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[128-324] Construction Induction Training: Does mandatory training work?

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Abstract

Reducing the high level of deaths and injuries in the construction industry is a continual challenge. It is a specific challenge in Western Australia (WA), where the industry is adapting to the additional pressures of a resources-led development boom. In 2006, Worksafe WA responded by introducing mandatory certification in basic safety training for all employees, before they could set foot on a work site. This paper reviews the impact of this training initiative on the commercial sector of the construction industry, the training organisations, and the construction employees. The mixed methodology study collects both the perceptions of the stakeholders and analyses the incident statistics. The findings indicate that this initiative has made a difference, with almost all respondents reporting that they believe their workplaces are safer having completed the training. Mandatory training has contributed to perceptions of improved safety culture within the commercial sector of the construction industry in WA. The intention is to expand this study to explore the variations of the impact of the scheme on the remaining sectors of the construction industry in WA and then nationally to determine what developments could be made to increase future effectiveness across the industry, and the nation.

Keywords: mandatory training, safety training, construction industry.

Introduction

This paper reports on a study that reviewed the effectiveness of mandatory pre-site safety training in the commercial construction industry. In 2001, the Western Australian (WA) commercial construction industry adopted a program of safety awareness training, commonly referred to as the "Green Card". In 2006/07, WA rolled out a local replacement competency-based certification program, commonly referred to as the "Blue Card" which required re-certification tri-annually. In 2009, WA adopted the national Construction Induction Training ("White Card") program, based upon national competencies that form part of a training package within the Australian Qualification Training Framework (AQTF) that offers a one-off certificate for life. The aim of these initiatives is to ensure that all workers in the construction industry (commercial, housing, and civil) complete a safety awareness course before working on a construction site. The progression of these training programs has been to develop the industry training culture towards mandatory, competence-based, and nationally accredited pre-site safety awareness certification. The Construction Induction Training (CIT) program has been delivered in a variety of modes and in very diverse conditions across many different locations in WA. The CIT was developed by the Construction and Property Services Industry Skills Council (CPSISC) for the National Skills Council and is a legislative requirement by Worksafe WA. The program is 80% funded for the industry by the Construction Training Fund (CTF). The fund is built from a levy on all major construction projects with a gross budget greater than \$20,000 in WA. Construction companies can

apply for funding assistance for their employees to complete the CIT. The study focused upon the impact of the training on the stakeholders of the commercial construction industry with specific emphasis on the Blue Card and now White Card (CIT) initiatives. Practically the study is about an initiative to improve the safety culture of an industry that is under rapid expansion in order to reduce incidents and save lives. Conceptually, this study is about both the implementation and impact and use of mandatory training to effect culture change.

Background

Industrial incidents are mainly produced by the actions of individuals within organisations; individuals who are strongly influenced by what they perceive to be the expected, or expedient, practices of the workplace. They are influenced by the safety culture that surrounds them which consists of both formal practices and informal learning from watching others. The safety culture of an organisation is always being contested by the need for production. Martin¹ recommended that in order to introduce a safety culture, organisations need to introduce organisational behaviour change models and initiatives. Gherardi and Nicolini² stated that “learning safety means how to behave as a competent member in a culture of safety practices” (p 11). A good safety culture does not mean there will be no incidents at all, but that if these occur they will be responded to openly and considered a learning opportunity.³ A study conducted in 2002⁴ with workers in a high-hazard industry found that the convergence of supervisor and worker attitudes towards safety created a good safety climate. This is supported by the 2005–2008 study conducted by Bahn⁵ in the civil construction industry that found that the value managers placed on safety led to the level of safety culture in the workplace. Other research found that safety culture is determined by not only commitment, but values, ability, leadership and the communication styles of management that is supported by the participation, competency, training, behaviour and attitudes of the individual employee.^{6, 7, 8} The literature is mainly focused on the development of a safety culture and safety climate, but is limited in terms of specific studies and outcomes concerning the effectiveness of mandatory training, and in terms of studies located within the construction industry.

