
Copyright 2006 (please consult author)

IMPROVING INDUSTRY SAFETY CULTURE: THE TASKS IN WHICH SAFETY CRITICAL POSITIONS HOLDERS MUST BE COMPETENT

Dr Herbert C Biggs¹, Vaughn L Sheahan¹ and Dr Don P Dingsdag²

¹Queensland University of Technology, Brisbane, Australia
²University of Western Sydney, Sydney Australia

Correspond to h.biggs@qut.edu.au

Acknowledgment: This Research was funded by the Cooperative Research Centre for Construction Innovation (Australia).

One proposed reason for poor occupational health and safety (OHS) performance within the Australian construction industry is a lack of a consistent OHS competency framework for key positions holders. Currently, there are no minimum OHS training or competency requirements to work as any management or supervision position, from Supervisor, to Construction Manager to Managing Director. This research sought to identify the base level competencies required by those who held safety critical roles – roles previously identified by the authors (see Biggs et al, 2005). A survey was administered to key position holders within member companies of the Australian Constructors Association (Australia’s 11 largest constructors). This survey asked participants to rate how important they perceived 39 safety tasks were to the reduction of injury and incidents on site. 359 responses were returned. Data analysis extracted the tasks that were rated, on average, as important to extremely important. 18 tasks were identified as important to reducing injury, with the top three tasks being: Challenge unsafe behaviour/attitude at any level when you encounter it; Monitor subcontractor activities; and Carry out workplace and task hazard identification, risk assessments & control. It is argued that all key position holders must have competency in these top 18 tasks. By defining what competencies and behaviours are required by those who hold safety critical roles, it should be possible to provide a solid base for improving safety culture within the Australian and International Construction Industry.

Keywords: Competencies, roles, safety culture, tasks.

1. INTRODUCTION

A Royal Commission conducted in 2003 to investigate activities within the Australian Building and Construction industry revealed that the industry occupational health and safety (OHS) performance was in dire need of improvement (Cole Royal Commission, 2003). The most recent statistics available paint a picture of excessive injury and death. In the period between 2001- 2002, 13 290 workers compensation claims were lodged – giving the industry incident rate of 30 claims per 1000 employees per year (National Occupational Health and Safety Commission, 2003).

In seeking avenues to improve OHS performance and safety culture, one possibility is to improve the management of safety by improving levels of safety competency within key industry roles. Under current legal frameworks, construction companies are required to ensure that people in charge of works are competent to manage OHS obligations; however, there is no nationally based or accepted framework that specifically articulates who needs to do which tasks and what competencies they require.

This lack of definition has meant that each company has approached and managed their safety obligations differently – with some companies performing better than others. This result, in combination with a highly sub-contracted workforce that shifts regularly between companies, has contributed to the poor OHS performance. That is, the differing approaches to managing OHS competency has meant that the workforce is required to learn and adhere to different systems and processes when they change projects or primary contractors. The result of which can be seen with a typical quote: “But at Acme Construction we don’t have to do this, so why should I do it now?”.

Hence, it is argued that by improving and standardising safety competency within the industry, it should be possible to begin to provide greater consistency in the way OHS is managed. This in turn with help foster an environment in which a positive safety culture can be developed across primary contractor and state boundaries.
This research aimed to provide the information required to begin defining safety competency. This was achieved by exploring which regularly completed OHS tasks are seen as important for reducing injury and incidents on site. From this it is possible to infer the types of knowledge, skills, abilities and behaviours that are required for a base level of safety competency.

2. METHOD

2.1 Participants

Work from previous focus group and interview based qualitative research (see Biggs et al, 2005) identified the following roles as being critical to driving safety culture:

- MD/CEO / General Manager
- Senior Management
- Operations/ Construction Manager
- Project Manager
- Engineer
- Site Manager / Superintendent
- Foreman / Supervisor
- Site OHS Advisor
- Regional Safety Manager
- State Safety Manager
- National Safety Manager

As a consequence the safety critical tasks survey was administered primarily to people who held these roles. Commitment to participate was gained from senior safety managers and / or Managing Directors from eleven of Australia’s largest constructors and three second tier construction organisations.

