation of qualitative data can be achieved by focusing on the confidence of data as opposed to the certainty and validation of the data. Refining the integrity of qualitative results can be established by detailing the researcher’s characteristics, utilising theoretical candour and being self-reflexive. When applied to external checks of thematic analysis, rigour can be further increased. To heed Angen’s guidelines, this researcher’s characteristics pertain to a background in the heavy resources industry with an academic history comprising psychology and organisational development. Introspective comments relating to the data collection and analysis of information were made throughout the coding and analysis of data.

The importance of congruity between the stated philosophical perspective and the chosen research methodology is integral in ensuring rigour and adequate reporting (Hoffman, Bennett & Del Mar 2010). This congruence is an important derivation when matching the research methodology to the research questions, interpretation of results and analysis of results. These elements of congruence have been taken into account when choosing exploratory research alongside a phenomenological perspective with a semi-structured interview data collection method.

One limitation to the methodology could be due to the population sample excluding anyone from a non-leadership position. Once the foundations of safety leadership have been explored with the individuals in formal leadership positions, then the population sample can be
broadened to include other employees. Different quantitative means to capture this information could be through survey or questionnaire. Such methods support the notion of a mixed methodology into leadership studies as touted by Stentz, Plano-Clark & Matkin (2012). It was highlighted that robust data can be achieved through the right sampling of participants for exploratory research which can then be further backed up through quantitative means. The time period that encompasses this research may be a sample of participant perceptions at a specific point in time. These perceptions may change over time with other political, economic or cultural events that may emerge.

The absence of any computer-assisted qualitative data analysis software might have limited the automated arranging and managing of large chunks of data that are grouped by designated categories. Such tools can assist with time management, objectivity and allow the researcher to focus strategically on analysing emerging themes (Cope 2014). One of the areas of controversy with computer aided analysis software is the potential disengagement with the data (Cope 2014). The absence of such computer software might have impacted upon the interpretation of data, which was mitigated by this researcher’s background and ontological preference of being immersed in the data to understand the participants’ nature of reality.

3.12 Ethical Issues
When undertaking qualitative research, the ethical considerations tend to be balanced towards confidentiality, anonymity, deception, privacy and consent (Neuman 2011). In-depth interviews can unearth sensitive information that could be incriminating or detrimental if the interviewee’s identity was not kept anonymous (Thurmond 2001). For this research, it was paramount to select a sample size of participants who did not feel obliged to participate, and to ensure that their anonymity was protected. To ensure this occurred, written and verbal assurance was provided throughout the semi-structured interview.

Having a representative sample size for this research was fundamental in determining face validity. Specific leaders needed to be briefed by a free flow of information about the research being provided and on how the results will be made readily available. To highlight the voluntary nature of the research, this researcher contacted the participating site manager and presented information that outlined that a random number of individuals were contacted in relation to participating in the study. Each individual does not have to feel obliged to participate and does not have to respond if randomly chosen by the researcher. Through
probability sampling of participants, the detriments of self-selection bias can hopefully be mitigated (Zikmund et al. 2010). Throughout the interviews, verbal assurance of the voluntary nature of the process was reinforced as well as an Information Sheet (see Appendix C) being handed out that explained the voluntary and confidential nature of the research. If a participant chose not to participate halfway through an interview, their data would not be used for analysis.

To avoid the ethical issues of privacy and confidentiality being forsaken, the use of pseudonyms was utilised through the research process. This included all names and places of work to be replaced with an alias. Further privacy was ensured through contact with the participant restricted to the researcher in terms of setting up and arranging the one-to-one interview. For the semi-structured interviews, a confidentiality and privacy form (see Appendix B) was handed out to participants. Information showed that the interview will be recorded for accuracy and the digital files will be stored in a password protected electronic folder once they have been transcribed. The participants had the opportunity to review their transcript and choose to include it or withdraw it from the research process.

To minimise deception, honest communication was shared and provided to each participant via the mediums of information sheets and verbal communication. The final results of this study may influence corporate strategy in terms of the development of safety leadership programs or processes. Participants were assured that the development of any strategy was independent from the scope of this research. Any advice sought from the management team of the construction company was provided via the sharing of preliminary research without the identification of any participant. No retainer or financial fee was paid between the construction company and the researcher, which directly related to this scope of research. This included any future research that may be undertaken that is held within the same construction company or population sample. This minimised any conflict of interest or justification of further paid research. When financial fees are paid it can impact upon power relations and influence the obligations of the participant and researcher (Wiles 2013).

The possibility of any of the participants knowing the researcher through previous workshops or conferences attended did not impair the interview process. The following factors were applied to eliminate the Hawthorne effect and to strengthen objectivity:
• If there was a non-work relationship or coaching arrangement between the researcher and the participant, that participant would be excluded from the study to minimise transference (Parker 2010).

• The interview protocol was strongly adhered to if the participant asked for the researcher’s opinion or expertise upon the topic of safety leadership. This minimised the participant being swayed or their thinking being shaped by the researcher’s opinion.

• A process of self-reflection was undertaken throughout the research process in order to identify any biased feelings that may arise which could cause transference. Such biases may occur through the collection of data or during data analysis. To protect the ethical integrity of information collected, any overt biases detected were excluded from data analysis (Wiles 2013).

A final assurance for the participants with the research process was that the research has passed the high ethical standards of the Southern Cross University Ethics Committee (Approval Number: ECN-13-301).

3.13 Conclusion
This chapter has discussed and justified the appropriate methodology suited for this research into safety leadership with due consideration of research limitations. The interpretivist social science has set the pathway for a post-positivist approach, which was dictated by semi-structured interviews as the main data-collection method. The exploratory nature of this research warranted the use of semi-structured interviews with a suitable population sample. The participants chosen for this study included high-end leaders within the construction company. Lastly, any ethical considerations were discussed which might have impacted upon the data collected for this research. Through a thorough methodology being detailed, a robust analysis of the data can be undertaken.
CHAPTER 4 – FINDINGS

4.1. Introduction

Throughout this chapter, the findings pertaining to safety leadership will be shared based on collective descriptive statistics and information pertaining to the core research questions. Emerging secondary themes will be presented as well as information that is unique to the Australian project environment. Information will be grouped in such a way that highlights quantifiable data that has emerged from the findings. Through these findings the blueprint to effective safety leadership can be formulated and applied to the Australian construction industry.

4.2 Descriptive Statistics

Across the sample size of twenty participants, the total years of experience within the construction industry was 387 years, with a mean of 19.3 years and standard deviation of 6.4. Total length of service within the company that this research was based within was 112.5 years with a mean of 5.6 years and standard deviation of 4.2. The average number of direct reports that the participants had was twelve. Each participant’s first language was English. Specific experience and demographics according to job position have been detailed in Table 4.1.

Table 4.1: Mean Demographics based Upon Job Position

<table>
<thead>
<tr>
<th>Position</th>
<th>Participants Interviewed</th>
<th>Male Gender</th>
<th>Number of Direct Reports</th>
<th>Years of Experience</th>
<th>Length of Service within Company</th>
<th>Total Participants Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction manager (CM)</td>
<td>5</td>
<td>5</td>
<td>15</td>
<td>22.8</td>
<td>5.7</td>
<td>35</td>
</tr>
<tr>
<td>Project manager (PM)</td>
<td>5</td>
<td>3</td>
<td>12.6</td>
<td>16.0</td>
<td>4.5</td>
<td>35</td>
</tr>
<tr>
<td>HSE manager (HSE)</td>
<td>5</td>
<td>5</td>
<td>8.6</td>
<td>16.2</td>
<td>4.7</td>
<td>35</td>
</tr>
<tr>
<td>General manager (GM)</td>
<td>5</td>
<td>5</td>
<td>11</td>
<td>22.4</td>
<td>8.8</td>
<td>12</td>
</tr>
</tbody>
</table>
The gender imbalance highlighted in the above table is typical of the male-dominated construction and mining industry (Mayes & Pini 2014). Both females in the sample size were project managers.

4.3 Defining Safety Leadership (RQ1)
One of the integral research questions identified from the onset of this study was based upon the exploration of how leaders within the construction environment define safety leadership. As the findings of this study indicate, there was some discourse and differences between safety leadership as a concept compared to general leadership. Participants outlined some universal elements that constitute the overall definition of safety leadership.

4.3.1 Safety Leadership v General Leadership
Information gathered from the interviews revealed that the majority of participants believe that there is no difference between safety leadership and general leadership. This was governed by some of the following statements across all job positions: “not sure that I draw a distinction between safety leadership and leadership”, “I prefer not to discern between leadership and safety leadership … I think if you’re a good leader, you’re good at all aspects of leadership and safety is no different”. The main thoughts supporting this notion relate to the perception that safety is one of many elements to a business and that a good leader would be strong in all areas of the business. Other comments that further support this viewpoint include: “Safety leadership is leadership in general, leading by example” and “that the problem with safety leadership is that we’ve divorced it from all types of leadership” and “regardless of the subject, the style of leadership should be the same”. Adding to the notion that safety leadership and leadership should be synonymous is the following comment from a GM that stated if safety leadership exists then it is “owned by the safety department, rather than owned by leadership and the business”. Further distinguishing comments between safety leadership and general leadership have been detailed in Table 4.2
Table 4.2: Comments Distinguishing Safety Leadership and General Leadership

(Source: Developed for this Research)

<table>
<thead>
<tr>
<th>Safety Leadership</th>
<th>General Leadership</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM: “Safety leadership is more transparent to me, one thing I want the guys to know is the importance I place on safety.”</td>
<td>GM: “Not sure that I draw a distinction between safety leadership and leadership.”</td>
</tr>
<tr>
<td>HSE: “Because it’s the health and wellbeing of the people that’s the important thing as opposed to production and achievements.”</td>
<td>CM: “I think all leaders will use or incorporate aspects of safety leadership in their activities without calling it safety leadership.”</td>
</tr>
<tr>
<td>CM: “It’s about saving someone potentially; leadership is getting on with people in my eyes.”</td>
<td>GM: “It’s the way I lead; regardless of the subject, the style of leadership should be the same.”</td>
</tr>
<tr>
<td>CM: “I’d say responsibility, responsibility of your actions and I guess the actions of others regarding safety.”</td>
<td>PM: “Some people see safety as a procedural driven responsibility; my personal style of leadership I don’t believe changes.”</td>
</tr>
<tr>
<td>PM: “Safety leadership would be about setting expectations on safety performance and then performance managing those expectations.”</td>
<td>GM: “When I think about safety leadership, I tend to think about leadership in general ... maybe that’s because there’s just not enough definition on what safety leadership is.”</td>
</tr>
<tr>
<td>CM: “Getting the guys trained and in the frame of that that safety is a priority, their number one priority.”</td>
<td>HSE: “I think leadership, no matter what area you are in (even in sport), the leadership principles are exactly the same.”</td>
</tr>
<tr>
<td>GM: “Safety leadership goes further through your organisation. If it was general leadership ... would I then chat about our financial position?”</td>
<td>GM: “I would prefer not to discern between leadership and safety leadership, I think if you are a good leader, you are good at all aspects of leadership; safety should not be any different.”</td>
</tr>
<tr>
<td>PM: “Safety leadership is about accountability, leading from the front and acknowledging that everyone has a part to play.”</td>
<td>PM: “Safety leadership and leadership ... it’s all the same.”</td>
</tr>
<tr>
<td>CM: “It’s about running or managing a team and leading by example in that team to have a safety culture on a project – safety culture in that environment leads to zero harm.”</td>
<td>CM: “You can be a very good leader without being a safety leader or safe leader?”</td>
</tr>
</tbody>
</table>

Other comments and themes indicated that the core similarities between general leadership and safety leadership are constituted by the behaviours of acting with integrity, being able to influence and “the whole human element in terms of how sincere the leader is and are they a good communicator”. Weak support was gathered that detailed the unique characteristics that make up safety leadership.

4.3.2 Unique Components of Safety Leadership

The viewpoint that safety leadership is a separate category from leadership reached a 35% consensus, which highlighted factors of difference due to the elements of transparency, wellbeing and the promotion of safety. Further to this, safety leadership was seen as “driving the safety message out on site and doing everything the right way”, “about saving someone potentially” and “setting the safety standard and being visible on what’s acceptable, not acceptable”. Further findings supporting the distinction of safety leadership included the possibility that “you can be a very good leader without being a good safety leader”, which was attributed to one’s own conduct and how they personally manage and promote safety.
Other opinions on safety leadership outlined that “safety leadership goes further through your organisation” and “there’s the guidelines and the rules” which is a core distinction with safety in the Australian construction environment. This cascades to other supporting viewpoints from the data, which outlines the priority of safety. One PM stated that, with safety issues, “you’ve got to show that as a safety leader, that it’s got to be dealt with above and beyond anything else” with one CM sharing that “everyone’s got a role in safety on site” and this is how safety leadership differs from general leadership. How one defines safety leadership could play a contributing factor into these findings.

4.3.3 Defining Safety Leadership
Results fed into the notion that safety leadership is an ill-defined concept which was reflected in one GM saying that “when I think about safety leadership, I tend to think about leadership in general, maybe that’s just because there just isn’t enough definition of what safety leadership is”. When participants were asked to define safety leadership, core factors of accountability, “walking the talk” and “leading by example” were present across all job positions. Accountability was referenced through the “outlining of expectations” and “being accountable for safety”. Branching out from these components was a strong reference towards a personal value towards safety which was highlighted by one PM saying “it’s not just there at the coalface, it’s everywhere. It’s at home, it’s in your personal life”. This was further expanded upon by another PM saying that safety leadership is “not something that you’re trained in ... I think it’s values”.

When participants were defining safety leadership, aspects of safety management were often quoted. This was in relation to abiding by the safety absolutes, with one PM saying it is about “making sure they have the right tools and resources” while accounting for all aspects of planning and organising. These findings are further elaborated on under a separate category pertaining to safety management and statistics. The definition of safety leadership also yielded findings that are spoken of in the same realms as general leadership. This included the importance of “empowering others”, “mentoring type role” and “to be adaptable and change the situation you’re in”. This was echoed by one HSE manager saying “I use the old business model of situational leadership”. The importance of integrity and transparency was also commonly discussed as core components in safety leadership. Supporting findings of transparency included such comments from an HSE manager who stated “it’s probably a lot more transparent”, and one CM saying that it is about “addressing all issues, not just palming
them off”. Further defining and exploration of safety leadership was heavily aligned to the components of the proposed RAVE model in terms of establishing relationships and being authentic in one’s approach. An example of the comments that help define safety leadership have been detailed in Table 4.3.