Safety culture and safety climate appear to be terms that are often used interchangeably in the literature to refer to “how things work” within organisations. They have become central to health and safety management thinking.^{9, 10} Accidents such as those at Chernobyl and Three Mile Island^{11, 12} have been blamed in part on the safety culture of the organisation.¹³ The role of the safety climate and performance within an organisation was investigated in research conducted by Zohar.¹⁴ Safety climate is the reflection of an employee’s perception about the importance of personal safe conduct in the workplace. Zohar argues that the safety climate revolves around the employees’ perception of the importance of the safety committee, safety training, the required pace at which to work and the status of the safety officer. Biggs, Dingsdag, Sheahan and Stenson¹⁵ (p 4) stated that “a perception of a good safety climate is thought to encourage participation in activities that may not directly impact the person’s own safety, but positively impact the safety of the organisation as a whole”. Safety culture and training have a symbiotic relationship in the workplace. Managers and employees that place a value on safety often place a higher priority on training. Marsh, Robertson, Phillips and Duff¹⁶ believe that cognitive clarification and increased commitment should contribute to increased safe behaviour and productivity, and employees should have a clearer idea of what they are expected to do and more reasons for wanting to do it well. However, unless this is supported by a robust value of safety by management, production pressures may be at the forefront of their actions.

Research supports the assertion that safety training interventions have led to an improvement of safety behaviours and a reduction of hazards in the workplace.^{17, 18, 19, 20} However, Biggs, Sheahan and Dingsdag²¹ (p 2) added to the complexity of managing safety training for the Australian construction industry through their statement that “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". Indeed this is supported by Zanko²² (p 4) who found that there is currently no clear understanding of what constitutes occupational health and safety management and without this definition in place there is ambiguity and uncertainty about "what to do and what not to do".

Managing safety in the construction industry is exacerbated by the diversity of work relations, in an industry that frequently utilises multiple contractors and small business employees on vast, multi layer construction projects employing over one million people. Contractors and subcontractors make up a large proportion of the workers operating in the construction industry which currently has the highest number of recorded self-employed contractors working in Western Australia.²³ Management of subcontractors is difficult in that they often slip through the net or are shielded by the contracting company, often failing to adopt adequate work health and safety practices.²⁴ ,²⁵ Although a large number of subcontractors provide their services to the construction industry, little research is available about their impact on the incident rate within this industry.²⁶ ,²⁷ ,²⁸ ,²⁵ ,²⁹ Quinlan and Mayhew²⁵ in their study of health and safety consequences on the growing "precarious" workforce (contractors, subcontractors, labour hire, casual and franchised workers) found that these workers were more susceptible to workplace incidents as opposed to workers on fixed or permanent contracts and that their incidents can go unreported. Reasons for a failure to report incidents and instead place employees on light duties for example, include the impact that a lost time injury can have on construction companies' profiles when next applying for work by tender. The inducement to falsify injury reporting is pervasive in the construction industry. Quinlan and Mayhew²⁵ argued that legislation requiring mandatory reporting through formal health and safety systems should come into effect. However, safety compliance can be seen as just another cost that eats into their already slim profit margins.³⁰ The smaller contractor may find compliance requires expensive safety systems and extra manpower to maintain them at a large cost imposition.²³ Such management systems often require the infrastructure that is the prerogative of large corporations.

Reason, Parker and Lawton³¹ (p 2) stated that "most experienced workers think they know approximately where the 'edge' between safety and disaster lies" with workers choosing to work against safety rules and procedures as this leads to an easier and more efficient way of working. They believe that there are three major categories of deliberate safety violations where workers will deviate from the safe way of performing a task, "routine, optimising and situational violations". Routine violations involve cutting corners in order to perform the task with the least effort required to get the job done. An example of a routine violation could include cutting across unsecured ground rather than going around the area. Optimising violations involve meeting a variety of personal goals while violating safety procedures. A worker may enjoy driving fast and therefore may exceed the speed limit when operating large machinery on site placing personal satisfaction above organisational rules. Situational violations are work related and occur when employees perceive that safety violations are necessary in order to get the work done. Further, at times sanctioned by management, principal contractors in Australia are driven by completing projects on time and under budget. Robust safety on site is dependent on the people who manage projects onsite and the priority safety has over production pressures. An example of a situational violation is where workers excavating behind retaining walls in order to lay services continue their work despite the fact that other workers are situated directly on the other side of the wall laying paving. Both sets of workers need to complete their work alongside each other, but this method of operation places the brick paver in considerable danger if there is a wall collapse.³¹