A web-based survey was chosen as an administration format to reduce the work required by companies to administer the survey. Each contact from the company was given an email link, which they then sent out using company email lists to the relevant participants. This email also contained information about the study and a statement written to encourage participation. Participants preferring to complete a paper version of the survey could contact the company survey administrator or choose to download a printable version of the study which they could mail to the researchers. Follow up – reminder emails were sent to participants 2 and 4 weeks post-administration. 359 surveys were returned. See the results section for specific details relating to demographics.

2.2 INSTRUMENT

The survey contained an information and consent form (adhering to University Research Ethics requirements), that detailed the project and what participation in the survey involved. After completed demographic questions, the participants were presented with 39 randomly ordered safety tasks and asked to rate how important that tasks were to reducing injury and incidents on site. Importance was assessed using a Likert scale of 1 to 5; with 5 being extremely important and 1 being not important. These tasks were derived from focus groups conducted with each company and from competency documents provided by one of the main participating companies. (See the Table 2 in the results section for these questions).
3. RESULTS

3.1 DEMOGRAPHICS

See Table 1 for: the number of participants from each critical role position; and the average age.

<table>
<thead>
<tr>
<th>Role</th>
<th>Number of Participants</th>
<th>Average Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD/CEO/GM</td>
<td>12</td>
<td>46.9</td>
</tr>
<tr>
<td>Snr Manager</td>
<td>12</td>
<td>50.5</td>
</tr>
<tr>
<td>Construction / Operations Manager</td>
<td>35</td>
<td>46.3</td>
</tr>
<tr>
<td>Project Manager</td>
<td>60</td>
<td>40.8</td>
</tr>
<tr>
<td>Engineer</td>
<td>44</td>
<td>30.4</td>
</tr>
<tr>
<td>Site Manager</td>
<td>36</td>
<td>45.8</td>
</tr>
<tr>
<td>Foreman</td>
<td>14</td>
<td>40.5</td>
</tr>
<tr>
<td>Site OHS Advisor</td>
<td>40</td>
<td>41.7</td>
</tr>
<tr>
<td>Regional OHS Manager</td>
<td>12</td>
<td>41.8</td>
</tr>
<tr>
<td>State OHS Manager</td>
<td>10</td>
<td>45.0</td>
</tr>
<tr>
<td>National OHS Manager</td>
<td>8</td>
<td>46.2</td>
</tr>
<tr>
<td>Other- inc not specified</td>
<td>76</td>
<td>41.9</td>
</tr>
</tbody>
</table>

Table 1. The Number and Age of Participants in each Safety Critical Role.

3.2 Critical Safety Tasks

See Table 2, for the 39 safety critical tasks and their average score for perceived importance of reducing injury on-site. To recall, the scale was 1 to 5, with scores above 4 being seen as important to extremely important for reducing injuries. The questions have been ranked according to importance.