Table 4.3: Defining Elements of Safety Leadership
(Source: Developed for this Research)

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Vision</th>
<th>Honesty</th>
<th>Values</th>
<th>Promotion</th>
<th>Demonstration</th>
<th>Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM: “When I say fairness, fairness in your levels of discipline, you don’t want to be seen as a pushover.”</td>
<td>GM: “So unless they’re told, unless they understand what they are there for and believe in it, how will it be effective?”</td>
<td>PM: “We would try and build up a trust conscript; every time an issue was raised we would have 14 days to close it.”</td>
<td>GM: “For me you have to believe that people have the right to come to work and not go home any different.”</td>
<td>PM: “Key thing in safety leadership is teaching your fellow workers what the paperwork means so they understand it.”</td>
<td>GM: “Have to make sure I comment on the incident reporting, I’m actively involved, participate in the closure.”</td>
<td>GM: “Engaging in some deeper sort of discussion with things related to the job.”</td>
</tr>
<tr>
<td>GM: “Holding their people accountable for delivering on things.”</td>
<td>PM: “Get them involved when you do share your vision.”</td>
<td>GM: Transparency in our reporting, I think we have indoctrinated in our people that we report everything.”</td>
<td>HSE: “Safety is a value that underpins the core key chunk of something you do.”</td>
<td>GM: “Lead by example, this is not an HSE thing, just living the culture.”</td>
<td>CM: “I can influence through my own behaviour, going out into the field and talking.”</td>
<td>PM: “Tell stories, it’s real, not just written on a piece of paper.”</td>
</tr>
<tr>
<td>HSE: “One bad egg can change it; about stopping that.”</td>
<td>HSE: “Bigger vision can cross multiple borders and countries.”</td>
<td>HSE: “If I make a mistake let me have it.”</td>
<td>GM: “It’s a personal thing, it’s your ethics, it’s your morals.”</td>
<td>HSE: “Paramount that you set the benchmark and set the baseline.”</td>
<td>GM: “Talking safety with my PMs very regularly.”</td>
<td>HSE: “It’s all about building rapport first.”</td>
</tr>
<tr>
<td>PM: “Raise the points or raise the issues of where they have failed and see whether you get that discussion going.”</td>
<td>CM: “Honesty, integrity, openness and a belief that of going home safely every day.”</td>
<td>GM: “I think safety is intertwined with personal values and I think it’s intertwined with ethics, whereas maybe org leadership less so.”</td>
<td>CM: “About believing and preaching ... well not preaching, may not be the right word, it’s about living the safety values we have in place.”</td>
<td>HSE: “Simplistic view would be wearing PPE, following general policies and providing resources and stuff.”</td>
<td>GM: “Seriously just talk to them, give them the courtesy of talking to them; when we have a staff briefing, hang around afterwards.”</td>
<td></td>
</tr>
<tr>
<td>CM: “If you hurt someone, you deserve it, you face the consequences.”</td>
<td>PM: “Need to make sure they see the whole picture.”</td>
<td>HSE: “About being yourself, not trying to be something that you are not.”</td>
<td>CM: “Comes down to personality and who has got the values, regardless of money.”</td>
<td>PM: “Eighty per cent of workforce will follow you based on what you do.”</td>
<td>HSE: “It’s not walking past something, otherwise you condone it.”</td>
<td>CM: “Communication is my best practice.”</td>
</tr>
<tr>
<td>GM: “Setting a standard of expectation, as an individual, ethically and morally yourself.”</td>
<td>CM: “You’ve got to understand why you are doing this stuff or no-one’s going to take time to do it.”</td>
<td>PM: “I believe integrity is really important here; people need to believe in what you’re trying to do.”</td>
<td>GM: “If people fundamentally don’t believe safety is a value of theirs as it for the company, then you are wasting your time.”</td>
<td>HSE: “Monthly safety awards to communicate the number of safe days … how we went last month.”</td>
<td>PM: “Do a walk around on site; don’t go to a project and go to the office for eight hours.”</td>
<td>CM: “Really be engaging with the guys rather than forcing it upon them; get them to engage with themselves.”</td>
</tr>
<tr>
<td>PM: “Safety culture defines the accountability; it defines actions.”</td>
<td>CM: “I like to use charters; I like to have it published.”</td>
<td>GM: “It’s about honesty, belief you know, that authenticity.”</td>
<td>HSE: “Bring a bit of humanity into society.”</td>
<td>PM: “The education process is critical.”</td>
<td>CM: “Even if it’s 8 o’clock at night, I will always get back to someone.”</td>
<td>HSE: “Need to be able to talk and relate to the guys in the field.”</td>
</tr>
</tbody>
</table>
The above comments represent a small sample of the core themes that have been used to help define safety leadership.

### 4.3.4 Common Theme
Discrepancies did exist between safety leadership and general leadership; however, common ground was established between the core characteristics of safety leadership. A penchant towards demonstrated behaviours was often cited through such expressions as “leading by example” and “setting the example”. Other common elements were in relation to personal values to safety, empathy and the ability to influence others to undertake work safely.

### 4.4 Specific Safety Leadership Behaviours (RQ2)
One of the core research questions was aimed at identifying the specific and observable behaviours that are indicative of safety leadership. Examples of behaviours were grouped from all job positions. These behaviours initially ranged from broader statements of “developing good rapport with the workforce”, “open and positive communication” and “being consistently there all the time”. The range of specific behaviours included specific questions that the participants would ask the workers such as “how does this job compare to their previous jobs, what things are better, what things are worse?” and “how can we do this better?” The majority of the core behaviours were linked to safety-related specifics, behaviours focused around engagement and vision sharing activities. Examples of these findings have been detailed in Table 4.4.
### Table 4.4: Core Safety Leadership Behaviours

<table>
<thead>
<tr>
<th>Safety Related</th>
<th>Engagement Related</th>
<th>Vision Related</th>
</tr>
</thead>
<tbody>
<tr>
<td>GM: “decking yourself out with the gear (PPE)”</td>
<td>HSE: “talking to people about health and safety issues on the job front”</td>
<td>HSE: “have someone come through and set the behaviours as a benchmark”</td>
</tr>
<tr>
<td>PM: “I like to check that Take 5’s are being done, I open the Take 5 box and make sure they see me”</td>
<td>CM: “meet everybody on site; meet and greet every single one of them”</td>
<td>CM: “I bring 10 to 20 people at a time, induct them and tell them what we expect from them”</td>
</tr>
<tr>
<td>GM: “read safety information and find things to comment on”</td>
<td>PM: “go to the people you don’t know and talk to them”</td>
<td>CM: “always include safety when you’re giving a task”</td>
</tr>
<tr>
<td>HSE: “following general policies and providing resources”</td>
<td>GM: “I tell them a story about an incident we had a couple of years ago with a belt pull”</td>
<td>PM: “continually try and reinforce expectations and give employees an opportunity to perform”</td>
</tr>
<tr>
<td>PM: “teaching your fellow workers what the paperwork means so they can understand it”</td>
<td>PM: “I talk about two things, one is risk, and I talk about doing things safely”</td>
<td>HSE: “remind myself and the team not to focus on numbers, focus on what’s behind our success”</td>
</tr>
<tr>
<td>GM: “housekeeping; if I see something on the ground don’t step over it, pick it up”</td>
<td>HSE: “I expect feedback from them; I told them to give me feedback anytime they want”</td>
<td>HSE: “go out in groups; that gives us the ability to show our expectations”</td>
</tr>
<tr>
<td>GM: “make sure I comment on incident reporting, participate in closure wherever I can”</td>
<td>HSE: “good idea to explain what we are doing and why we are doing it”</td>
<td>PM: “setting a minimum expectation for the management levels from the top all the way down”</td>
</tr>
<tr>
<td>PM: “celebrate crews that have had no incidents; celebrate the simple things”</td>
<td>PM: “raise the points or raise the issues of where they have failed and see if you can get that discussion”</td>
<td>HSE: “about setting short-term goals, building the blocks and conquering the larger objectives”</td>
</tr>
<tr>
<td>CM: “I went around and spoke to everyone at their pre-start and asked 300 people ‘who has ever been involved in an incident or fatality?’”</td>
<td>HSE: “Managing director flew to Singapore with a (injured) guy, had a discussion with him and then went to site and told everyone what the guy had said”</td>
<td>HSE: “holding people to account to agreed parameters that I set down for them at the start of the project”</td>
</tr>
</tbody>
</table>

(Source: Developed for this Research)

Other behaviours detailed were acting with confidence and making decisions in a decisive and fair way. This was shown to include consultation and collaboration with other key stakeholders and subject matter experts such as members of the HSE team. There was also a
trend in applying discipline for an overt disregard to safety responsibilities. This can be evidenced through one HSE manager commenting about “consequences ... sometimes it could be just like a written warning or whatever the case”, and one GM saying that you “almost have to be ruthless, probably a bit strong, but you must be aware”.

Another component of observable safety leadership behaviours was based on employee support. This was referenced through constant feedback and follow-up, “never brushing the issues away” and providing training and support if any gaps within safety have been identified. The vehicles of support were commonly paired with spending time “in the field” and through constant communication.

4.4.1 Common Theme
In most instances, the demonstration of safety leadership behaviours involved interaction with the workforce, interspersed with elements of support and discipline. A connotation of “field time” was mentioned as an important element in demonstrating specific safety leadership. This was encapsulated well by one CM stating that “if you want to influence the game, we have to go down on the pitch to influence the game”. The behaviours of participants were linked up to individual ethics and values towards safety leadership.

4.5 Proposed RAVE Model (RQ3)
Another one of the core research questions developed for this study was based on the application of the RAVE model and its contribution towards safety leadership. Results indicated that the elements of Relationships, Authenticity, Vision and Engagement were all well representative components of effective safety leadership. This was consistent across all participants that were interviewed. Each component of the RAVE conceptualised model was expanded upon through participant experiences, thoughts and ruminations.

4.5.1 Relationships
An abundance of information was obtained from the participants, who outlined the “huge importance” of relationships in terms of safety leadership. The importance of relationships was reflected in the ability to influence others where ideally a person “needs to know who the guys are ... know what their attributes are” as well as providing discipline and being assertive. One comment made by an HSE manager was “safety is the people business” and that if one had a “mentoring and coaching type of role”, this would be the epitome of an effective safety leader. Respect and integrity were also hallmarks of building relationships, indicative of one
CM saying that it is about “being genuine with people and respecting people” while another GM commented that “through honesty your carriage of integrity flows through to the people” while “telling stories with names” was mentioned to help with that process.

Relationships were reportedly built by getting to know the workers in a meaningful way as opposed to superficial interactions. The impact of these deeper relationships was indicative of one participant sharing that he had previous workers ringing him up to maintain contact. The basis of building relationships was linked to rapport-building where relationships can be built quickly via “a little bit of humour and being able to poke fun at yourself” and by “making something more personal which makes it [safety] easier to sell”. The importance of being accessible through having an “open door policy” and applying discipline are closely aligned to the sub-elements of assertiveness, accessibility and openness. There was minimal data referring to the proposed importance of social identification, and factors of similarity were often based upon the common element of “family”.

Other ways to build the safety relationship were factored around tangible events such as one CM “buying beers on Friday” outside of work or another CM “pulling a barbecue together and then having a chat”. Participants often cited the importance of interpersonal skills, such as listening and relating to the individual. One CM spoke about the impact with workers if you do not focus on building the relationship. This was reflected by the comment: “without a good relationship, basically they won’t be very interested in what you have to say, basically they’ll be criticising you”.

Components of assertiveness that were included as part of the proposed RAVE model were reflected through factors of discipline. This included personal, employee and organisational discipline. One CM made the comment that you need “fairness in your levels of discipline. You don’t want to be looked at as a pushover”, and as one PM stated, “you can go around running and joking, you might have the respect but when it comes down to discipline, communication, they’re not going to listen”. Comments were also made about personal discipline, such as abiding by the rules and safety procedures that may be on site.

Some leaders, who are not site-based, mentioned that the ability to build a relationship with workers becomes challenging, specifically when the size of a project could be well over 300 individuals. An solution to this challenge can be reflected in the comment “you don’t want to know their whole fucking life story but at the end of the day, as long as they think you care,
which you do”. The essence of building a relationship was strongly linked to honesty and transparency, which feeds into the authenticity aspect of the RAVE model.

The importance placed upon supervisors reflects the research into leader/member exchange, which is a core component of the RAVE model through the component of relationships. It was often noted that “supervisors have the most influence on the blue-collar” workers and that engagement with supervision is pivotal in demonstrating the effectiveness of safety leadership. Further to these findings was the dilemma that “supervisors just want to get the job done” and that you have to “get your supervisors involved” in order to release the benefits of safety leadership.

4.5.2 Authenticity
Components of authenticity were well referenced in terms of honesty, self-awareness, transparency, accountability and “being genuine”. Authenticity was one of the most prevalent elements of the RAVE model. Levels of personal insight can be evidenced by one GM stating that safety leadership is about “admitting your weaknesses: don’t bullshit your way through” and other unguarded comments by an HSE manager who said “in the early days I was probably guilty of not being aware of the work practices” and “telling them [workers] if you failed them”. There were also comments made by participants about specific areas that they may be weak in or would like to improve upon. This was in relation to learning more about safety management processes or being more visible “in the field”. An HSE manager, who would be reluctant to share his safety misgivings, raised a drawback. This was further elucidated by the participant who stated that their credibility would be questioned if they were to share their safety mishaps, given their role is all about safety. A supporting comment backing up this thought process was from a general manager who said “I dread the safety manager that comes to work with a broken arm because everyone’s going to be questioning what’s going on ... it almost becomes untenable”.

Credibility was a vocal element of authenticity, with participants across all job positions stating “it all comes back to credibility”, “credibility is extremely important ... extremely important for leadership” and “need to be credible, because everyone would think you’re a piece of shit and you’re not a good leader”. Credibility was in line with trust, with one PM saying “we try and build up a trust conscript … so every time there is an issue, a concern raised, we would try and put on a fourteen-day timeframe to have issues resolved” and that
“trust is one of those weird things where people will either give it to you or not give it to you”. An amalgamation of trust and credibility was shown through the importance of transparency.

Participants particularly mentioned the importance of openness and transparency, which was reflected by one PM stating “I don’t think there is any reason not to be transparent, particularly the blue collars are very adept and skilled at separating the wood from the trees”, and one HSE manager stating “If you try and play your cards close to your chest, I think you lose respect and then your integrity is up for question”. Participants further outlined that transparency could be demonstrated through the open reporting of incidents and “being yourself”. It was mentioned that safety is the one true area that a leader can be completely transparent about. Whether the statistics are good or bad, the information can be used as a stimulus for change. The change needed or wanted was often guided by the vision of the leader.

4.5.3 Vision.
All participants identified the importance of goals and overall safety expectations. Quite often the safety vision could be as broad as “making sure nobody gets hurt” or “our target is continuous improvement”. In contrast the vision was also specific, such as a personal safety action plan or team charter. The tangible documentation of a vision was notably absent across multiple participants as shown through such comments as: “it’s interesting, I have never documented a safety vision” and one GM saying “I think we are a bit void on the safety strategy and vision at the moment” and that most visions are expressed through verbalised expectations. The misalignment with a safety vision was reported to make people “lose my temper” and it begins to create challenges for shared employee commitment. Other findings detailed that a safety vision was present through (one CM) having “a pledge” or an initial briefing with a team member that detailed their expectations upon commencing work.

In the conceptualised RAVE model, a sub-element of vision was rhetoric which was present in the findings with individuals revealing that a vision can be shared via “the delivery of stories. I think people remember that. I certainly remember stories more than particular facts”. There was also expressive language, which was reflected in the comment “it’s the words in which you use them or how you use them”. Specific words that were used to promote a safety-leadership vision included “relentless”, “discipline”, “commitment” and
“consistency”. As one HSE manager outlined, “there’s a lot of acronyms that different groups have used” and, as one PM stated, “when you start throwing around big slogans and things like that, I think people see it as patronising”.

The importance of language was highlighted through factors of engagement and creating a vision towards safety. The creation of “silly slogans” and other platitudes towards safety were not well received. There was a general acceptance to the company slogan of “the safe way is the only way”. The preference behind this wording was due to the latitude one has in order to get the job done safely without it being too “prescriptive”. One GM mentioned that the common words used on a project are “efficiency, productivity, cost cutting, which has an effect on everybody, so most people become a little bit tender in their approach as a result”. The importance of the words spoken can also be reflected in the type of questions asked and is inclusive of the vision component of the RAVE model.

Challenges associated with the adoption of a safety vision were summarised well by one GM who stated that “we’re probably kidding ourselves if we think that everybody’s going to buy into this safety vision”. The gravity of this comment is counterbalanced by the constant references to communication, integrity and interpersonal connectedness and expressing one’s value towards safety. An emphasis on the value towards safety and its influence upon safety leadership was strongly referenced and emerged as a contributing factor to the current literature.

It was often voiced that to be an effective safety leader, one will need to have a personal belief and value towards safety. One GM made the observation that “people have religion, you’ve got beliefs and safety has to sit as a belief” while other comments outlined that “you have to value other people and value other people’s wellbeing” and you need a “strong personal value” towards safety. Links were also made to one’s personal values being aligned with the values of the organisation and how some participants form their team by aligning values. An example of this was when one CM was talking about his subordinates and mentioned that the “values that he brings to a project fade away any shortcomings” and that if “people fundamentally don’t believe that safety is a value of theirs as it is for the company, then you’re probably wasting your time”. Participant values were shaped by expressed emotion and empathy if someone was to be injured on a project.
When the notion of a vision was raised during the interviews, this notion was often referred back to the establishment of goals. Evidence of this can be seen through such comments as “goals need to be achievable: if they are out of reach, people start to take shortcuts” and “the goal is not to hurt other people and that’s the bottom line”. The impact of a well-crafted vision was expressed by one HSE manager to “cross multiple borders and countries” and be a marker of inspiration. One GM mentioned that you should “try and move towards your vision; you should never get to your vision, otherwise it’s not a vision”. The communication of any specific vision was often achieved through engagement.