In 1997 the United States Occupational Safety and Health Administration developed a union-based 10-hour hazard awareness training program called "Smart Mark" for the construction sector that has some similarities with the CIT. This program is the most widely used construction safety and health awareness training course in the US³² and is frequently incorporated into apprenticeship training courses. The program delivery includes active interaction, questions/answers, and mock-up construction settings within 13 modules selected on the basis of relevance to each particular construction trade. Sokas et al³² evaluated "Smart Mark" to assess the strengths and weaknesses of the training materials, to determine the most commonly encountered hazards, the impact the training may have had, and to determine whether interactive instruction and the inclusion of supervisors impacted on the training outcomes. Their findings included: identifying

electrical safety and fall protection as the two most useful modules; a little over half of the work sites improved safety practices by either changing their safety policies or work practices; and supervisors included in the training had no impact. The researchers recommended that this last aspect of the evaluation requires further exploration. In addition, Kinn et al¹⁷ conducted a study with plumbers and pipe fitters in Ohio and found that workers who had received a site specific safety induction* had fewer injuries, although the impact of the safety awareness training could not be determined. A safety culture is constructed through a range of generic induction programs that heighten awareness, more specific programs that focus on particular work contexts, and the day-to-day interactions with, and learning from, colleagues and managers. Safe working practices are produced by such mixes of formal and informal learning, mediating and reinforcing interactions. Worksafe WA took a step towards addressing improved workplace health and safety by introducing a mandatory safety awareness induction, the "Blue Card" in 2006/07, for all construction workers. The aim of the Blue Card was to ensure that all construction workers have minimum training in general site safety including working at heights, working in confined places, general lifting, and working with hazardous materials before they work on any construction site. This was a first formal step to improve safety culture with a standardised training program introduced across the sector. The CIT program does not replace company, site specific, or job role inductions, but is additional to them. In 2009, there was a move to replace the state Blue Card with a national training program CIT (White Card). The reasoning behind this move was that the previous Blue Card was only valid in WA and did not reflect the need for a more universal and transferable national competency standard. Therefore, Worksafe WA moved to the national minimum safety standard for all construction workers. The changes from the state Blue Card to a national training program (CIT) had future ramifications for the learning practices and organisational outcomes. The state Blue Card required renewal and re-training every three years, however the national CIT provides workers with a unit of competency as a single one-off training program. Many would argue the quality of the learning that occurs with one-off training and the impact that this has on safety culture improvements.

* Inductions carried out at individual work places to address specific hazards such as safe handling of machinery.

Mandatory training programs

In many cases, because of inherently dangerous environments, individuals are faced with mandatory training and certification processes that act as a precondition for accessing a workplace. Issues of work health and safety are in the vanguard of those that are often positioned to be mandatory.³³ Compliance with safety regulation is positioned as an imperative and given the highest priority. However, mandatory training programs offer an illusion of complete and continued compliance that is seductive and easily consumed.

However, there is a long history of individual learning research that stresses the imperative of personal motivation and contextual relevance in achieving changes of personal knowing and subsequent actions.³⁴

,³⁵ ,³⁶ ,³⁷ Despite such literature, learning design often privileges institutional control of the selection of learners, the content of learning, the goals of learning, the methods and location of learning and the subsequent certification processes. The issue in this context is whether training leads to learning. Particularly in that most training is competency based training (CBT) programs such as the CIT does not have learning as a primary objective, but rather it focuses on the goal of achieving a ticket to work on a construction site. These patterns position the learner as a passive recipient rather than an active participant. The question that remains is to what extent is a regulated, often de-contextualised and certificated learning process justifiable in terms of safety training? Indeed, do such processes, or can such processes, provide learners with ownership and an active role, can they display relevance to the learners, and can they produce a learning interaction that guides and embeds enduring subsequent work practices? Is the need for compliance compatible with effective learning practices?³⁸

Hart³⁹ indicated (Table 1) that the context of the situation was most relevant in determining how the voices for and against voluntary and mandatory approaches should be valued in a given situation. Hart's table

promotes that there is little learning with CBT, with a focus on talking to trainees and not involving them in a two-way learning process in which participants contribute and are listened to.