<table>
<thead>
<tr>
<th>Question</th>
<th>Task / Process</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Challenge unsafe behaviour/attitude at any level when you encounter it</td>
<td>4.70</td>
<td>0.55</td>
</tr>
<tr>
<td>2</td>
<td>Monitor subcontractor activities</td>
<td>4.46</td>
<td>0.74</td>
</tr>
<tr>
<td>3</td>
<td>Carry out workplace and task hazard identification, risk assessments &amp; control (JSA &amp; SWMSs)</td>
<td>4.45</td>
<td>0.93</td>
</tr>
<tr>
<td>4</td>
<td>Carry out formal inspections of workplace and work tasks</td>
<td>4.39</td>
<td>0.69</td>
</tr>
<tr>
<td>5</td>
<td>Make site visits where you talk directly to a site worker about safety in the workplace</td>
<td>4.34</td>
<td>0.94</td>
</tr>
<tr>
<td>6</td>
<td>Understand and apply general regulatory OHS requirements</td>
<td>4.32</td>
<td>0.80</td>
</tr>
<tr>
<td>7</td>
<td>Provide general OHS information and provide basic OHS instruction.</td>
<td>4.32</td>
<td>0.77</td>
</tr>
<tr>
<td>8</td>
<td>Work with subordinates to solve safety problems</td>
<td>4.31</td>
<td>0.81</td>
</tr>
<tr>
<td>9</td>
<td>Carry out formal incident investigations</td>
<td>4.29</td>
<td>0.89</td>
</tr>
<tr>
<td>10</td>
<td>Carry out Project Risk Assessments</td>
<td>4.25</td>
<td>0.92</td>
</tr>
<tr>
<td>11</td>
<td>Discipline staff for poor OHS behaviour/attitude</td>
<td>4.22</td>
<td>0.98</td>
</tr>
<tr>
<td>12</td>
<td>Develop OHS procedures and instructions</td>
<td>4.21</td>
<td>0.87</td>
</tr>
<tr>
<td>13</td>
<td>Identify &amp; include suitable OHS requirements into Subcontractor packages, eg. Risk assessment tools</td>
<td>4.18</td>
<td>0.92</td>
</tr>
<tr>
<td>14</td>
<td>Plan and deliver Toolbox talks</td>
<td>4.18</td>
<td>1.04</td>
</tr>
<tr>
<td>15</td>
<td>Consult on and resolve OHS issues</td>
<td>4.12</td>
<td>0.91</td>
</tr>
<tr>
<td>16</td>
<td>Facilitate group/work team OHS discussions and meetings</td>
<td>4.09</td>
<td>0.85</td>
</tr>
<tr>
<td>17</td>
<td>Evaluate OHS performance of subcontractors</td>
<td>4.07</td>
<td>0.92</td>
</tr>
<tr>
<td>18</td>
<td>Apply full working knowledge of your organisation’s Safety Management System</td>
<td>4.07</td>
<td>0.91</td>
</tr>
<tr>
<td>19</td>
<td>Deliver site/workplace specific induction</td>
<td>3.99</td>
<td>1.10</td>
</tr>
</tbody>
</table>
4. DISCUSSION

When examining and defining what it is to be competent to manage safety at a level that is required to improve existing poor industry safety performance, it is important to identify the activities that influence site safety. In the current case, tasks that were perceived to be most important in reducing injury on-site were:

- Challenge unsafe behaviour/attitude at any level when encountered
- Monitor subcontractor activities
- Carry out workplace and task hazard identification, risk assessments & control (JSA & SWMSs)
- Carry out formal inspections of workplace and work tasks
- Make site visits where a site worker is spoken to directly about safety in the workplace
- Understand and apply general regulatory OHS requirements
- Provide general OHS information and provide basic OHS instruction.
- Work with subordinates to solve safety problems
- Carry out formal incident investigations
- Carry out Project Risk Assessments
- Discipline staff for poor OHS behaviour/attitude
- Develop OHS procedures and instructions
- Identify and include suitable OHS requirements into Subcontractor packages, eg. Risk assessment tools
- Plan and deliver Toolbox talks
- Consult on and resolve OHS issues
- Facilitate group/work team OHS discussions and meetings
- Evaluate OHS performance of subcontractors
- Apply full working knowledge of organisation’s Safety Management System

It is argued that companies seeking to improve safety performance should focus on developing safety critical staff so that they can successfully complete the above tasks. If overall safety competency is to
be defined by a person’s ability to undertake these tasks, it is then possible to begin to examine what competency elements companies should be targeting.

The authors propose that the key principles that underlie the ability of a person to complete the safety critical tasks are the individual’s level of safety knowledge; leadership behaviour; interpersonal communication skills; and their safety attitude, values and beliefs (see Figure 1). It is argued that true safety competency is determined by staff aptitude across these four broad factors. The following section will briefly elaborate on these four themes.

Figure 1. The Proposed Framework for Safety Competency

4.1 Specific Safety Knowledge

Knowledge of safety and the ability to identify and manage risk is the fundamental platform of the current safety competency framework. Specific knowledge relating to safety develops a person’s perceived behavioural control by helping them to understand what they can and should be doing – clarifying nebulous requirements (i.e. “Do it safely”).