4.5.4 Engagement
The most well-supported element of the RAVE model related to engagement and communication. This was predicated by conversing with employees, utilising “humour to break down barriers”, “talking about your experiences” and having general conversations with people, which may not be work related. One GM mentioned “if you don’t like talking to people, you don’t like interactions, you’re an introvert, you will never be seen as a great safety leader” and it is “hard to show safety leadership without strong communication skills”. The effectiveness of engagement was shared by one PM who said that you should have conversations “without having to do any paperwork or proving that you interacted” and “having more one-to-one chats”. Findings suggest that the core means of engagement related to walking around on site and being visible and approachable. Participants often cited the utilisation of various questions to open up the conversations around safety. The composition of the conversations and interactions were not related to technical knowledge, but instead comprised questions around how things could be improved upon and defining the company culture. As mentioned by one GM, the “majority of people in safety leadership don’t actually show anybody anything; we don’t pick up the tools and show them how to do something, we interact with them”.

Engagement was often referred to as a collaborative approach to solving challenges and being “open and honest with the guys” while reinforcing what is working well. The benefits of engagement were attributed to “ownership” and “increased understanding” by sharing the reasons “why” a safety initiative was implemented. A tangible example of the impact of employee engagement was outlined by one PM who took over a leadership role on site and explained that they were “having an injury rate at seven or something [moving] to a 2.4 and that’s purely based upon communication, openness and if they’ve got an issue, listen to what
they have to say, assess it, see if it can be changed”. A precursor for engagement was “building rapport first” through self-disclosure and “making the workplace a happy place through jokes and laughter”.

Participants often referenced applying fairness with discipline through such comments as “lead by being fair”. Elements of fairness were demonstrated by ensuring that workers have been trained and informed about project expectations prior to discipline being applied due to a non-conformance issue. The key factor underpinning fairness was consistency across all work fronts. One HSE manager stated that “the PM doesn’t have to be loved by anybody, but he has to be fair, or she has to be fair”, while another HSE manager stated “we are harsh but we are fair”. These comments reflect the sub-element of distribution of justice.

The purpose of engagement and the methodology behind it were often cited back to “selling safety”, with one HSE manager viewing himself as a car salesman in order to influence people. A lot of the engagement was showcased by discussing the personal impact of unsafe behaviour on someone’s family and loved ones or sharing one’s own experiences with safety. The importance of engagement aligned well with the establishment of relationships, and in most instances the two variables were interchangeable. The distribution of justice, which constituted a sub-element of the RAVE model, was present although heavily referenced under the banner of fairness. A sample of the comments and themes collected under the RAVE model have been detailed in Table 4.5.
Table 4.5: Representative Comments and Data based upon the RAVE model

(Source: Developed for this Research)

<table>
<thead>
<tr>
<th>Relationships</th>
<th>Authenticity</th>
<th>Vision</th>
<th>Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>GM: “Has to be more face to face stuff … make it part of your regime that it is going to happen.”</td>
<td>PM: “Trust is one of those weird things where people will either give it to you or they won’t give it to you.”</td>
<td>HSE: “Everybody has to have a vision … what my expectations are, you’ve got to put up a benchmark.”</td>
<td>HSE: “When someone is doing something that can be improved, make sure you are stopping it; ask them why are they doing it that way.”</td>
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<tr>
<td>PM: “Relationship is vitally important because if you don’t have the buy-in … you won’t get the buy in from the workforce.”</td>
<td>HSE: “It comes back to credibility I reckon, we are not perfect, we are all going to make mistakes.”</td>
<td>GM: “I do my own personal safety vision plan like a good boy every 12 months, commit to a different set of objectives at a time.”</td>
<td>GM: “Just talk to them all. When we have our briefings, I sit at the front and we talk through these things.”</td>
</tr>
<tr>
<td>HSE: “Getting to know the people on a personal basis where you can relate to certain issues or certain circumstances to the people.”</td>
<td>GM: “Setting a standard of expectation as an individual, ethically and morally for yourself.”</td>
<td>PM: “Vision is communicated every time we talk to the guys … we tell them what it is that we want, this is where we are going.”</td>
<td>PM: “Ask the guys, look if anyone is not focused, and if someone has a social issue, encourage them to talk to their supervisor.”</td>
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<tr>
<td>HSE: “We need to build up a good rapport and relationship with these people.”</td>
<td>CM: “Be honest, security in yourself; you’ve got to give that perception that you are confident.”</td>
<td>CM: “I don’t set goals or anything like that; the end goal is not to hurt other people that is the bottom line.”</td>
<td>CM: “But it’s generally starting up a conversation, not about what they are doing, just a general conversation.”</td>
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<tr>
<td>CM: “If you haven’t got a relationship with the client, or a relationship with the guys, then you are not going to have positive outcomes.”</td>
<td>HSE: “It’s got to be transparent, anything you do has to be transparent; if you try and play your cards close to your chest, you will lose respect.”</td>
<td>GM: “Try and move towards your vision; you should never ever get to your vision, otherwise it is not a vision.”</td>
<td>GM: “Speak to the ground floor workers and ask them to define the company culture and what that means and what they are doing about it.”</td>
</tr>
<tr>
<td>CM: “It’s building up that relationship where they know you are reliable and stick to your word.”</td>
<td>CM: “You should be sitting somewhere in a room and expressing yourself and letting people know about yourself.”</td>
<td>CM: “I made a pledge that I don’t care about schedules, I care about your safety.”</td>
<td>PM: “It’s drawing on the technical expertise and the experience of each of the people you are talking with … kind of understanding where they are from.”</td>
</tr>
<tr>
<td>PM: “Build a relationship through communication, regular communication.”</td>
<td>GM: “Admitting to your weakness, not bullshitting your way through.”</td>
<td>PM: “The expectations need to be plausible, they need to have integrity.”</td>
<td>HSE: “Humans crave rewards, just recognition.”</td>
</tr>
<tr>
<td>GM: “These guys have to work together; it is a lot easier if they know who each other are.”</td>
<td>CM: “I just need to control myself and pick up my act, I suppose, in areas of compliance.”</td>
<td>PM: “We want you to improve and that is the expectation I have now for myself and my team.”</td>
<td>CM: “For me it’s about the collaborative approach in the paddock.”</td>
</tr>
</tbody>
</table>

An abundance of comments that reflect the four components of the RAVE model were captured. Many comments were intertwined with other secondary themes and data that was captured.

4.5.5 Common Theme

The pillars of safety leadership were shown through the components of relationships, authenticity, vision and engagement. Within these components were intertwined aspects of
honesty, transparency, discipline and effective communication. The elements of relationships and engagement were strongly cross-linked and interchangeable. The importance of values and ethics became an overarching theme, which was highlighted compared to other sub-components of the RAVE model.

4.6 Secondary Themes
Information gathered from the interviews identified overt factors influencing the subject of safety leadership, which fall outside the scope of the research questions. This included the importance of values, operating environment, safety management, “zero harm”, culture and empathy. Branching on from these emerging topics were the secondary themes. The secondary themes were based around safety innovation, challenges and the importance of questions. A graphical representation of the findings and links to the research areas and emerging contributions have been detailed in Figure 4.1.

Figure 4.1: Emerging Core and Secondary Themes based on Safety Leadership
(Source: Developed for this Research)

4.6.1 Safety Innovation
One of the by-products of effective safety leadership was the decrease in workplace incidents. The importance of developing a learning organisation and innovation were highlighted from the research and reflected through such quotes as “you need effective continuous
improvement; that way you should never see the same incident on another job”. Innovation around safety metrics was also noted with suggestions ranging from the “measuring of people’s behaviour” and, as one PM said, to challenge an individual’s thinking so people would not be “so indoctrinated and linear”. The importance of innovation was grounded upon such comments from one PM saying that “innovation is very important because the innovation I’ve seen in safety has been nothing but increased bureaucracy” and one CM saying “if the company stands still you go bankrupt”. Other factors pertaining to innovation were linked up to the importance of management commitment to new suggestions while having the ability to learn from mistakes. Such a prevalence of the importance of safety innovation has been reflected in Figure 4.1 as a secondary theme. Without the consideration of challenges, the ability to innovate may be thwarted.

4.6.2 Challenges
A range of voiced challenges has affected the ability to demonstrate safety leadership which has been included as a secondary theme in Figure 4.1. This included the challenge from one HSE manager to “filter information up” and how the reporting structure can place “more pressure in making decisions” as opposed to demonstrating safety leadership. Other challenges ranged from influencing others, with common concerns around individual ownership or systematic problems with the way employees are recruited. A resourcing challenge within the industry was also noted from one CM who said “a lot of the guys leave after two years, unless they have that certain personality”, which in turn makes it hard to develop employees. The type of language used can shape the opinions of employees.

4.6.3 Asking Strategic Questions
One of the common mediums noted for engaging others was through the use of questions in “providing context” but also in terms of developing relationships. Examples of the types of questions that participants would ask include: “how can we do this better?” or “okay guys, where can I help?” or “how could this hurt you?” and “how are the wife and kids, what did you get up to on the weekend?” Most questions were linked with forward thinking, innovation or personal questions to establish rapport. The importance of questions was extrapolated to all roles, including supervisors and therefore was included as a secondary theme in Figure 4.1.
4.6.4 Values and Ethics
Through the interviews, the importance of having a personal belief or value towards safety was underscored as an integral component to safety leadership as reflected in Figure 4.1. As one GM stated, “I think safety is intertwined with personal values and I think it’s intertwined with ethics whereas organisational leadership is less so”, and one HSE manager said “safety leadership is about bringing a bit of humanity into society”. Other comments that link into the importance of values include “you need to tap into the inner sanctum of the other person” and as one CM declared “values are hidden … but you should be able to express them and show them through communication and interaction”. Across all job positions it was clear that if there is not an innate value towards safety, then it would be challenging to exercise safety leadership. As one GM shared, “the values that underpin safety leadership are integrity, honesty, consistency, transparency”.

4.6.5 Safety Management
The exploration into safety leadership behaviours with participants often emphasised or touched upon the influence of safety management processes. Within this scope, safety management refers to legislation, compliance tasks, statistics and risk management tools and has been visually depicted in Figure 4.1. The balance of HSE legislation and safety leadership behaviours can be reflected in some of the following comments, with one HSE manager saying “as a safety leader in my position, it’s to make sure legislation is all followed” and “it helps if you’ve got an understanding of legislation and an understanding of the basics”. Linking up with legislation are the associated safety documents, which can be exhaustive. Indeed, one PM stated that “we are probably administering 20,000 safety documents per month, which is enormous”, “the guys are sick of the paperwork” and how safety documents are “made up of two rainforests of paper”. Some of the outlining issues revolving around safety documentation were justified by one PM asking the question “why are we double handling, triple handling information?”

With the amount of paperwork associated with safety, there was justification that paperwork creates “risk mitigation, liability mitigation behaviour”. With regard to safety leadership, safety management plays a part by a leader “focusing on safety systems and processes which we manage to drive down because it is something that you can drive down” and one GM stating that “there’s always going to be room for compliance, especially with the turnover of people”. Findings across multiple job positions outlined that the aspects and technicalities of
safety are only as good as people’s understanding of the systems. As a result, multiple participants focused on educating others towards safety obligations with one GM describing that “management is the statistical part of it and leadership is the behavioural aspect”. The saying that “a man is not an island” could be applied towards safety leadership, as it is not separated from safety processes and systems, although it is influenced by such factors as referenced in the literature review.

The role of statistics within safety leadership was regarded as a platform to exhibit safety leadership behaviours and was an element encompassed by safety management. This was indicative across all job positions and outlined by such comments as “statistics provide a way to measure people” and “the good part of statistics is that you can address a particular issue”. The challenge with statistics which makes them “a love-hate relationship” was influenced by injury rates and how statistics become the focal point of activities which can be regarded as “negative” given that “Eighty per cent of what we see is negative”. One of the other challenges that emerged with statistics was the focus on injury-free days or specific milestones, which caused more anxiety as opposed to focus. This was reflected through comments by a PM who said that the “guys tends to worry and concern themselves more about the hours and the incidents than their own safety” and “it actually puts guys on edge”.

A small sample of participants outlined the benefits of celebrating injury-free milestones, without keeping a running tally. The overall conundrum with safety statistics was outlined well by one of the GMs, who stated that “safety is not about statistics, quote unquote, yet everything we do and what the client drives and the first thing we review at our HSE meetings is statistics”. From these findings, it can be noted that statistics act as a measurement although the frustrations of such a measurement are continuing to annoy.

4.6.6 Safety Culture
The importance that a safety leader has upon the overall safety culture was magnified from these findings across all job positions and listed as an emerging factor in Figure 4.1. When notions of culture were raised, they were synonymous with the terminology of safety culture and the terms were used interchangeably. Some telling comments from the GMs indicated that “culture has always had a safety focus” and the leaders need to develop others in order to be “a cultural ambassador” and this can transform into a “culture where people feel confident that they can carry out their beliefs”. As one PM stated, “culture is the key word in all of this,
it’s creating a culture of awareness and understanding and having guys appreciate it”. A telling sign of the underlying safety culture is with one PM sharing that “we don’t have a suggestion box on site because we like the guys to know that they can come and talk to us about anything to do with safety”. One of the HSE managers stated that the “the ultimate cultural goal is that people self-manage and they will do things safely because they want to” and that there should be a safety culture where “they are reporting everything”.

The importance of a safety culture was indicative of some of the comments by a CM who stated that “we are here to drive the culture of safety” and that the workplace culture “needs to be driven by management”, which results in employees “coming to me with increased frequency” and a “relaxed” relationship with leadership. The overall culture of safety was often spoken in line with the aspirational goal of “zero harm” and the impact such verbiage has on a workplace safety culture.

4.6.7 Employee and Cultural Impact of “Zero Harm”
The language of “zero harm” acted as a trigger point in terms of participants’ beliefs and feelings towards the concept and its relationship with safety. Thoughts consistently ranged from “zero harm being a cliché that’s been going for twenty years … but the problem is every job we go to it’s the same message over and over”, and that the “immediate reaction is doubt and then all of a sudden people start to say it’s full of shit” or that “everyone’s philosophy really is swinging, it is changing”. There was also implied pressure to agree to the concept as represented through the comments of one GM saying that “one of the big things is that you should always say yes it can be done” and a CM saying that “we will comply because it’s a requirement for me to be kept employed, even if I don’t really believe in this”.

Further definition of what the concept means was expressed by quite a few participants: they stated “I know people turn off very quickly when they hear that and I think they need to put it into context” and “I believe that it’s a vision or aspirational type thing”, which was further highlighted by an HSE manager saying “in reality it’s not achievable, although it’s a vision to aim for”. The wording of “zero harm” becomes a topic of discourse and personal debate, although what it means was influenced by a participant’s personal belief, literal understanding and the reality of work conducted on a project. Overall findings suggest negative connotations towards such language as “zero harm” and its relationship to safety, hence its listing as an emerging factor in Figure 4.1.
4.6.8 Empathy
Findings revealed that the emotional burden of someone getting injured on a project would elicit unwanted feelings of regret and melancholy. Further to this, one CM stated that they “couldn’t think of anything worse than fronting someone’s family or the individual themselves and say I’m responsible for the actions for this to happen” and one PM sharing that “the feeling of having hurt someone on the job for me is the worst thing that can happen”. When discussing the impact of a workplace injury, participants often expressed their empathy towards the injured worker. This was often done by participants thinking of their own family members being injured and forecasting how they would feel about the situation.

Further self-reflection into safety leadership revealed such comments from a CM who stated “I’ve got a kid, I’ve got a wife and family; all of my guys out there got a wife and family and it’s up to me to make sure that they go home safely each day”. As one PM said, “safety is about appreciating your own mortality and that you don’t’ want to hurt yourself”. This was transferred to acting in a way where workers can go home safely. There was a small sample size that shared the outcomes of a fatality on site and how the ripple effects were “pretty devastating, not just for the people, family and friends, but for the whole world it’s pretty devastating”. The links between safety leadership and personal wellbeing were abundant and were linked to the factors of values and ethics. These findings underline the importance of safety leaders having a degree of empathy, which can help foster working relationships and is a pivotal factor which has been visually depicted in Figure 4.1.