Table 1: Voluntary versus mandatory training

| | |
|--|--|
| Voluntary training | However: |
| Enables learners to progress at their own speed and within the other demands in their life. | Those who most need it are the least likely to volunteer. |
| Employers can choose the funding they wish to allocate. | It accepts the base level as the status quo. |
| Learning construction can be tailored and customised. | It provides no road to compliance or improvement. |
| The need for monitoring and standardisation is reduced. | It provides a disparate learning pattern. |
| | Certification becomes optional. |
| Mandatory training | However: |
| Ensures minimum standards at onset. | Unwilling participants complete shallow learning experiences. |
| Positions a plan for continual skill development. | Resentment of the system leads to evasive practices. |
| Increases external confidence in the industry. | Employers, training and participants may collude to turn compliance into an administrative action rather than learning activity. |
| Formalises existing disparate practices with synergies. | Increases costs to employers in the short term. |
| May reduce long-term impact costs. | Monitoring programs is a continual burden. |

*“From a personal perspective I would always tend to avoid mandatory training wherever it is possible and rather convince people to learn whatever is needed because it helps them do their job better or even because it helps the company to be compliant with the given legal requirements. I don’t know of any ROI calculations in this respect, but my assumption would be that investing in motivation is less expensive in the long run than investing in repression”.*⁴⁰

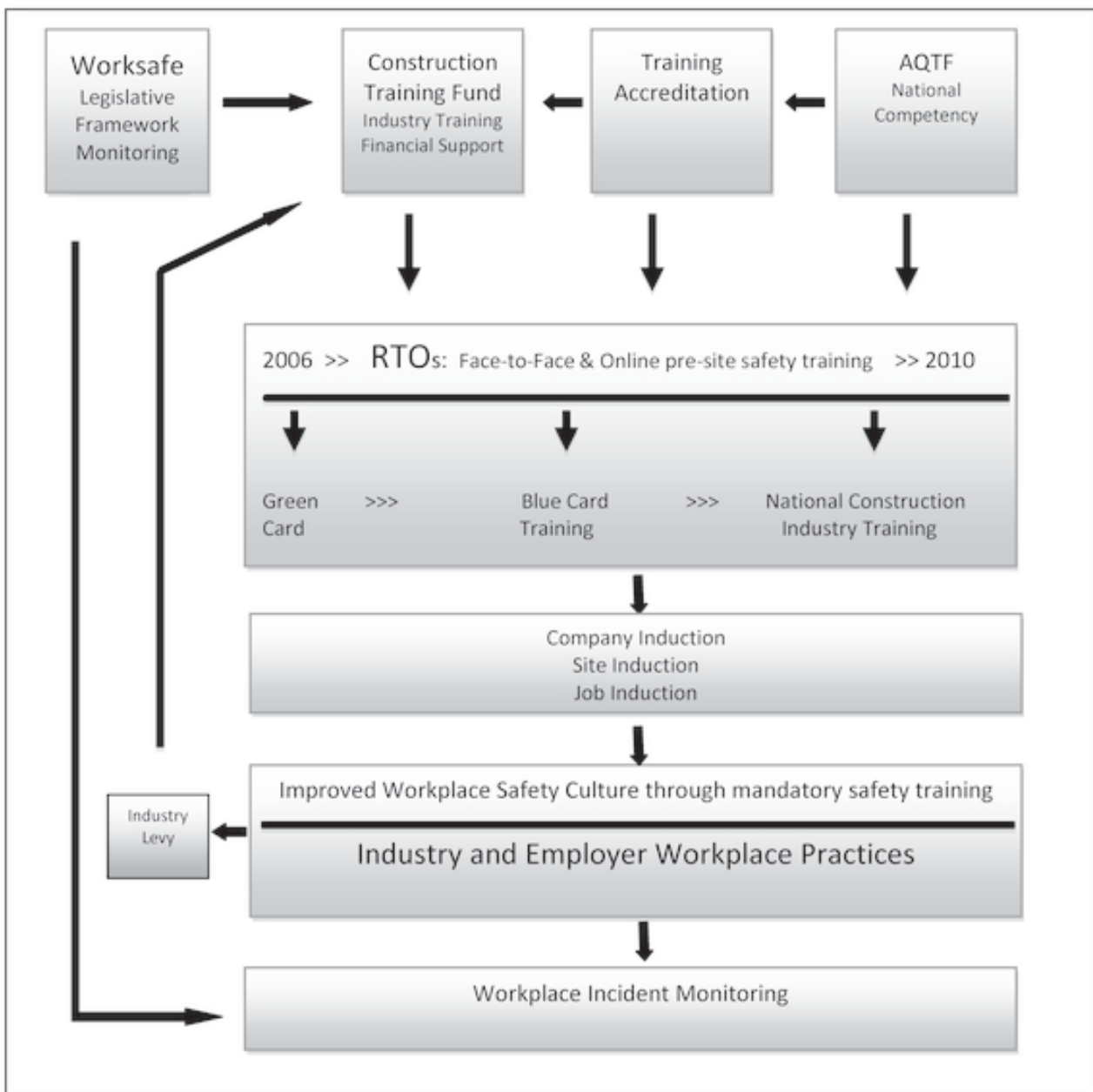
Perhaps the desired result is to accept the necessity of a program based upon mandatory compliance and yet build the program so that contextual relevance and learning is clearly demonstrated by the individual to embed long-term behaviour patterns. The CIT has come under criticism for its focus on short-term administrative aims to have all construction workers “ticketed” rather than ensure they have participated in any learning.