Fundamental skills include:

a. Ability to identify unsafe work practices
b. Knowledge of safer work methods
c. Ability to problem solve to achieve safer work practices

4.2 Interpersonal Communication Skills

Good interpersonal communication skills again, work to improve an individual’s perception of control, by increasing their ability to work successfully with others. The ability to communicate with the others, at both the individual and group level, reduces the psychological boundaries associated with “speaking out” and talking to others about changing their behaviour.
Fundamental skills include:

a. Active listening skills
   i. Mirroring (matching speech, language & body language)
   ii. Reflecting (confirming comprehension via repetition of key points in other’s speech)
   iii. Paraphrasing (summarising what was said to confirm overall comprehension)

b. Perspective taking
   i. Through active listening (above)
   ii. Detaching from the situation to evaluate the motivations and demands placed on others

c. Flexibility in style
   i. Understanding the different needs of different audiences
   ii. Workforce – needs to feel that they are listened to and their safety concerns and perspectives are understood (mirroring & reflecting)
   iii. Management – needs to know that their instructions are understood (paraphrasing)
   iv. Ability to choose appropriate style

d. Effective speech
   i. Clear and unambiguous
   ii. Matching with audience (i.e. worker language and comprehension vs management language and comprehension.)
   iii. Avoidance of blame assignment (speak of opportunities to improve and what needs to be done, rather than seeking to blame or punish)
   iv. Personalisation of communication (use first names and share & seek personal information to form a greater understanding of each other)

4.3 Leadership Behaviour

The style in which a person in a key position leads and the behaviour they engage in is important for defining a safety culture. Central to this leadership theme is the ability to foster good relationships with staff and the workforce. Leadership theories such as Leader-Member Exchange hold that good leader-follower relationships encourage the followers to behave in a manner which is aligned with the leader’s goals and values (Hofman & Morgeson 1999). Therefore, if the manager has a good relationship with his/her staff and he/she behaves in a manner that promotes work safety, their subordinates will be inclined to behave safely as a means of reciprocation. Hence, managers should seek to develop a leadership style that promotes collaboration and relationship building, while still maintaining authority and discipline.

Fundamental behaviours and skills include:

a. Collaboration
   i. Worker input into safety management on a daily basis – not just through committees
   ii. Reduction of “us” versus “them” mentality – team building
   iii. Involvement of all site management in the planning process
   iv. Sharing information
b. Relationship Building
   i. Team building
   ii. Providing opportunities for people to meet each other – eg. BBQs
   iii. Sharing of personal information
   iv. Regular interaction at a social level eg. “How are the kids?”
   v. Conversations about safety – subtle weaving of safety into general conversation
   vi. Good amenities that promote interaction eg. lunch areas

c. Supporting
   i. Trusting in subordinates
   ii. Open door policy – encouraging and allowing subordinates to speak freely with superiors
   iii. Avoidance of blame assignment – encouraging people to speak openly about safety issues
   iv. Empowering – rewarding those who raise safety issues and helping them to progress and resolve issue

4.4 Values, Beliefs and Attitudes

Values, beliefs and attitudes are an important predictor of safety behaviour (Johnson & Hall, 2005 and Elliott, Armitage & Baughan, 2005). Broadly speaking, the overall values, beliefs and attitudes that should be developed are:

a. Values
   i. Workmates’ lives and wellbeing are important
   ii. Justice, fairness and doing the “right” thing are important

b. Beliefs
   i. Job security
   ii. Have the power to make a change
   iii. Personal responsibility (“If I don’t act no one will”)
   iv. Safety is a normal part of construction – not a separate concern

c. Attitudes
   i. Personal safety is paramount and above money
   ii. Wellbeing of others is more important than money

5. CONCLUSION

An approach to improving safety within the Australian construction industry is to ensure a standard level of competence across key positions. This would help reduce the problems associated with inconsistent management of the sub-contracting workforce as well as to improve the ability of position holders to have an affect on site safety. By identifying the tasks that (according to industry perceptions) have the most benefit on injury rates, it is possible for companies to begin targeting these areas for improvement. By developing and standardising safety competency within critical role holders, it should be possible to improve the quality in which the key safety tasks are completed, this in turn should lead to greater safety performance within the industry.
6. REFERENCES