4.7 Safety Leadership differences between Job Positions
Across the sample size of participants, there were more similarities between the job roles compared to differences in regard to the topic of safety leadership. The majority of differences were mainly predicated by the amount of data collected upon a theme as well as the depth of examples and agreed scope of definition with safety leadership. Examples of this include HSE managers sharing more information on the theme of safety management systems than general managers or construction managers sharing more information on the theme of engagement than project managers. The definition of safety leadership was more embedded within the realms of general leadership by general managers than other counterparts.
Across the general managers, there was more of an elaborated reference to the broader context of safety leadership and its application across the Australian construction industry. All of the general managers viewed safety leadership and leadership as being synonymous with each other, with generalised comments being made in reference to a safety vision. These differences may be generated around the scope of influence a general manager has upon the business and the lumping of safety as a by-product of leadership.

In comparison, the data collected from project managers had a particular emphasis on costs and client expectations. A few project managers saw a distinction between safety leadership and general leadership. Examples of this included the transparency of safety matched with the juggling of compliance-based requirements with safety management systems.

Construction managers made fewer comments about safety statistics and shared more practical examples of engagement with the workforce. This was outlined through the amount of time each construction manager spends “in the field”, which also reflected their emphasis on relationship building. Construction managers within the sample size often reached their position by “rising through the ranks” and coming from a trade background. This historical connection might leverage the importance of connectedness in the field. With construction managers, there was more of a bias towards safety leadership being a separate discipline from broader leadership.

The importance of relationship building was jointly emphasised by HSE managers, as well as a focus on safety leadership behaviours that were more aligned with managerial tasks. HSE managers also noted more challenges associated with safety leadership compared to their research counterparts. From these findings, the maturation of safety leadership and its distinguishing factors from general leadership can be mapped upon a continuum of scope and responsibility. From the findings it appears that the more responsibility one has, the broader safety leadership becomes, where it eventually gets lumped into general leadership. This progression has been mapped out in Figure 4.2.

Figure 4.2: Safety Leadership between Job Positions
4.8. Australian Project Construction Environment
Information and data was gathered that explained the context of the Australian construction environment and how it may differ from construction environments based overseas. Participants from all management job positions shared information regarding the uniqueness of operating within the Australian project environment. This was discussed along with the overarching influence of clients and mandatory legislative requirements, which may influence safety leadership behaviours and places this research in context with the external environment.

4.8.1 Australian Construction Workers.
Responses from the participants highlighted the overall sceptical and questioning nature of the Australian construction workforce with undertones of masculinity. The hardiness of construction workers was outlined by comments from one HSE manager saying that “I’ve got skin as thick as a rhinoceros” and when the topic of safety incidents emerged, one CM stated “if you’ve got a weak stomach, get over it mate, it’s construction”. This was matched with the workers’ intolerance of contrived messages or false leadership expressed in such comments as “Australian construction environment is unforgiving because of the people you are dealing with”, “as part of our make-up, I don’t think we like hypocrisy” and “in the Australian context, if you try and deliver information as a sermon, like a religion, people will
just switch off”. These comments and plenty more outlined the Australian workers’ tendency to “question a lot more” with a general “working-class feel about the place”. Participants’ description of the Australian construction environment identified the importance of integrity and fairness. One GM made comparisons with how Australian politicians are constantly under close scrutiny for their behaviour, which is similar to leaders within the construction industry. The Australian context can be contrasted with the experiences of participants who have worked overseas.

4.8.2 International Comparisons
A lot of the differences pertaining to safety leadership within Australia compared to overseas countries were directed down to the value of safety. This was matched with an overarching presence of workplace health and safety legislation. This was a predominant factor raised by participants who have worked overseas and stated: “I think Australians have a greater sense of fairness and expectation that you shouldn’t get injured whilst on the job” and “in the Middle East or Asia, you can read the riot act in terms of safety then go home and get smashing drunk”, “I find that the reporting culture is completely different in other countries” and “in the Australian context health and safety is extremely valued compared to countries where it is not”. Further findings outlined that the perceived value of life within Africa or the Middle East varies considerably to Australia. This was reflected in such comments as “life is cheap”. When other countries were compared to Australia, the vast differences were mainly noted between Asia, Africa and the Middle East. These international comparisons may be influenced by the project environment and overarching fiscal constraints on a project.

4.8.3 Costs and the Project Environment
The variables that make the construction environment unique were linked to construction projects having a finite time span with a focus on schedules and profit. This was further evidenced by the following comments: “HSE have no safety budget compared to operations or mining” and people have “got to be disciplined with scheduling and resources; given the aggressiveness of projects, we obviously want to win contracts”. Matched with this is the uncertainty of further work which one HSE manager states that “I work on a project basis, so there are no guarantees [of work] for about 80% of the people”. It was mentioned that construction projects within Australia are driven by costs and are guided by the client of the project. Grouped findings outlined that the client of a project can influence safety by setting construction milestones or adopting their preferred safety methods. The business reality was
outlined by many people, who mentioned “in business it’s all about getting the job done; obviously its price sensitive” and “at the end of the day it’s a construction job, that’s how you get money, that’s how you get paid”.

4.8.4 Common Theme
The consistent element that emerged from the findings of the Australian construction environment underscored the influence of the Australian working culture, legislation, operating environment and the tentative nature of construction projects. The focus on costs was apparent through the influence of client actions and the associated costs of incidents. In terms of safety leadership, one participant outlined, “there is zero cost to safety leadership, absolutely zero” and safety leadership and safety should not be dictated by costs. This was reflected in such comments as “I would never mention safety and cost in the same breath”. These findings highlight that there is a fiscal reality to business, although costs associated with safety should be kept separate.

4.9 Quantifiable Data Based upon Safety Leadership Concepts
The semi-structured interviews that were conducted elicited much information. Specific findings, themes and sub-themes have been detailed. The answers and responses for some core questions into safety leadership and associated areas have been collated as a quantifiable descriptor, which has been represented in Table 4.6.

Table 4.6: Statistics Based Upon Data Collected
(Source: Developed for this Research)

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants that believe there is no difference between safety leadership and leadership</td>
<td>65%</td>
</tr>
<tr>
<td>Participants that included “walking the walk” or “leading by example” as part of the safety leadership definition</td>
<td>95%</td>
</tr>
<tr>
<td>Number of individuals that believe “zero harm” as a concept is ineffective</td>
<td>90%</td>
</tr>
<tr>
<td>Participants that have a personal vision towards safety</td>
<td>85%</td>
</tr>
</tbody>
</table>
Prevalence of safety management processes when defining safety leadership | 25%

From the statistics above, some context based upon the qualitative data collected can be provided. As shown, there is a strong common element about the ineffectiveness of “zero harm” as a goal or metric and dividing perceptions about the differences between leadership and safety leadership.

4.10 Conclusion
Overall findings of this chapter have detailed the links between the three core research questions, emerging themes and information that is unique to the construction environment. The integrity of data was maintained through the rigors of triangulation via self-reflexivity and inter-rated reliability review of coded data. Through the information gathered, a valuable collection of data for further discussion and analysis has been established, particularly around the secondary themes emerging from the findings. The next chapter is a discussion of the findings and overall contributions to the literature through emerging concepts, ideas and synthesis of ideas.
CHAPTER 5 – DISCUSSION

5.1. Introduction
The emphasis of Chapter 5 is grounded upon the integration of the research findings with current gaps in the literature and identifying the potential, practical and theoretical contributions. To provide context to the research questions, the current operating environment needs to be taken into consideration, as the environment may have an overall influence on any overlaying influences of safety leadership. Once this has occurred, the core research question of what behaviours are evident in successful safety leaders will be broken down through the core research questions. The formulation of a safety leadership definition will be shared as well as a discussion in regard to the specific behaviours that constitute safety leadership. Information relating to the applicability and modification of the devised RAVE model will then follow. This will be inclusive of the secondary themes from the research findings.

Once the research questions have been discussed, the focus will then shift to other background findings that have been revealed through the research findings and their applicable integration towards safety leadership. The last section of this chapter will be constructed around safety leadership recommendations and applications, before an overall conclusion to this chapter is provided.

5.2. Safety Leadership in the Australian Construction Context
The features of the Australian construction environment were shown to be nurtured via a strong regard for Australian values, legislative complexities, project costs and maturity of safety processes, which were shown in Figure 4.1. All of these components can contribute to a company’s overall safety culture, as detailed in Section 4.6.6. These findings support current literature outlining the importance of employee engagement, defined safety accountabilities and the importance of simple safety systems, which are unique to the Australian construction environment (Biggs et al. 2013).

The impact and influence upon safety leadership within the Australian context can be embedded through the values of safety and fairness. These values have been cited multiple times and regarded as pivotal in the Australian multicultural society with an emphasis on tolerance, respect and equality (Mason & Dyer 2013). The adoption of such values may be
influenced by English speaking skills and language fluency, which was shown to have an impact on the integration of values (Kabir 2008). From a working context, this can be a factor with the increased presence of foreign labour being utilised on Australian mining and construction environments, where language capabilities may be limited (McGrath-Champ, Rosewarne & Rittau 2011). If English capabilities are minimal, this may lead to poor assimilation of cultural and organisational values, which have been shown to be the essence of the Australian construction environment. All of the participants in the research spoke English as a first language, which resulted in the articulation of the importance that safety values play when discussing safety leadership. A limited command of the English language may hinder the ability to demonstrate safety leadership within Australia, owing to a misaligned belief in the supporting values. The flow-on effect can be reflected in lower rates of incident reporting by foreign born workers, whose understanding of HSE legislation and requirements could be floundering on account of variable English proficiency (Reid et al. 2014). The findings highlighted that the focus on legislation and compliance requirements are an integral component when operating in the Australian construction environment.

The findings of this study add credence to the maturity of Australian HSE processes and legislation compared to foreign counterparts. These differences can pertain to employer responsibilities as well as national requirements for reporting injuries. Such discrepancies were also evident in the work of Raheem and Hinze (2014) who conducted a global analysis in construction safety standards. The work completed by Raheem and Hinze (2014) found that countries such as Romania, Zimbabwe and Bahrain did not compensate their workers for injury and that there was no global consensus on what constituted an occupational accident. Findings from this research echoed these differences through participants who have worked overseas in lesser-developed countries. From these discrepancies, it could be deduced that Australian workers have a higher expectation of safety standards and therefore expect to be employed within a workplace that values safety.

Safety leadership could be the means to promote the commitment towards safety and act as a leading indicator towards safety outcomes. These sentiments are reflected by the work of Hinze, Thurman and Wehle (2013) who stated that safety performance has been traditionally measured through injury rates and that lead indicators can be utilised to distinguish the differences in project safety performance.
The perplexity of statistics and reporting is a deeply ingrained paradigm that continues to drive the safety industry and is reflected in the tendering of new jobs within the Australian legal framework. Comments from the participants in this study outlined that the focus on statistics is a “necessary evil” in order to track progress albeit at the cost of focusing on safety behaviours. The quality of incident reporting on a project can influence overall safety statistics and could be further influenced by effective safety leadership within the workplace. Comments from this study outlined that an effective safety leader created trust and openness with the flow-on effects being an increase in incident reporting and a free flow of communication, which were reflected in secondary findings relating to safety management systems.

The implementation and tracking of safety leadership behaviours could be the new leading indicator that strengthens a project’s safety performance. This is particularly true if it is posited that leading indicators are an emerging technology and effective leading measures create an accurate assessment of the effectiveness of a safety program or process (Hinze, Thurman & Wehle 2013). Further findings from Newnam, Lewis and Watson (2012) have also highlighted the importance of leadership-based interventions to improve safety performance through the quality of leader/member exchange.

Findings from this study showed that one of the overarching elements that influence the Australian construction environment was project and operating costs as detailed in section 4.8.3. This was reflected in the research by Shehu and Akintoye (2010), which outlined that the overall construction industry operates in an environment that has widespread economic fluctuations, and can impact on the commitment from business leaders in implementing any specific construction program or process. Participants in this study alluded to the finite tenure within a construction project and how client and financial pressures can sometimes override other priorities. The challenge with implementing and developing safety leaders within a project-based environment could be influenced by schedules, costs and the time needed to implement learning and development initiatives. As results from this study allude to, the organisation that values fiscal savings over safety would lose its competitive advantage in the midst of an ever-fluctuating economic environment. Such findings link into previous research that organisations focusing on production over safety end up having a poor safety performance that impacts on scheduling and acquiring further work (Han et al. 2014).
Findings from this study outlined that safety innovation within the Australian construction environment is needed to further promote safety improvements and safety behaviours. This supports the research from Gann (2003) that showed the links between innovation and strong economic performance. Factors needed to foster innovation in the construction environment were linked to the monitoring of innovative developments in the industry, increasing research and development investment and providing a supportive atmosphere for staff that generate new ideas (Hardie et al. 2006). Through the facets of safety leadership, employee engagement can be exercised through leader/member exchange. Through the exercising of safety leadership behaviours, innovative ideas from employees can be fostered and supported which can foster new paradigms towards safety.

5.2.1 Contribution

This research is embedded within the current timeframe and Australian operating environment. Safety leadership can be linked with the new focus on lead indicators while supporting the emerging need of innovation within the environment. The maturity of the safety systems within Australia creates a pathway for the values of safety and fairness to be exercised. Information gathered from this study outlined the importance of leadership credibility and shared values when discussing safety related information. It is for this reason that any true demonstration of safety leadership will need to be values based otherwise it will contradict the workers’ innate beliefs. The continued economic strain of operating within project-based environments needs to be balanced and offset by a continued focus on safety leadership and associated benefits. With the Australian context being accounted for, an established definition towards safety leadership can be based within an empirical framework.

5.3 Definition of Safety Leadership (RQ1)

The discourse into the definition of safety leadership was explored through the research findings of this study which were detailed in Table 4.2 and Table 4.3. Findings indicated the parallel relationship that safety leadership has with general leadership. Such parallels were evident via the importance of transparency when sharing safety information and being open and honest when sharing information which reflect the tenets of authentic leadership (Gardner et al. 2011). The importance of engagement with safety leadership was shown through specific language, rhetoric, stories and metaphors being used when describing safety. These findings are akin to research completed within the area of charismatic leadership.
(Davis & Gardner 2012). It can be concluded from this research that safety leadership is involved in different branches of leadership but is centred within a safety context from a legislative and moral framework. Figure 4.1 provides a graphical representation of such findings. This context was evident through the constant mention of management systems when participants were describing safety leadership behaviours.

5.3.1 Safety Leadership within Leadership
The viewpoint shared by many participants is that safety leadership was no different from the broader aspects of leadership, which was validated through a pure linguistic and outcome perspective. The common context and objective of safety leadership could be the absence of injury or harm to employees. As findings from this research suggest, safety leadership is more “visible” and “tactile” and pertains more towards securing the well-being and health of others. These distinguishing aspects have elements of corporate social responsibility (CSR), which is often characterised by the moral obligation to act in the interests of others and society as a whole with the purpose of harm reduction (Massin 2012).

The importance of CSR is obtaining more public screening through the acceptance of “whistle blowers” and promotion of ethical conduct. Despite this, there is no separate branch of leadership component called CSR leadership which would have similar conscripts to safety leadership based upon moral outcomes. The objective in leadership may be fixated on a group collective or goal, which may allow such moral scriptures to be jettisoned for the achievement of a goal. Past political leaders such as Hitler and Stalin showed leadership through the achievement of goals, although arguably in the absence of a moral conscience or a result of ignoring their conscience. Safety leadership from this perspective could be demonstrated through the absence of harm and promotion of safety towards others, although this may contrast other organisational goals of the leader.

The factors that differentiate safety leadership from other forms of leadership start to emerge when the focus is on one’s personal regard to safety and the safety of others. The distinguishing factors of transparency also start to separate safety leadership from general leadership and as shown in Figure 4.2 the differences are apparent across different job positions. Findings indicated that one could be transparent with all elements of safety while the opposite applied in other parts of the business. An example of this can be extrapolated to the consequences of sharing fiscal matters of a project or human resource issue which would
jeopardise confidentiality and employees’ trust. Given that construction projects often use temporary labour for construction projects, any uncertainty could jeopardise tenure on a project. In contrast, a project manager commented that all information relating to safety could be shared barring any identifying information for people involved in incidents. When there is a safety process that identifies names for safety non-conformances, employee trust and engagement may be adversely impacted (Gellar 2008).