WA construction industry safety training relationships

The following figure (Figure 1) presents the main relationships of the WA construction industry pre-site safety training programs. The figure shows the roles played by the key industry bodies in shaping the succession of construction industry training programs from 2006 to 2010. The CIT training is shown in the figure to precede subsequent company, site and job specific training.

The aim is to improve the workplace safety culture and practices. The industry contributes funding to the CTF to coordinate the training. Worksafe WA provides the legislative framework for the program and monitors the subsequent work practices and incidents on sites.

Figure 1: WA construction industry safety training relationships



Research design

In designing the study we became aware of three specific components of the initiative: the aspect of gaining universal compliance; the training interaction; and the resulting impact upon workplace values and performance. The study therefore focused on collecting industry perceptions of the value and effectiveness of the *certification system*, the associated relevance of the *training activity* and the subsequent *workplace impact*. The analysis of the data included recommendations that can improve the effectiveness of subsequent system developments.

The study used a mixed mode data collection method as both social perceptions and recorded data are relevant to the phenomena under investigation. These were accessible through the field research. An action learning methodology was adhered to in order to evaluate the program effectiveness of the training and feed

back the findings to the industry to facilitate future change. Three key research questions that drove the study were:

Having experienced the CIT system in the construction industry during the past 3 years in WA:

1. How effective has the CIT certification system been for the industry?
2. How effective have the CIT practices been for the industry?
3. How has the CIT system impacted upon organisations and safety in the industry?

Sample

Table 2 depicts the sample purposively selected for the research project to explore the research questions. The research design was based upon gaining a “maximum variation sample” which would highlight the diversity of perceptions and impact within the industry within the resources available for data collection.⁴¹

Table 2: The sample

| Instrument | Sample frame |
|-----------------------------------|--|
| Incident statistics | Tabulation and segmentation of Commercial Construction sector records from Worksafe WA for the previous six years — Pre and during the CIT scheme. |
| Questionnaire | Distribution to the complete MBA Membership of approximately 669 CEOs and supervisors — 25 returned completed. |
| Semi-structured interviews | Twenty-three interviews with clusters of supervisors (6), OHS Managers (11), trained employees (6) at two commercial construction sites. Seventeen were conducted as telephone interviews and six as face-to-face. Seven interviews with representatives of peak/key bodies: CTF, Worksafe WA, CCF, the CCF Board, MBA, HIA, CFMEU, and an RTO. Six interviews were conducted as telephone interviews and one as face-to-face. One focus group with representatives from Training Accreditation Council. |

Research methodology

The qualitative data for the study was collected through semi-structured face-to-face interviews, and telephone interviews. Semi-structured telephone interviews were conducted in most cases due to distance, the availability of participants, and the participants' preferences. The interviews were generally held for a duration of between 15 to 30 minutes.