Some of the findings outlined that if there is a separate component labelled safety leadership then there could be just as much justification for other branches of leadership such as fiscal leadership or human resources leadership. This can be contrasted by other findings in this research that outlined that safety leadership is most apparent in the field and is something that can be easily demonstrated. The consequences of modelling such behaviours can be reflected in the findings of Biggs and Biggs (2013), who outlined that a focus on safety behaviours and leadership interactions can reduce risk on construction sites through the improvement of safety competency and effectiveness. The strong links to values, CSR, safety management systems and personal impact upon safety incidents may distinguish safety leadership from other branches of the business. This context of safety leadership as a separate branch of leadership has been graphically represented in Figure 5.1.
5.3.2 Defining Safety Leadership
The results from this study have given clarity and scope to the first research question proposed which was based on: *How do leaders within the construction environment define safety leadership?* The majority of participants used common colloquialisms such as “walking the talk”, as is quantitatively shown in Table 4.6. The inability of participants to provide a well-defined construct reflects the findings of Zanko and Dawson (2012) who found that safety leadership was being lumped under the human resources discipline. Through the collation of quotes and comments, a definition of safety leadership has been
developed. This definition incorporates language that reflects the importance of demonstrating safe behaviours while outlining aspects of the RAVE model and the importance of personal values, which were outlined in Tables 4.3 and 4.5. From the research collected, safety leadership has been defined as:

**The demonstration of safety values through the creation of a vision and the promotion of wellbeing through the art of engagement, honesty and discipline.**

This definition has been crafted through a conscious choice in language and empirical findings from this research. Key components of this definition have been detailed in Figure 5.2 and have been described below.

**Figure 5.2: Integral Components to the Definition of Safety Leadership**
(Source: Developed for this research)

The importance of tactility and the *demonstration* of displaying safe behaviours were often cited by participants. This importance of tactility on influencing safety was reflected in the
work of Luria and Morag (2012) who found that safety management by walking around increased safety performance and worker morale. The benefit of leadership engagement with the workers has been demonstrated and replicated multiple times (Conchie, Moon & Duncan 2013) and outlined through this research study via the importance of building relationships, which is an element included in the proposed RAVE model. The engagement with employees is the pathway to developing robust safety conversations facilitated by effective communication and safety behaviours such as delivering toolboxes, carrying out risk assessments or participation in incident investigations (Biggs & Biggs 2013).

**Discipline** as applied in the safety leadership definition can have a double loaded meaning. Discipline can be a reference to ensuring that people are accountable for their work through the application of suitable consequences. The other application for discipline is through self-discipline with regard to following safety obligations. Such discipline can become a hallmark of consistency, which helps in developing trust (Conchie, Taylor & Charlton 2011). Results from this study outlined the importance of an obligation to safety management processes while applying discipline to employees who disregard safety.

Being able to influence others is a key component in safety leadership and is aligned with the promotion of safety through the ability to influence others. The findings in this study outlined that the best way to influence safety as a leader is by “being in the field”. This is manifested by the interpersonal strengths of influencing others through the variables of communication, self-assurance and the ability to win others over (Rath & Conchie 2008). These research findings outlined the importance of values in safety leadership. Specifically, this was voiced by a personal belief in safety as well as empathy for others. The importance of values has been well documented as a platform of effective leadership by the work of Kouzes and Posner (2007).

The values of a safety leader are also linked to the honesty of the individual, and this was quoted many times through such comments as being “genuine” and “transparent”. Components of honesty have been linked with existing research on authentic leadership (Hsiung 2012). This study outlined that the common goal of participants was to ensure that each worker goes home safely and that this acts as a broader vision. The importance of setting a vision and thinking it through in detail has been shown to be the start of many benefits (Durban, Dalglish & Miller 2006). This can be transferred to the sphere of safety.
5.3.3 Contribution
The differentiating factors between safety leadership and general leadership have been dissected with a suitable definition being established from the findings of this research. Safety leadership has its unique variables established by the operating environment that it exists within and therefore differs from other leadership models. With an empirical definition being identified, future safety leadership programs can become cross-mapped for validity and linked to the behaviours emanating from this definition. These distinctions can start to propel safety leadership away from the described grouping of actions that may reside in the human resources sector (Zanko & Dawson 2012).

5.4 Safety Leadership Behaviours (RQ2)
The specific safety leadership behaviours exposed from this study have been grouped under the categories of “engagement”, “safety” and “vision” related behaviours, as detailed in Table 4.4. The specific behaviours that comprise safety leadership can be seen as the demonstrated outcomes from applying the proposed RAVE model and are composed of both transactional and transformational activities. Examples of transactional activities include “following general policies and providing resources”. Such transactional activities have been shown to drive compliance and are indicative of a transactional leadership style (Clarke, 2013). Other listed behaviours reinforce the importance of transformational activities, which are demonstrated by engaging with the workforce and setting up expectations. The findings represented in Table 4.4 have been transformed from direct descriptors into a list of more tangible safety leadership behaviours pertaining to safety, engagement and vision setting. Such behaviours can act as a guide for assessing effective safety leadership and have been detailed in Table 5.1 below.
Table 5.1: Contextualised Safety Leadership Behaviours

(Source: Developed for this Research)

<table>
<thead>
<tr>
<th>Safety Behaviours</th>
<th>Engagement Behaviours</th>
<th>Vision Setting Behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Providing positive feedback on safe behaviours observed and the benefits of working safely</td>
<td>Leadership presence at employee inductions to introduce yourself and to share some personal information</td>
<td>Creating a safety charter or safety vision for the project with core leadership team</td>
</tr>
<tr>
<td>Abiding by compliance minimum standards in relation to wearing PPE and abiding by policies and procedures</td>
<td>Conversing with employees about non-work related issues and enquiring about work issues</td>
<td>Talking about the safety vision or charter with all employees and key stakeholders</td>
</tr>
<tr>
<td>Providing operational discipline for blatant breaches into safety or disregard for one’s safety</td>
<td>Asking questions to seek understanding of tasks and safety related behaviours</td>
<td>Rewarding employees based upon the behaviours that are linked to the safety vision</td>
</tr>
<tr>
<td>Active involvement with safety investigations and client safety meetings</td>
<td>Share personal safety stories or experiences from other sites and projects</td>
<td>Detailing leadership expectations for employees at the start of a project</td>
</tr>
<tr>
<td>Teaching and mentoring others in safety systems and processes</td>
<td>Utilisation of humour and other techniques to build rapport</td>
<td>Celebration of success based upon set milestones or goals achieved</td>
</tr>
<tr>
<td>Leadership safety walkthroughs where the vision and safety are discussed</td>
<td>Facilitating non-work related events or presence at reward milestones to converse with employees</td>
<td>Revisiting and modifying the safety vision on an on-going basis</td>
</tr>
<tr>
<td>Displaying safe behaviours within the office environment and field environment (housekeeping etc.)</td>
<td>Talking with people that the leader has yet to approach on a site or project</td>
<td>Using expressive language and rhetoric when communicating the vision</td>
</tr>
<tr>
<td>Identifying any at risk behaviours and addressing them on the spot through personal action</td>
<td>Inviting employee feedback to site leaders or opportunities to provide safety suggestions</td>
<td>Senior leaders of the company to be present at major milestones to reiterate core vision and purpose</td>
</tr>
<tr>
<td>Participation and rotation of chairing safety forums and realignment safety meetings on the project</td>
<td>Establishing a work and team structure that is conducive to collaboration and job rotation to help build working relationships</td>
<td>Contextualising the vision and including language suited for the client and project</td>
</tr>
</tbody>
</table>

Results from this study support the work of Luria and Morag (2012) who outlined the benefits of management walk-throughs as the vehicle for discussing safety and demonstrating safety commitment. Overall findings into safety leadership behaviours suggest a combination of both transactional and transformational behaviours. The transactional elements, such as wearing the correct safety equipment and following safety rules, further highlight the differences between safety leadership and general leadership. The importance of such behaviours has been included in the integrated RAVE model as part of “demonstrated safe behaviours”.

The safety leadership behaviours detailed in the findings may vary according to the context. Individual variances in attitudes, motivation, skills and responsibility can expand and
contextualise further safety leadership behaviours, which can be applied to a person’s work environment. Other dependent behaviours that help answer the core research question of what behaviours are evident in successful safety leaders are linked to the secondary themes of empathy, asking questions and driving innovation, all of which have been visually represented in Figure 4.1.

5.4.1 Empathy and Safety Leadership
The findings into safety leadership described a strong bias towards having a personal belief and attitude towards safety, which was identified in the literature as a core ingredient of safety leadership (Read et al. 2010). The importance of ethics was precipitated through the ability to show empathy towards others while expressing one’s own personal value towards safety, which can be a tangible behaviour.

The value towards safety was strongly linked to factors of empathy and personal ethics. Relating safety leadership to the feelings of the family members of the worker was seen as the pivotal marker when influencing employees. This was accompanied by a genuine belief in safety. This information, centred on ethics and values, can be applied from a recruitment and selection perspective. Job matching individuals based on safety values and ethics can create organisational alignment while being the antecedent for demonstrated safety leadership behaviours. The prevalence and importance of empathy has seen its inclusion into the conceptualised RAVE model as well as the importance of ethical behaviour.

5.4.2 Applying Influence and Driving Safety Innovation
From the research findings it was evident that asking astute questions was a way to get engagement and influence employees via safety leadership. The importance of questions can be a tool of influence, which can formulate an observable safety leadership behaviour. Even from a biological level, mental alertness and the arousal system is regulated by the reticular activating system, which could be prompted through engagement via questions (Mircea 1996). Asking questions that relate to safety can be a way to activate someone’s awareness to safety. Uday’s (2015) research highlighted the importance of students asking astute questions of teachers, which can be a facsimile of employees asking innovative safety related questions of their leaders. The need for innovation within safety emerged as a secondary theme from the research findings and can be directed into specific behaviours from the safety leader.
The need for innovation within safety was reflected through such comments from a PM who stated that “we have to look to the unknown and try and work towards that to change the way we behave today, because if we don’t change what we are doing now, we won’t change the outcome”. One GM stated that the next stage of innovation is “managing behaviour, because that’s what we are talking about, just getting into the mind space of people” and “introducing new initiatives”. These findings highlight the need for innovation and continuous learning. These findings reflect the research into learning organisations that flourish through supportive leadership, employee involvement at all levels and creating systems that capture core lessons (Anja and Kerry 2014). Within the realm of safety, minimising repeat mistakes becomes paramount in order to prevent potential workplace injuries. The combination of effective questions aimed at generating innovation within safety can be an offshoot of effective safety leadership behaviours.

5.4.3 Contribution
The delineation of specific safety leadership behaviours distinguishes safety leadership from general leadership. As part of safety leadership, the behaviours detailed in this study could formulate a baseline of expectations that organisations may have of their safety leaders. Further safety leadership behaviours may be contextualised by the individual and work environment which may be driven through an undercurrent of empathy. Activities that promote innovation through the use of questions and activities through employee engagement, safety and vision setting, can create a productive environment for safety innovation to occur which could expand beyond the construction environment.

5.5 Application of the Proposed RAVE model (RQ3)
Exploration into the core research problem was broken into further sub-questions. One of these sub-questions was based on the following: Does the proposed RAVE conceptualised model accurately encompass the core behaviours of safety leadership? Findings from this study can conclude that the RAVE model is applicable in defining safety leadership, although emerging themes and amplified concepts warrant further modification to this model for greater integration and application. A mapping of these emerging themes and concepts was captured in Figure 4.1 and detailed in Table 4.5.

Findings from the previous research questions that focus on identifying specific safety leadership behaviours have been incorporated into the revised RAVE model. This provides
an overall scope towards becoming a self-actualised safety leader. Each relevant concept of the RAVE model has been modified to reflect current findings from this study.

5.5.1 Relationships
Findings from this study underscore the importance of building relationships in order to influence others through safety leadership. These findings build upon previous research that identifies the importance of leader/member exchange. This can be enlarged through the importance of relationship building in order to generate trust and openness between leaders and employees (Kath, Marks & Ranney 2010).

Results from this study strengthened the importance of having a personal belief in safety and displaying empathy towards others when promoting safety. Compassion and empathy have been linked to emotional intelligence and improved practice within a nursing environment (Rankin 2013). The similarities of health and wellbeing can cross over to the safety sphere due to the objective of preserving life. Empathy has been included as a sub-element of the RAVE model as it was consistently linked from the research findings as a precursor to relationship building when demonstrating safety leadership.

The initial sub-component of Assertiveness in the RAVE model was replaced with Discipline to reflect the language from participants. Such supporting comments include “in construction you are always going to need that amount of discipline and line of authority” and “the most disciplined sites tend to be the safest sites”. Discipline also acts as an outlet when applying personal and organisational discipline when working with safety management systems. The results from this research outline the importance of safety management as a component of safety leadership, but not an overriding component that consumes other aspects of safety leadership, causing further bureaucratisation. Discipline, as it is expressed in the RAVE model, is also a reflection of personal discipline to abide by safety requirements as well as applying discipline to employees for any voluntary disregard to safety rules. Discipline within safety can be linked up to the Just Culture model that aims to ensure fairness and accountability in the safety management process (Dekker 2012). Personal accountability was initially listed as a sub-component of Authenticity, although, as evidenced by the findings, it sits more comfortably under the sub-element of Discipline.

The overall impact and influence of Relationships within safety leadership can be characterised by the points of difference between safety leadership and general leadership.
This pertains to the personal nature of safety leadership demonstrated through empathy, care and legislative requirements. *Similarity* was strongly linked when participants were linking the consequences of unsafe behaviour towards the melancholy one’s family may experience if there was a death in the family. The nature of construction projects also adds to the unspoken similarities between leaders and employees due to working in remote settings and often being away from family members and loved ones. The incentive for building strong relationships was through leader/member exchange, which can be driven through similarities, empathy and exercising discipline.

5.5.2 *Authenticity*
In an ever-changing environment, the call for honesty and authenticity within leadership is becoming a renewed call to help foster trustworthiness and reliability (Waite et al. 2014). The findings from this research dictated the importance of being “credible” and operating with “integrity”, which can be a moderator for employee behaviour. The inclusion of the sub-element *Demonstrated Safe Behaviours* was established by multiple comments coming from participants stating that safety leaders need to “walk the walk”. Demonstrating safety remains an integral component of safety leadership and is the differing factor with other schools of leadership.

In a study investigating the impact of authentic leadership on followers’ ethical decision-making in the face of temptation, it was shown that authentic leadership is a mediator when temptation is present (Cianci et al. 2014). These results can be transposed to the safety realm, where the temptation for employees could be taking safety risks. The exercising of authentic leadership within this realm can be through the demonstration of safe behaviours within the workplace, which can highlight what is expected from employees.

Findings from this study spread the importance of safety leadership to the wider community to act in a moral manner that does not harm others. The importance of CSR links effectively with authentic leadership and is a point of difference within the business world that is shaped by ethics and increasing responsibility (Carroll & Shabana, 2010). The application of safety leadership can be an application of CSR through the prevention of harm and illness towards others. An ethical organisation is often an organisation that is strategic in their community impact and also fair in their treatment of workers and clients (Hatcher 2003). It is for this reason that *Ethical Awareness* has been included as a sub-element of Authenticity. The role
of self-leadership through the focus on ethics has been shown to increase levels of moral judgment, which is permeated through levels of perceived accountability (Steinbauer et al. 2014). These results can be applied within a safety leadership context where increased accountability promotes sound ethical choices, which can be a pseudonym for safe choices.

The grounding of one’s own moral scope was evident in the exploration of safety leadership behaviours. As one person explained, “safety is intertwined with personal values and I think it’s intertwined with ethics whereas maybe organisational leadership is less so” and that “I’m doing this because I know it’s the right thing and I know it’s in the best interest of the business in setting that example”. These comments were often closely followed up with factors of fairness and statements such as “treating them as a human being, with respect”. Some individuals shared that they have previously left organisations due to a lack of safety regard and as others stated, in the end, “you need to be able to sleep at night” and have a “clear conscience”. Such comments highlight levels of personal awareness and ethical conduct, which have been included as part of the RAVE model. Personal awareness can be exercised through the sharing of one’s own shortcomings or knowing potential strengths and weaknesses as a safety leader.

The context of sharing shortcomings does not have to be exclusive to safety, as it can extend past that to allow further discourse in the areas of self-development and personal discipline. Understanding your own capabilities, perceptions and shortcomings can be the markers for change that can assist in developing a healthy locus of control (You, Ji & Han 2013). A major proportion of safety leadership behaviours were linked to the values of an individual and how that person shares their values and beliefs towards safety. The empathy described from the research findings may also be driven by the personal values towards safety. A leader’s values have been shown to play a part in follower behaviour (Ehrhart & Klein 2001). Within the safety context, the visibility of unsafe behaviours can very quickly lead to judgment from fellow workers and employees based upon the results of this study. The importance of safety as a value may influence recruitment strategies for organisations that want to recruit safety leaders within the business. Recruitment activities based upon values and other psychometrics may generate the desired sample size of preferred candidates but possibly at the cost of diversity (Kmec & Skaggs 2009). The organisation’s culture, personality and senior leadership team may also influence personal values towards safety (Reid, Mearns & Bryden 2008).
The role of personal accountability in safety leadership was often quoted and paired with factors of transparency. The sub-element of Transparency differs from Openness, which has been listed under the Relationship element of the RAVE model. This is founded upon the context of transparency pertaining to the reporting of safety statistics and the sharing of safety incidents. The honest sharing of information has been shown to promote trust and increase vocal engagement with employees (Hsiung 2011). The impact this has on safety leadership is immense, as without transparency comes scepticism, which can then create distrust (Conchie, Taylor & Charlton 2011). Through authenticity, trust can be a beneficial outcome, which was captured by one PM saying that “trust is one of those weird things where people will either give it to you or they won’t give it to you based on what they see, what they hear, what the vibe is”. The sub-element of Authenticity can therefore be the moderating variable of brokering trust. Through genuine belief and awareness, the ability to promote a safety vision is strengthened.

5.5.3 Vision
A clear pathway of the desired state and what a project is aiming to achieve through its safety performance was found to be a recurring theme in this research. This was often verbalised by setting broader safety goals and outlining expectations. As a result of these findings, the RAVE sub-element of Commitment has been replaced with Expectations. If a safety leader is being transparent and authentic, then their commitment towards a broader vision would be validated through demonstrated safe behaviours. Safety expectations can be inclusive of safety goals or personal expectations. This can span statistical targets for the company or specific behavioural expectations for employees. Through established expectations, the basis of discipline can be fairly applied.

It was evident in the research findings that if an individual does not have a personal value towards safety, then they cannot call themselves a safety leader. The importance of values can be reflected in the safety leader communicating a clear vision of what they aim to achieve. The innate ability to achieve goals or attain a vision has been neurologically traced to the medial pre-frontal cortex (Matsumoto & Tanaka 2004) and the setting of safety goals, and outlining expectations can be an antecedent for motivation (Durban, Dalglish & Miller 2006).
In the context of safety leadership, the clear setting of a vision may set a specific goal for employees to aspire towards while providing direction, continuity and alignment. The importance of setting a vision has been abundant in the change-management literature most often cited through the work of Kotter, which still remains applicable today (Appelbaum et al. 2011). The principles within change management via Kotter’s work of creating a sense of urgency, establishing a guiding coalition, creating a vision, communicating the vision and celebrating small wins could be easily transposed into the safety realm. The constant striving for continuous learning that emerged as a secondary theme can be driven through the sub-element of a Clear Vision dictated by safety goals and expectations. Establishing a clear vision may be precipitated through the importance of language and rhetoric.

The importance of language was often cited in the data gathered in this research as well as the ability to share safety stories and “connect with the blue collars”. The flare of the charismatic leader and the associated characteristics of expressiveness and rhetoric were shown to be pivotal in times of crisis (Davis & Gardner 2012). From a safety paradigm, if an injury occurred on site, the transferable characteristics of the charismatic leader can be utilised in this context. Prior to a safety crisis occurring, the use of metaphors, sharing of stories and use of expressive language could be employed to set the safety vision before an injury occurs. These components are represented through the sub-element of Rhetoric. Such adoption of behaviours could be the foundation for leadership-driven behaviours driven by a clear safety vision (Hinze, Thurman & Wehle 2013).

From the research findings from this study, the clear succinct explanation of a personal safety vision was absent. In contrast was the vision of ensuring employees work safe and set up expectations from the onset of a project. The specific setting of a safety vision to guide safety leadership behaviours may be reflective of the maturity of the terminology utilised or the ephemeral nature of project work. To further guide the agreed importance of Vision, the sub-elements detailed in the modified RAVE model can give further scope and clarity within the safety leadership paradigm. A lot of the personal safety goals detailed in the research findings were linked to the setting of expectations and linkages towards a larger vision for the company.
5.5.4 Engagement
In order to exercise safety leadership, it was highlighted by the research findings that engagement is needed to allow the safety relationship to be embedded. Engagement provides an avenue for open dialogue as opposed to monologue, which can then be exercised through team building, work training and leadership walk-throughs (Frankel, Leonard & Denham 2006). Results from this research stressed the importance that engagement has in exercising open conversations, interactions and candid dialogue. The epitome of engagement was Communication. The ability to communicate safety information and provide a personal connectedness to the end-user is a skill that is needed to negotiate organisational barriers. These barriers can include distracting environments, poor group dynamics, nepotism and use of the wrong medium (Carmeli, Brueller & Dutton 2009). The importance of communication within safety leadership was indicated by “one-on-one conversations”, “talking to the guys” and how “communication is a major driver”. If these conversations are interspersed with honest and truthful safety information then the employee impact can guide mutual trust.

The Distribution of Justice was part of the initial conceptualised RAVE model and was evident in issues relating to organisational fairness. Participants stated the importance of people being treated fairly alongside consistent discipline. These findings link in well with current research in procedural justice and the importance of setting up a culture of care (Read et al. 2010). Safety leadership can be the demonstration of fairness across all employees through the building of relationships, and discipline being applied consistently no matter what job position someone holds. Distribution of justice remains within the Engagement element due to “treating people with respect”, “leading by being fair” and as one leader said, “if the guys are saying he’s a fucking idiot and we got to carry him, better we get rid of him”. If conversations and actions are not carried out with a hint of fairness, safety leadership may be forsaken.

The RAVE sub-component of Openness was described by participants as someone who has an “open door policy” or as “being open to feedback”. These factors have been touted as key components towards building trust and organisational citizenship behaviour, which characterises participative leadership (Miao, Newman & Huang 2014). Openness and accessibility allow conversations to occur where it is believed that the conversations that we have become the relationships that we have (Scott 2004). Backing data from this study generated the grouped theme that relationships are often solidified through conversations and
constant communication. Being accessible provides the opportunity for the conversations to occur.

5.5.5 Integrated RAVE Model
Changes have been made to the RAVE model to accurately reflect the findings into safety leadership and to provide a snapshot of the core elements first introduced in Figure 2.6. The RAVE model can serve as a platform for the development of safety leaders across the construction industry. With all elements being utilised, the outcomes for employees can be brought to maturity as represented in Figure 5.3. The benefits and behaviours detailed from these research findings can also be an indicator on the return on investment through the implementation of associated safety leadership initiatives, processes or programs. The aspect of Safety Management has been included in the RAVE model to reflect findings from this research. Each interview was solely focused on safety leadership, yet the importance of safety management was often raised through legal requirements, statistics and obligations.
Changes have been made to the initially introduced RAVE model to accurately reflect the findings into safety leadership. The RAVE model can serve as a platform for the
development of safety leaders across the construction industry. With all elements being utilised, the outcomes for employees can be brought to realisation as represented in Figure 5.3. The benefits and behaviours detailed from these research findings can also be an indicator on the return on investment through the implementation of associated safety leadership initiatives, processes or programs.

5.6 Safety Leadership Differences between Job Positions
Research findings showed alignment between the core factors of safety leadership across all job positions, with the core variance depending on how safety leadership differs from general leadership. Leaders who are closer to where the work is carried out see more of a specific distinction between safety leadership and general leadership.

Data obtained from HSE managers could be reflective of their constant engagement with safety related issues and their core duties being compliance driven, such as ensuring minimal safety compliance on site which is later measured by audits and inspections. HSE managers and construction managers on the project spend a lot of time engaging with the workforce and inspecting different areas of the work being conducted. Their close interaction and direct influence with the workforce may also reflect their distinction between general versus safety leadership.

Project managers manage safety budgets and are being measured by overall project safety performance as a key performance indicator. Project managers in this research signified that their role is more contractual and less hands-on compared to construction managers. This may reflect the mixed findings towards safety leadership being seen in a similar way to general leadership. The general managers all viewed safety leadership in the same manner as general leadership. These results reflect the scope of responsibilities presented by Long (2013) where the scope of responsibility changes as one progresses through the organisation. The general managers of the construction company have increased scope of work, and therefore safety leadership behaviours may be linked with broader leadership behaviours.

It appears from these findings that anyone can exercise safety leadership, although the scope of responsibility increases as one progresses higher within the organisational structure, with behaviours coming under greater scrutiny.
5.6.1 Contribution
Overall findings between the different job positions would suggest varying degrees of importance and scope evidenced through the behaviours and definition of safety leadership. The implication upon safety leadership could reflect upon the specific safety leadership behaviours that are contextualised into that person’s position of influence. The ability to exercise safety leadership in the boardroom could be quite different compared to safety leadership on a construction project. These aspects may reflect the differences between job positions. A shared collective definition of safety leadership can provide further context across all job positions and roles, which can then help mediate culture.

5.7 Aspirations or Goals related to “Zero Harm”
The discussion of the concept “zero harm” or other similar goals or targets that include the element of “zero” was raised during each interview. It was unanimously agreed that such labels and targets are losing their effectiveness upon the workforce, and personal belief in the target was diminishing and adversely impacting safety. This was attributed to the definition of “zero harm”, the reality of construction work and the deleterious impact such a slogan has upon a workforce.

5.7.1 Working Context
The workplace impact of “zero harm” was provided in relation to client expectations and the realities of the work environment. This was demonstrated through the shared realities that “if we get a job with 20 million man hours, we will cause harm to someone or something at some time, there’s no doubt about it, someone spilt 30ml of oil on a Class A Reserve, but it’s still treated the same if someone hurt themselves”. These comments were further supported by the context of what zero means, “you’ll never get zero, you’ll never ever get zero, you’ll get zero in terms of LTIs [lost time injuries]; you might get zero in terms of MTIs [medical treatment injuries]; when you say zero, that means zero everything ... which I’ve never heard of a zero job”. Further findings indicated that if a project does sustain an injury then the target of zero becomes unachievable and “a lot of people see it as patronising”. From these findings, it was shown that individuals start to sway from their commitment to “zero harm” and instead “commit to do my best to achieve zero injuries because zero harm, zero injuries, whatever it may be, is a bullshit word”. As a result of the term of “zero harm”, the cultural and employee impact starts to be tarnished. These results reflect the many “slogans and catchphrases” that get utilised within safety where “zero harm” is being over-utilised. The misgivings of zero-
tolerance or other such follies were previously raised by Evans and Lester (2012) outside of
the safety industry and now seem to be replicated within the safety industry through this
research.

5.7.2 Employee and Cultural Impact
The focus on “zero harm” or “zero incidents” was said to have an adverse effect which “puts
pressure on people not to report and sends it underground” and it “starts to have a negative
impact upon the project” on account of the non-reporting of incidents. Other findings start to
reveal that “workers become immune to it; it’s the same belted out message” and it can
impact upon the leader “losing credibility when you start to communicate that we are going
to be injury, incident free”. Further to this, one participant mentioned that “zero harm is a
negative way of promoting what we want to achieve” as the focus is on incidents as opposed
to safe behaviours. Other comments ranged from the importance of learning from any
incidents that do occur and understanding that if an incident does occur, it is an opportunity
for growth and further injury prevention. The importance of developing a learning
organisation was raised via the importance of innovation. Having a potential “zero harm”
environment may contradict such an environment of learning.

5.7.3 Contribution
Findings support Long’s (2012) paradigm shift away from the notion of “zero harm” and
strong movement away from such language or concepts. This was captured through the
deleterious impact upon the workforce, client definitions and a general belief that “zero
harm” cannot be achieved. The notion of “zero harm” was often justified as an aspirational
goal where it may “take two generations before we get down to zero”. This was greatly
contrasted by the transparency of reporting incidents being minimised when such a slogan or
concept is utilised. In addition to this were the influencing factors of human error and factors
external to one’s locus of control, which was also referenced.

The contributions from this study can add to the work from Long (2012) who advocates
against any safety measure involving the word “zero”, owing to the absolute nature of the
word and cultural misgivings also highlighted in this study. An example of the values of
integrity can be demonstrated through the concept of “zero harm” and the waning belief in
this concept and whether individuals abide by such a measure on account of organisational
pressure.
5.8 Recommendations and Application
The synthesis and analysis of the research findings has created a future pathway to maximising safety leadership within the construction environment. An application towards the construction industry has been streamlined into the following recommendations:

1. Establish Consistent Understanding and Knowledge of Safety Leadership

To allow consistency across the industry and field, the applied definition of safety leadership should be communicated and promoted. This will minimise confusion into the topic and provide a course for shared and aligned goals. This could be instilled within recruitment processes or human resource development activities.

2. Safety Leadership Behaviours to Drive Safety Management Lead Indicators

The outlined grouping of safety leadership behaviours can be utilised as a guide in creating a leading indicator measure that is proactive in achieving a safe and durable work environment. Moving away from statistics and to more innovative ways of managing safety can allow a robust safety culture to thrive. Behaviours outlined in this study can be the structure for such a measure.

3. Flexibility to be provided across Job Positions

Variations in safety leadership exist across different job positions, and the focus on specific behaviours needs to be placed into context according to the person’s experience and span of influence. A single solution will not apply within safety leadership. A holistic assessment of job scope and experience can foster effective safety leadership behaviours.

4. Eliminate any verbiage Associated with “Zero Harm”

Any specific safety vision should avoid the term or related terminology referencing “zero harm”. Instead, a suitable focus should be on successful safety behaviours or other safety leadership behaviours that foster a culture of authenticity, empathy and care. This could include examples of individuals who assist others, or proactive behaviours taken to mitigate risk.

5. Build Organisational Capability to Develop Trust and Relationships
Adopt environmental and structural processes and behaviours to promote trust and transparency within the workplace. This can include following up employee issues raised, open-door policy and safety management walk-throughs. Other aspects of developing trust include relationship building and visibility.

6. **Clear Safety Vision to be Communicated and Referenced**

A leadership team should develop a clear and evoking safety vision that is referred to often and communicated well within the workplace. The safety vision can be the grouped goal and social contract that a construction project is aiming to achieve. Without a clear pathway or vision forward, variances within safety practices may start to surface.

7. **Personal Values to be shared by Leaders**

If leaders share their personal values with employees, it can demonstrate commitment within the workplace and be a precursor of modelling leadership behaviours to others. This could be through the medium of what the leaders value and what safety personally means for them. The impact can flow down to a culture of care and shared commitment.

8. **Safety Leadership through Empathy**

Leaders should demonstrate a genuine concern and compassion towards human life. This can include expressed concern towards individuals performing at-risk behaviours or individuals who have sustained a workplace injury. Expressions of empathy can extend to supportive rehabilitation to injured workers and responding to safety suggestions through an ethical obligation as opposed to a fiscal viewpoint.

9. **Employee Benefits of Safety Leadership to be used as a Safety Measure**

The possible benefits of improved safety culture, reduced incident rates and numerous other safety leadership benefits can be used to measure the effectiveness of safety leadership initiatives. Practical ways of measurement could include safety culture surveys, completion of coaching safety action plans, and pre/post-test measurements of leading indicators such as management walk-throughs.

10. **Safety Leadership Coaching and Associated Processes to be based upon the RAVE model**
Any future safety leadership programs can be built around the conceptualised RAVE model. A focus on building relationships, being authentic, having a clear vision and engaging others can set the tone of effective safety leadership. Development around this research-based model can provide validity while providing a baseline for future refinement or innovation.

11. Application within the Construction Company that is the source for this Research

The complexity and entirety of the data gathered for this research would be pivotal in shaping the safety leadership strategy for the construction company from which this sample size was taken. Information pertaining to the safety leadership behaviours identified or the variances in safety leadership and general leadership, can be utilised to create a valid and reliable internal safety leadership program. Implementing an internal safety leadership program and monitoring the results from a safety statistical vantage point could establish a benchmark for the broader construction industry. Broader application and sharing of the results can be a learning tool within the construction industry.