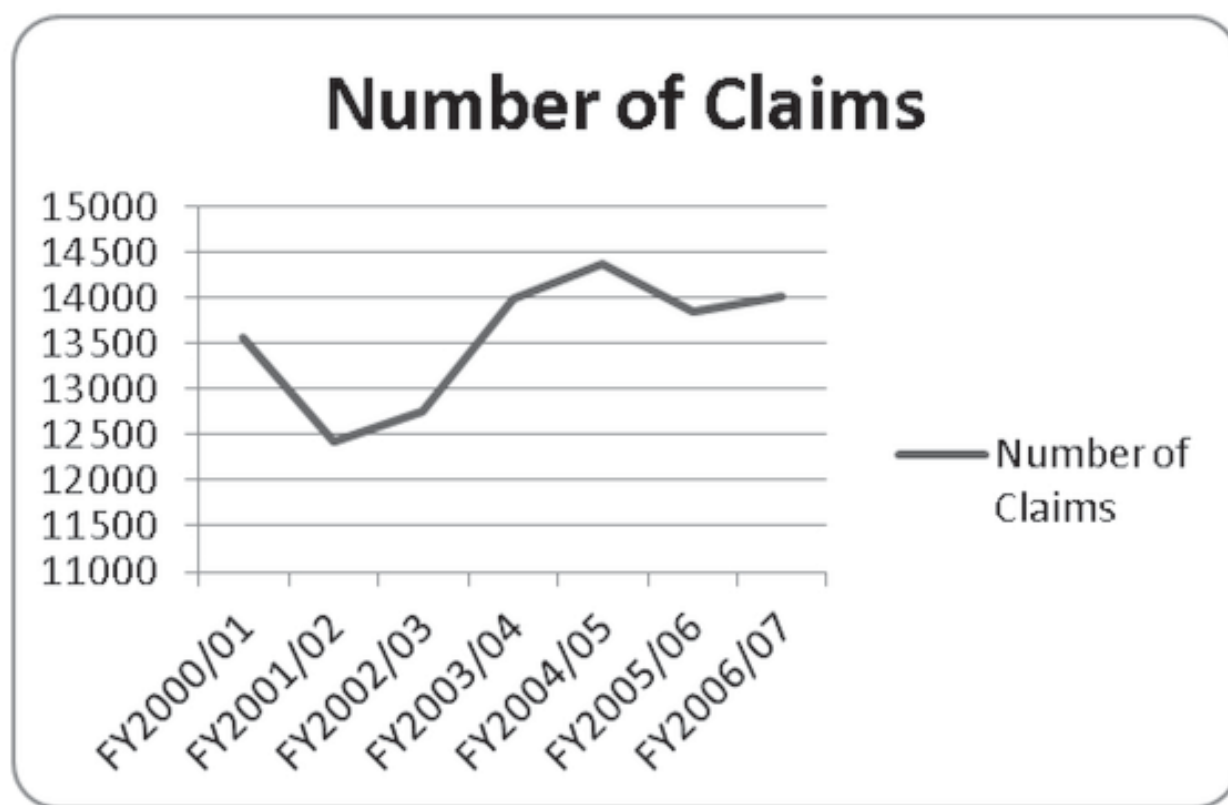
The quantitative incident data for the commercial construction sector was gathered by Worksafe WA and National Occupational Safety Index (NOSI) databases, some of which was available freely online and other data was tabulated by Worksafe WA for the specific needs of this study. An online questionnaire was developed, tested and distributed by the Master Builders Association in two rounds to 669 CEOs and supervisors in the commercial sector. The response rate was a very low 4%, with 25 completed questionnaires. The low response rate was due to an industry with a “hands on” culture who indicated they would prefer to participate in interviews than complete the survey. Twenty-three semi-structured interviews followed the questionnaires and were conducted with clusters of related site supervisors and health and safety managers, and CIT trained employees at five commercial construction sites, that were constructing buildings under three storeys and those that were involved in multi-storey construction. The sample was equally spread over both types of construction as it was considered that the different site conditions might produce different safety cultures. Seven interviews were also held with key stakeholders within the industry including representatives from Worksafe WA, Master Builders Association (MBA), Housing Industry Association (HIA), Civil Contractors Federation (CCF), CTF representatives and Board members (involved in delivering training at TAFE and with the Apprentice Group Training Schemes), a former representative from a Registered Training Organisation (RTO) involved in designing and delivering the training, and a union representative from the Construction, Forestry, Mining and Energy Union (CFMEU). Finally, a small focus group was conducted with representatives from the Training Accreditation Council (TAC).

Findings

Incident and fatality statistics

The construction industry has the fourth highest incident rate per 1,000 employees over all Australian industries. The number of workers compensation claims has steadily been on the rise in the construction industry since 2003 with the peak in 2004/05. In addition, in 2006/07, the number of workers compensation claims was only 355 less than the peak in 2004/05 having risen from the previous year. Figure 2 displays the incidence rate and number of workers compensation claims for injuries and disease 2000/01–2006/07.

Figure 2: The number of workers compensation claims 2000/01–2006/07 for all Australian workers in construction



Source: Adapted from Safe Work Australia, 2010⁴²

Worksafe WA is particularly vigilant in collecting incident data and has statistics available for the construction industry as a whole in WA. Table 3 displays the Lost Time Injuries and Disease (LTI/Ds) claims for the construction industry in WA per 1,000 workers. The frequency rate and incidence rate for one or more days lost up to 60 days lost are increasing. The provisional numbers for the financial year 2007/08 are almost equal to that of the previous year and these numbers are incomplete. The frequency and incidence rates for the 2007/08 year are higher than the previous year and once again these numbers are incomplete. This indicates that workers in the construction industry are becoming injured more frequently and are sustaining injuries that require longer recovery time than in previous years.