5.9 Conclusion

The contributions of this study show the way forward for the effective implementation of an empirically sound safety leadership strategy. The definition towards safety leadership helps develop the RAVE model towards specific safety leadership behaviours and organisational/employee outcomes. Safety management systems are still needed and have an influencing effect on safety leadership and any measure using the term “zero harm” may be counter-productive. Safety leaders who engage, develop relationships and provide visionary leadership are more likely to build a strong safety culture. Any false or insincere comments from leaders may breed cynicism and impact employee safety behaviours. Where this research sits within the Australian context, with attendant theoretical and practical limitations, will be discussed in the next chapter.
CHAPTER 6 – CONCLUSION AND IMPLICATIONS

6.1 Introduction
This chapter will summarise all of the research findings centred upon the core research question of *what behaviours are evident in successful safety leaders?* This core research question will be answered through a breakdown of the three devised research questions. The findings from this study will be time stamped and reflect the context of the current external operating environment. Concluding implications and contributions to the literature and practice will be discussed in light of the limitations of this research. Suggestions for future research will be discussed, with a final summary of this study concluding this chapter.

6.2. Conclusions to Research Questions
The crux of the research problem for this study was based upon: *What behaviours are evident in successful safety leaders?* To further break down this research problem, three separate research questions were devised which provided a broader scope garnered through this research problem. Through the results of this study, sufficient evidence has been acquired that has provided a robust discourse into current findings, which can foster best practice and provide beneficial contributions to the literature.

6.2.1 Research Q1: How do leaders within the construction environment define safety leadership?
Through the collation of results, the definition towards safety leadership had consistent elements that contributed to an overall definition. The grouping of such themes and comments transformed into the following definition of safety leadership:

*The demonstration of safety values through the creation of a vision and the promotion of wellbeing through the art of engagement, honesty and discipline.*

With a common definition into safety leadership being established, any confusion around the concept of safety leadership and what it entails can be minimised. With strong ties to other schools of leadership being present, this definition of safety leadership may serve as a foundation for other industries such as mining, manufacturing or petrochemicals underpinned by the principles of safety leadership. The operating environment across the industries may slightly differ, although the safety leadership principles may still hold true.
6.2.2 Research Q2: How is Safety Leadership demonstrated by Safety Leaders?
Observable behaviours that were associated with safety leadership were streamlined into three core categories. This included “Safety”, “Engagement” and “Vision” related behaviours, which also link up to the proposed RAVE model of safety leadership. Obligatory safety behaviours such as wearing personal protective equipment (PPE) and reading a job hazard analysis (JHA) may be classified as rudimentary behaviours which can then change into more transformational behaviours. The apex of the transformational behaviours may extend to “Vision” related behaviours where the safety vision is discussed, communicated and encouraged. This may be first predicated upon “Engagement” behaviours, which help to foster a strong working relationship via effective leader/member exchange between different tiers of the organisation. The progression and maturity of safety leadership behaviours may be governed by the leader’s span of influence, experience, knowledge, personality and other outlying factors.

The safety leadership behaviours detailed in this study provide a measurable scope and quota for safety leadership, which utilises vague statements such as “leading with integrity” or “walking the walk”. Such manifested behaviours can be utilised as a leadership measure or pathway for accountability. The mapping of such behaviours can start to take the focus away from traditional compliance-based approaches towards safety and help move a company into the next generation of safety. This next safety paradigm could be grounded through innovation in line with the technological and social advances in society.

6.2.3 Research Q3: Does the RAVE conceptualised model accurately encompass the core behaviours of safety leadership?
The proposed RAVE model developed for this research was explored for validity and applicability within the Australian construction industry. Results obtained give credence to the RAVE model from its initial stages of a conceptualised framework to an empirical based framework. Modifications have been made to the RAVE model based upon this study’s findings, although the core elements of Relationships, Authenticity, Vision and Engagement still hold true. The RAVE model can act as a blueprint for human resource development activities and the development of future safety leaders. The influencing factors of safety management systems and culture do not override the RAVE model. Alternatively, these contributing factors influence its beneficial application through the benefits for employees and safety leadership behaviours (Read et al. 2010).
Through the incorporation of the RAVE model, safety leadership can be brought into the next frontier of evidenced-based practice. The standard placed upon working relationships exercised by engagement, headed by a common vision and fostered through authenticity can be the ingredient that generates a strong safety culture. The RAVE model can be the foundations of safety leadership with further developments and environmental changes enabling the model to remain contemporary and relevant. Application of the RAVE model can extend beyond the construction industry due to the core components and elements not being construction driven. This enhances the applicability of safety leadership across multiple industries with further application and confirmatory research supporting or negating this notion.

6.3 Conclusions within the Australian Context (PEST)

The mining and construction industries are two of the major economic lifelines of Australia and a large employer of the Australian workforce. Changes within the construction environment can influence safety leadership through grounding political changes, technological revolutions and other influencing factors. The results from this research have been considered within the current external environment, which was first addressed and accounted for in the PEST analysis undertaken in Chapter Two.

6.3.1 Political Context

Findings from this study outlined the influence that OHS legislation has in leading and managing safety on a construction project. The strong components of compliance and legal obligations have resulted in safety being a managed task as opposed to a leadership task. The bureaucracy of safety processes has been well documented by the work of Dekker (2014), which outlined the problematic aspects associated with paperwork and statistics. Further legal changes and compliance may contribute to mandatory behaviours that may not be self-sustaining. This may influence safety leaders to transform into safety managers so that the status quo is maintained at the cost of innovation.

The political focus on climate change and associated discourse was absent during the research interviews. So, when construction leaders think about HSE, the environment component may be an afterthought. The work of Wittneben and his colleagues (2012) holds true in that transformative action is needed to eliminate the business response of apathy into climate change. There was a noticeable lack of environmental concerns or comments from
the participants in this study, something which further validates these comments. One could argue that this could be reflective of current political policy into carbon emissions and climate change which has taken different courses over the last few elected governments. With changing policies, laws or political agendas, the ethos of a safety leader should still stay intact although the behaviours may be slightly adjusted to conform to legislative requirements. In times of fluctuation between policies and agendas, the importance of the safety leader will remain paramount in order to build working relationships through engagement, authenticity and vision.

6.3.2 Economic Context
A noted downsizing of the resources and construction boom as referenced by Sheehan and Gregory (2013) was alluded to throughout the interviews. Notable shrinking of construction projects has placed an added importance in ensuring projects have glowing safety records. The uncertainty of future work was voiced by some of the participants who saw their current safety leadership practices as influencing determinants on whether the company secures future contracts. This may be evidenced by one general manager who shared that a focus on safety leadership has been given recent airtime due to the value placed around safety. It was suggested by the general manager that without the inclusion of safety, possible resources and time towards leadership may become absent, particularly within the current operating environment.

The stated benefits of safety leadership exposed from this research revealed an expectation that productivity will improve and loyalty would be strengthened. From a fiscal perspective these benefits can contribute to cost savings in an ever-increasing competitive operating environment. In contrast to the research of Toor and Ofori (2008), the results from this research outlined the changing paradigm that project leaders are focusing on broader aspects of leadership as opposed to being solely dictated by schedules and timelines. The investment and framework established in this research can be the proactive steps in being competitive in the current economic environment while saving further costs on account of increased worker morale, shared alignment and increased productivity. The potential fiscal savings was one of the listed justifications for this research and links in well with the economic factors of the external environment.
6.3.3 Social Context
Distinct differences were raised by participants between safety leadership within the Australian environment as opposed to other legislative or foreign environments. The Australian values towards safety and what is expected on a project can provide the scope of behaviour for workers new to the Australian construction environment. The bond between all workers, regardless of ethnicity and cultural background, is personal safety – most workers would grieve if there was a work related death or serious injury. The deleterious impact that FIFO work has upon family life, as documented by Carrington and Pereira (2011), would be catastrophic if a workplace injury or death occurred. It is for these reasons that the social focus on safety and harm prevention will continue to be a focal point for many organisations. One of the initial justifications of the research was based upon setting up a robust safety culture and preventing injuries and incidents. Through an effective safety culture, the social elements and external factors can be addressed.

The demographics of the leadership team within this study were mostly male oriented. This becomes an extension to Styhre’s (2011) global findings that men hold most senior leadership positions in the construction environment. A bigger societal reflection could be linked to the absence of any women within the general manager positions within the construction company that was used for this research. These observations could be a microcosm of society, where the majority of general managers and CEOs of large companies are men, although the trend is slowly improving (Klettner, Boersma & Clarke 2012). Whether or not a cultural shift in the male-dominated construction industry would occur through the employment of more women within senior leadership positions is open to further discourse and research.

6.3.4 Technological Context
With the constant changes in technology and innovation being apparent across many industries, the need to adopt such innovations was present within this study. Repackaging the safety message, or an evolution into how a project approaches safety, was often voiced by the participants. An indicator into how the construction industry might be a late adapter into innovation could be reflected through the “zero harm” or “zero incidents” refrain. The message of “zero harm” as an aspiration or target was often voiced by clients of the construction company, even though mounting research expressing the counter argument was present (Long, 2012b). The adoption of best practices in the era of the “knowledge economy”, as coined by Kontogiorghes, Awbrey and Feurig (2005), becomes even more
pivotal in an increasing competitive market, which can assist a company in employing empirical evidence as opposed to out-dated philosophies.

Adopting the latest empirical evidence into safety leadership or other innovations into safety may encounter an obstacle within the construction industry due to the core business of meeting contractual obligations and schedules while satisfying client requirements. Information from this research outlined that technology was often expressed as a useful aid to enhance safety leadership capabilities although what that looks like remains unclear. The use of social media and interactivity between businesses is apparent as researched by Berthon and his colleagues (2012), although it may not be well utilised to communicate the emerging best practices within safety. The results of this research can formulate empirical data into safety leadership, which can then be communicated and established by the increased efficiency and presence of current technologies.

6.3.5 Conclusion within the Construction Company used for this Research
Overall, the quality of data relating to safety leadership and practical examples of safety leadership behaviours, validates the sound safety reputation that the construction company chosen for this research currently possesses. Opportunities exist for the construction company to provide a clearer safety vision for each specific project and to streamline the safety leadership behaviours into a lead indicator. This can provide a baseline for the expected standard for the safety leaders within the company. Consistency between how safety leadership is viewed by different job positions may allow for a common thread of conversation when safety leadership is discussed within the company.

With the wealth of data captured, this information can be used to help formulate a safety leadership strategy for the business. The application of the RAVE model would have dual credibility from an empirical perspective but also a cultural perspective, given the data was obtained within the construction company that employees work for. Possibilities of further action research based upon a safety leadership implementation would have many benefits for both the construction company within which this research is based, and the broader industry.

6.4 Applications for Theory and Practice
This research provides a valid contribution to the depth of research that currently defines safety leadership. Through a clear definition, uniformity can be achieved and a common
frame of reference that can become the standard for future development activities. Further theoretical applications include the following:

- The provision of an ultimate definition and context around the notion of safety leadership, which has yet to be referenced or documented within the literature.

- Safety leadership exists as a sub-set of leadership, which is unique on account of the current operating environment and the moral and ethical undertones that accompany safety. Clear distinctions have now been made in terms of what distinguishes safety leadership from other forms of leadership.

- The importance of empathy in building relationships as part of the RAVE model extends into the research of authentic leadership (Cerne, Jaklic & Skerlavaj 2013) and outlines the importance of emotional intelligence in creating effective safety leaders.

- The argument against “zero harm” or “zero incidents” is becoming empirically present through the work of Long (2012b) and has been replicated through this research. Such results may start the standard against such macro visions or touted aspirations being utilised within the industry.

- A link exists between the development of a safety culture governed by the effective behaviours of a safety leader. The importance of a leader’s actions has been well linked to the development of a robust safety culture (Bottani, Monica & Vignali 2009).

- A focal point away from safety statistics and more towards safety leadership behaviours can bring in a new flow of research that is confirmatory as opposed to exploratory.

- Distinct components of the Australian construction industry have been detailed which can be utilised as a comparison factor when exploring safety leadership within different Australian industries.

Transitioning from the theoretical contributions are the practical components of safety leadership, which can be strategically implemented within a company to ensure tangible results. Other practical applications are detailed below:
• The creation of a safety leadership framework or program can be evidenced through the foundations of the RAVE model and other related findings and results gathered through this research. This can include workshops or training sessions that detail the application of the RAVE model.

• Developmental activities can be fixed towards the safety leadership behaviours that have been detailed in this research. This can include coaching activities or 360 feedback assessments. Establishing processes around the RAVE model can be the practical measurement of change.

• A robust project safety vision that excludes statements around the concepts of “zero” can create project alignment between employees and leadership. A clear safety vision set by the leadership team can establish expectations and provide clarity for the workforce.

• The creation of safety management systems to coincide with safety leadership behaviours and other measures can build and enhance current lead indicators or key performance indicators. An example of this may be through a designated list of minimum behaviours that leaders may need to demonstrate as part of their leadership quota.

• Safety culture assessments and surveys can be linked with the safety leadership behaviours or components of the RAVE model, to ascertain the influence of leadership upon a project.

• The modelling and establishing of a mentor/protégé relationship aimed at building safety leadership capability can help build organisational effectiveness within a project (Bozionelos 2004). An individual assessment of where someone lies on the safety leadership continuum may assist the pairing of mentor/protégé relationships.

• Safety leadership focus groups or innovation focus groups may help promote innovation into safety and create a healthy avenue for leader/member exchange while bridging the pathway for creativity.
Further recommendations and applications have been documented in Chapter 5. The overall theoretical and practical applications into safety leadership can be brought to maturity, now that the concept has been well defined.

6.5 Limitations of Research
This post-positivist research has adhered to the rigours of quality based qualitative research through the foundations of credibility, transferability and dependability (Shenton 2004). The sample of participants used for this study was established within the construction industry. This may limit the extrapolation of results to other industries outside of construction. Such correlations to other industries can be met with a degree of caution on account of the legislative requirements of work within the resources sector, the operational environment, the nature of work, and the ephemeral timeframe of construction projects.

The sample size chosen in this research study was based upon people in core leadership positions. Their thoughts and behaviours formulated the basis of the definition of safety leadership and validation of the RAVE model. Consultation with the broader employee group was excluded which may impact on the applicability of the results obtained due to one portion of the wider work focus being consulted.

The coding and interpretation of data was done through a manual process of crosschecking and thematic analysis. Computer assisted software was abandoned in favour of the researcher being involved within the full extent of data. As a result, added objectivity and grouping of further categories might have been diminished in favour of the manual analysis and coding.

The last limitation of the research is the sample size and how the research was restricted within the one construction company, as opposed to several construction companies. As a result, the findings obtained may be influenced by deep structural issues or organisational cultural variables unique to that organisation. The large size of the company chosen for the research aimed to mitigate any cultural issues. By focusing on a sole construction company, any internal complexity across multiple construction companies was negated. The focus of the interviews was shaped by personal thoughts and opinions as opposed to company policies and rhetoric, which further mitigated this research limitation.
6.6 Suggestions for Future Research
A vast amount of information has been brought to the surface through this exploratory research study into the definition of safety leadership and associated leadership behaviours within the Australian construction environment. Further research can expand and elaborate on the results gained in this research study. Suggestions for future research have been made below:

1. Safety Leadership outside of the Australian Construction Industry

The unique components and cultural differences of the Australian construction environment may differ from overseas projects. The participants made constant references in relation to the way safety is approached differently within Asia and Africa compared to Australia. Further validation may be explored through extended research into construction companies based overseas where the legislative component towards safety may not be as prevalent.

The core composition of safety leaders has been established, although whether these characteristics and nuances are transferable across other industries such as healthcare, retail and mining may warrant additional research. The exploration into any variations into the safety leadership behaviours and RAVE model can help contextualise safety leadership within a specific industry or confirm the universal aspects of safety leadership raised in this study. A feminist research approach could also address the lack of females within leadership positions within the construction industry (Styhre 2011).

2. Further Action Based or Confirmatory Research

The foundations of safety leadership have been identified through the RAVE model and further confirmatory research into its applicability and plausibility can be investigated. Action based research could explore the tangible impact of safety leadership behaviours that have been detailed in this research. Alternatively, the implementation of a safety leadership program that utilises the RAVE model, and tracking of its success via a longitudinal study could also prove productive.

With safety leadership now being well defined, the long-term benefits of safety leadership could be explored through avenues of safety culture surveys, 360 leadership assessments, safety statistics, employee turnover and other tangible measurements of effectiveness.
3. Exploring Safety Leadership characteristics within Female Leaders

The prevalence of men within leadership positions in the construction industry is prevalent. The identifying of any aspects or specific safety leadership characteristics from women in construction leadership roles may be worthwhile. A deeper understanding of any barriers for women in entering leadership positions and the influence on safety leadership may prove beneficial. By understanding potential obstacles within this space, gender equality can be promoted and diversity can be exercised, which may prove to be an avenue for further innovation.