Table 3: LTI/Ds for the construction industry in WA 2005/06–2007/08p

| Financial year | Frequency rate 1 + days | Incidence rate 1 + days | Frequency rate 60 + days | Incidence rate 60 + days | Total days lost |
|----------------|-------------------------|-------------------------|--------------------------|--------------------------|-----------------|
|----------------|-------------------------|-------------------------|--------------------------|--------------------------|-----------------|

| | | | | | |
|----------------|------|-----|-----|-----|-------|
| 2005/06 | 14.8 | 3.1 | 3.2 | 0.7 | 2,103 |
| 2006/07 | 15.8 | 3.4 | 3.1 | 0.7 | 2,528 |
| 2007/08p | 15.3 | 3.2 | 3.6 | 0.8 | 2,584 |
| 3 year average | 15.3 | 3.2 | 3.3 | 0.7 | 2,405 |

Source: Worksafe WA, December 2009⁴³

Worksafe WA has also drilled down the overall construction figures to identify LTI/Ds for the commercial construction sector as a separate entity. Non-residential building construction is classed as ANZSIC code 4113 and includes commercial construction mainly engaged in the construction of non-residential buildings such as hotels, motels, hostels, hospitals, prisons, or other institutional buildings, in carrying out alterations, additions or renovation or general repairs to such buildings, or in organising or managing their construction. Table 4 displays the LTI/Ds and total days lost for the commercial construction industry in WA for 2002/03–2006/07 as well as preliminary figures for the 2007/08 financial year. The table indicates that LTI/Ds in commercial construction have been consistently rising. Most concerning are the preliminary figures for 2007/08 in that these are already higher than the previous year in 1–60 days lost and that these figures are incomplete. However, Western Australia has just been through a construction boom and a significant increase in construction projects, requiring an increase in workforce numbers. It is expected that with the increase in workers in the industry there would have been a more significant increase in LTI/Ds.

Table 4: LTI/Ds for non-residential building construction in Western Australia

| Financial year | LTI/Ds 1 + days lost | LTI/Ds 5 + days lost | LTI/Ds 60 + days lost | Total Days Lost |
|----------------|----------------------|----------------------|-----------------------|-----------------|
| 2002/03 | 116 | 83 | 21 | 10,738 |
| 2003/04 | 123 | 85 | 22 | 12,076 |
| 2004/05 | 141 | 101 | 25 | 12,879 |
| 2005/06 | 138 | 111 | 46 | 13,319 |
| 2006/07 | 162 | 118 | 39 | 16,553 |
| 2007/08p | 177 | 133 | 46 | 13,690 |
| 6 year average | 857 | 631 | 199 | 79,255 |

Source: Worksafe WA, December 2009

Questionnaire findings

An online questionnaire was developed with the reference group and distributed in two consecutive rounds to 669 recipients: CEOs and supervisors in the commercial construction sector by the MBA. Twenty-five (or 4%) of questionnaires were completed. The low response rate is an indication that online questionnaires are not supported by a responding group that usually engages with manual work practices and does not regularly work with computers. Due to the low response rate we cannot claim that it is representative of the population surveyed and although we present the key findings for the study from the survey we focus predominantly on the qualitative data for this paper.

Figure 3 illustrates the responses to four key questions that were asked to determine the value of the CIT. Sixty per cent of the respondents agreed with the statement that the CIT provided a good first step to developing safety awareness for their staff, with a further 40% of respondents strongly agreeing.