4. Cross Checking the Safety Leadership Behaviours with the General Workforce

Further quantitative studies with the larger workforce may be beneficial in crosschecking the principles of safety leadership demonstrated through the RAVE model for validity and accuracy. Other core elements of safety leadership may emerge from the general workforce which might have been overlooked from the work done with project leadership teams. Further research into this area can now be exercised because of the foundations of safety leadership being established through this research.

6.7 Conclusion

The definitive empirical guide to safety leadership and what it entails has been revealed through this research. The overall macro research question of “What behaviours are evident in successful safety leaders?” and other associated research questions, have been answered with context provided via a clearly established definition. Results and findings have been linked to the external operating environment through an exploration into political, economic, social and technological influences. Results from this research were confirmatory towards the applicability of the RAVE model of safety leadership with a definition being ascertained through the wide array of interviews conducted.

Recommendations have been made based upon the application of the results obtained, with practical and theoretical applications also being detailed. Through this exploratory research, further studies can be confirmatory grounded upon safety leadership outside of the Australian context. Alternatively, the practical application of the RAVE model and long-term effects of effective safety leadership behaviours can be confirmed through action based research. A strong foundation has now been established into safety leadership. From this foundation, a
A sturdy platform can be built that may influence safe behaviours within the workplace while having a beneficial impact upon worker morale and the bottom line.
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Appendix A: Interview Form

Broader Safety Leadership Questions:

What does safety leadership mean to you?

How would you define safety leadership?

What part do safety statistics play in safety leadership?

When you hear goals of Zero Harm and Zero Incidents, what pops into your mind from a leadership perspective?

In your opinion, what are the key factors or values that underpin safety leadership?

How does safety leadership differ from other forms of leadership?

Core Sub-elements of Safety Leadership (RAVE):

How would you describe the importance of creating and developing relationships within safety leadership?

- How do you develop relationships with your team?
- How do you influence safety?
What does being authentic mean to you in terms of safety leadership?

- How do you share safety information with your team?
- What would be the impact of sharing any safety shortcomings with your team?

How would you define and share a safety vision with others?

- How would you inspire others in terms of safety?
- What kind of language would you use to influence others?
- How do you demonstrate your safety values?

What are the different ways that you engage others with safety?

- How do you demonstrate fairness if someone was not compliant with safety?
- How should safety information be shared across different levels within the company?

**Behaviours of Safety Leadership:**

What would be some specific behaviours that someone would be demonstrating if they were leading with safety?

What is the difference between an effective and ineffective safety leader?

How would you know that you are influencing others through safety leadership behaviours?

**Impact of Safety Leadership on Employee Behaviour:**
How does safety leadership impact employee behaviour?

What would be the impact of leading with safety on others?

Can you describe an example where someone leading with safety had an impact upon fellow employees?
Appendix B: Confidentiality and Consent Form

Title of research project: Investigating the behaviours and characteristics of safety leaders in developing organisational safety policy

Name of researcher: Luke Daniel

Tick the box that applies, sign and date and give to the researcher

I agree to take part in the Southern Cross University research project specified above.
Yes [ ] No [ ]

I understand the information about my participation in the research project that has been provided to me by the researchers.
Yes [ ] No [ ]

I agree to be interviewed by the researcher.
Yes [ ] No [ ]

I agree to allow the interview to be audio-taped
Yes [ ] No [ ]

I agree to make myself available for further interview if required.
Yes [ ] No [ ]

I understand that my participation is voluntary and I understand that I can cease my participation at any time.
Yes [ ] No [ ]
I understand that my participation in this research will be treated with confidentiality.  
Yes  No □

I understand that any information that may identify me will be de-identified at the time of analysis of any data. 
Yes □  No □

I understand that no identifying information will be disclosed or published. 
Yes □  No □

I understand that all information gathered in this research will be kept confidentially for 7 years at the University. 
Yes □  No □

I am aware that I can contact the researchers at any time with any queries. Their contact details are provided to me. 
Yes □  No □

I understand that this research project has been approved by the SCU Human Research Ethics Committee 
Yes □  No □

Position: _____________________________________________________________

Years of Experience: ________________________________________________

Number of Direct Reports: ____________________________________________
Length of Service within the company: ______________________________________

Participant’s name: ______________________________________________________

Participant’s signature: __________________________________________________

Date: ______________________

☐ Please tick this box and provide your email or mail address below if you wish to receive feedback about the research.

Email: ________________________________________________________________
Appendix C: Information Sheet

Hello, my name is Luke Daniel and I am investigating the behaviours and characteristics of safety leaders in developing organisational safety policy. This research formulates part of my Doctorate in Business degree undertaken at Southern Cross University and has been approved by the Human Research Ethics Committee at Southern Cross University. The approval number is ECN-13-301.

Based upon your position in the company you have been randomly chosen as a potential candidate for this area of research. Details were passed on from your executive leadership team, alongside other candidates.

The aim of the research is to accurately define safety leadership and the specific behaviours that make up safety leadership and its impact upon an employee’s behaviour. Currently, research into this area is limited or heavily borrowed from other leadership fields.

The potential results of this study can revolutionise the field of safety leadership and practical efforts to develop safety leaders within the company can be based upon empirical data. As a result, the safety of an organisation can be strengthened due to the development of effective safety leadership behaviours.

This research involves multiple semi-structured interviews with multiple leaders within the organisation. Participation in this research is completely voluntary and participants can choose to withdraw at any point in time. Interviews will be recorded for accuracy of data and any names will be kept confidential through the use of pseudonyms. Data collected will be securely coded and kept in confidential files that are only accessible to the researcher within a locked cabinet. Audio data files will be deleted once they have been fully transcribed. The retention period of 7 years applies to all University research material.

The researcher will travel to your place of work and undertake a 45–60 minute interview. The research will be at no cost to you with the potential benefits carrying over to the wider community in terms of safety culture and safety leadership. All that is required from your self would be an open and candid response to the questions asked relating to safety leadership. At any point in time during the interview, you can choose to withdraw or stop the interview.
The results of this study may be published in a peer-reviewed journal article or shared at industry conferences. Only group data and themes will be shared and no mention of your name or the names of team members will be shared. If you have any further inquiries about the research, please feel free to contact the researcher Luke Daniel on (07) 33998972 or the principle supervisor Dr Douglas Long on + 61 (0)412 029 754 Feedback from this study can be emailed through to you at a later date. If you choose to receive feedback, please provide your email address on the consent form.

If you have concerns about the ethical conduct of this research or the researchers, the following procedure should occur. Please write to the following:

The Ethics Complaints Officer  
Southern Cross University  
PO Box 157  
Lismore NSW 2480  
Email: ethics.lismore@scu.edu.au

All information is confidential and will be handled as soon as possible.

Thank you for your participation and commitment.

Yours sincerely

Luke Daniel  
M.B.A., M.H.R.O.D., Post Grad Dip Psychology, B.A. Psychology  
Registered Psychologist
Appendix D: Confidentiality Form for Independent Parties

Title of research project: Investigating the behaviours and characteristics of safety leaders in developing organisational safety policy

Name of researcher: Luke Daniel

Tick the box if you are in agreement with the following confidentiality and privacy requirements related to this research:

I agree not to share any of the data with outside parties
Yes ☐ No ☐

All information gathered in this study belongs to Southern Cross University and the principle researcher
Yes ☐ No ☐

I understand that my participation is voluntary and I understand that I can cease my participation at any time.
Yes ☐ No ☐

I understand that my participation and role in this research will be treated with confidentiality.
Yes ☐ No ☐

I understand that any information that may identify me will be de-identified at the time of analysis of any data.
Yes ☐ No ☐
I understand that no identifying information will be disclosed or published.
Yes ☐ No ☐

I understand that all information gathered in this research will be kept confidentially for 7 years at the University.
Yes ☐ No ☐

I am aware that I can contact the researchers at any time with any queries. Their contact details are provided to me. Yes ☐ No ☐

I understand that this research project has been approved by the SCU Human Research Ethics Committee Yes ☐ No ☐

Independent person’s name:
______________________________________________________________

Independent person’s signature:
______________________________________________________________

Date: ______________________

☐ Please tick this box and provide your email or mail address below if you wish to receive feedback about the research.

Email: __________________________________________________________
Appendix E: Thank You Letter

Dear ______

I would just like to express my gratitude for your participation and candidness when being interviewed for the research into safety leadership. With your input being provided, it helps shape the framework of the research topic.

Without your participation, the research would not have been able to be achieved and the potential results to the greater community would have been forgone.

Thank you for making me feel welcome within your place of business.

Kind regards

Luke Daniel
## Appendix F: Coding Sheet

<table>
<thead>
<tr>
<th></th>
<th>Vision</th>
<th>Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>First touch point would be at induction or at their first contact with someone new</td>
<td>Engaging in some deeper sort of discussion</td>
</tr>
<tr>
<td>2</td>
<td>You could be telling these stories in that environment as you’re moving into different phases of the job</td>
<td>When you lose that person connection</td>
</tr>
<tr>
<td>3</td>
<td>Probably telling ourselves if we think that everybody’s going to buy into this safety vision</td>
<td>We do a pretty poor job articulating</td>
</tr>
<tr>
<td>4</td>
<td>I do my own personal safety vision plan like a good boy: do it once, commit to a different set of objectives etc., etc.</td>
<td>Collegiate thinking and behaviour by</td>
</tr>
<tr>
<td>5</td>
<td>We don’t articulate expectations,...we have a particular method of working and we have a structure in place to support that method of work</td>
<td>Talked with people that actually had</td>
</tr>
<tr>
<td>6</td>
<td>I think we are a bit behind on the safety strategy and vision at the moment</td>
<td>Break through barriers by “being active”</td>
</tr>
<tr>
<td>7</td>
<td>I’m probably not the mindset we’ve got to be consistent, but the same, we’ve got to be consistent, but the same</td>
<td>You have to be relentless in your approach</td>
</tr>
<tr>
<td>8</td>
<td>Opportunities are being verbalised, and part of a formal strategy of where we want to be in 5 years from a safety perspective</td>
<td>It’s not something you do and it’s not</td>
</tr>
<tr>
<td>9</td>
<td>Ready for vision when smaller problems are fixed such as timely investigations</td>
<td>Communicate with people about safety stage</td>
</tr>
<tr>
<td>10</td>
<td>Don’t spend quite good, I think, about the people</td>
<td>They get to be on board with the process</td>
</tr>
<tr>
<td>11</td>
<td>It’s interesting, I feel quite different, a vision I would have thought</td>
<td>You understand this is what your perspectives</td>
</tr>
<tr>
<td>12</td>
<td>The workforce is safe because they want to be safe...that’s your vision; that’s where you think we need to be</td>
<td>Walk the talk, talk the talk, they have</td>
</tr>
<tr>
<td>13</td>
<td>PSAS is more of a level down from the vision; tangible measurable action</td>
<td>“Well you talk about it, and you keep doing it”</td>
</tr>
<tr>
<td>14</td>
<td>“Try and move towards your vision, you should never ever get to your vision, otherwise it’s not a vision”</td>
<td>Talk about your model, ask about the processes and share your way to success</td>
</tr>
<tr>
<td>15</td>
<td>“So, unless they’re told unless they understand what they’re there for and believe in it, how will it be effective?”</td>
<td>“Just talk to them all, when we have a problem”</td>
</tr>
<tr>
<td>16</td>
<td>Inspire by “get your team and talk to your team and explain your values, what he thinks this value is, what the company values are, how we will demonstrate that”</td>
<td>“You own it, we run with it, we own it”</td>
</tr>
<tr>
<td>17</td>
<td>“Constraining PSAS on the wall but...you are going to demonstrate that, and I’m making up the guys to live and breathe this”</td>
<td>“Speak to the floor, and ask them what they think, and they will tell you”</td>
</tr>
<tr>
<td>18</td>
<td>“You explain to him exactly what you’re going to do and therefore he can expect this from you”</td>
<td>Need to spend the time with the guys</td>
</tr>
<tr>
<td>19</td>
<td>“Personal level of expectation, I guess”</td>
<td>“I mean that’s what about walking and safety”</td>
</tr>
<tr>
<td>20</td>
<td>“Leadership to me is forward thinking, if you’re thinking in retrospect, you’ve gone past the issue”</td>
<td>Talk about your experiences and why</td>
</tr>
<tr>
<td>21</td>
<td>“Safety is an expectation that’s been set on us as a business, but predominantly set by our clients as well”</td>
<td>Humour has been part of the story</td>
</tr>
<tr>
<td>22</td>
<td>Regarding communicating vision I don’t know if we do it particularly well, even at a personal level...we’re evolving as well</td>
<td>Less likely to say “I’m a weak safety guy”</td>
</tr>
<tr>
<td>23</td>
<td>“Just because we’re on site doesn’t mean that shit has rolled down the hill, wouldn’t be nice to say “oh shit, he comes in, he must be here to interact with me”</td>
<td>“In business leadership, if your boss</td>
</tr>
<tr>
<td>24</td>
<td>“Your lead indicators which you communicate to the workforce, you show them where you’re going, you show them what you’re doing, you show them a spirit”</td>
<td>“...or poor interpersonal skills, but”</td>
</tr>
<tr>
<td>25</td>
<td>“Our target is continuous improvement; our target is that everyone goes home safely, but it is impossible, its rubbish”</td>
<td>“If you don’t talk to people, you”</td>
</tr>
<tr>
<td>26</td>
<td>“First day we spoke about productivity and goodness and what were going to do and then the 2nd day you totally hammered us and destroyed us about what we’re doing wrong”</td>
<td>Hard to show safety is without a history of safety being excellent</td>
</tr>
<tr>
<td>27</td>
<td>“Sharing information “there is a problem, we haven’t done things correctly in the beginning, but if we start looking at all these aspects we can actually start making a change”</td>
<td>Majority of people in safety I don’t</td>
</tr>
<tr>
<td>28</td>
<td>“Honest, open, trustworthy, someone who makes the commitment and stick to it, how we get there is a journey we travel together”</td>
<td>Different styles of communication, a variety of things</td>
</tr>
<tr>
<td>29</td>
<td>“Vision is “communicated” everyday we talk to the guys...we tell them this is what we want, this is where we going”</td>
<td>Trying to get people to accept your vision, get paid in that vision, it is</td>
</tr>
<tr>
<td>30</td>
<td>“I just want to share the vision with the guys of me, whatever happens they can stop and talk about it and I will be happy to receive any feedback”</td>
<td>Use an example of inductions and peers</td>
</tr>
<tr>
<td>31</td>
<td>“If they don’t fundamentally have the same beliefs, that’s a company and we’re a project team have, then have the difficult side conversation, which isn’t always easy”</td>
<td>Apart from a signed bit of paper, any</td>
</tr>
<tr>
<td>32</td>
<td>“Toolboxes should never be delivered by the bosses but the IFF one “no, we want to stand up and say this, we want to tell them what we got out of it”</td>
<td>Get more visibility out there, a bit more</td>
</tr>
<tr>
<td>33</td>
<td>“It’s not right, I’ll speak up and I ask all the guys in my team to do the same”</td>
<td>“Feel the engagement and engage a guy”</td>
</tr>
<tr>
<td>34</td>
<td>“Talking them isn’t inspiring them to do anything, it’s like a teacher telling a pupil to do some work, it’s not reminding them of the importance of the process”</td>
<td>Get inside their minds, I mean people</td>
</tr>
<tr>
<td>35</td>
<td>“They have no idea where you share your vision on the guys? What are the questions in those surveys are about (are you clear about your managers objectives)”</td>
<td>“There is a lot of good work that’s done</td>
</tr>
<tr>
<td>36</td>
<td>“Get them involved where you share your vision on the guys? What are the key questions in those surveys are about (are you clear about your managers objectives)”</td>
<td>From a sign up to something to a 2,4 and</td>
</tr>
<tr>
<td>37</td>
<td>“Need to make sure they see the whole picture? We need to be in it together”</td>
<td>“You can’t be a dictator, you can’t be a</td>
</tr>
<tr>
<td>38</td>
<td>“Importance of them seeing that everybody on site needs to share the vision and wants each of us to go home okay, may find things frustrating at times, were going to pull together”</td>
<td>“Want to the work area and we found</td>
</tr>
</tbody>
</table>

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**Safety Leadership**

Page 214