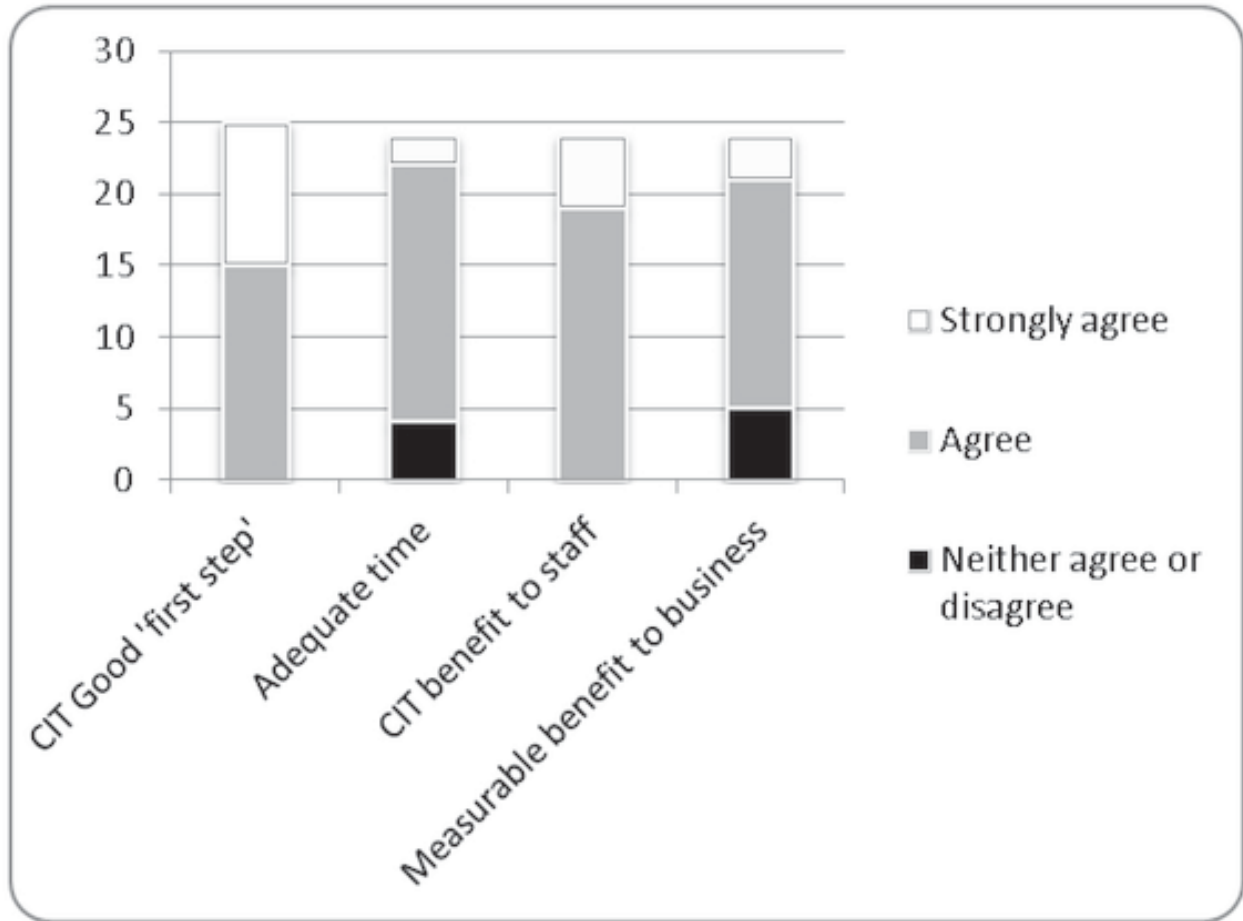
The respondents were asked to determine if they perceived if the time allocated to complete the CIT was adequate enough to increase the safety awareness of their staff. Seventy-five per cent of those surveyed agreed that the time was adequate, with 8% strongly agreeing with this statement and 17% remaining undecided. No respondents disagreed that the time allocated to complete the training was adequate.

The respondents were asked whether they believed that the CIT provided benefit to their staff. Seventy-nine per cent agreed with this statement and 21% strongly agreed. No respondents disagreed. Therefore, 100% of respondents perceived the CIT to be of value to the safety awareness of their staff.

The respondents were asked if they perceived that after their staff completed the CIT there was a measurable benefit to their business. Sixty-seven per cent agreed with this statement, with a further 13%

strongly agreeing and 21% undecided; therefore, 79% of those surveyed report a measurable benefit to their business by completion of the CIT by their employees.

Figure 3: CIT value to respondents



Interview findings

The themes that have emerged from the interviews are condensed into paragraph summaries in this section of the interview findings. The quotes used are examples typical of similar perceptions gathered in the data collection and are used to illustrate the emergent themes. The quotes have been specifically selected as they most cogently express the ideas relevant to the theme.

The interview data revealed that in general participants were happy with the course content of the CIT. Most participants acknowledged that the course is safety awareness training and is the first step to a deeper site-specific induction that does not replace the need for further training:

“I found it to be a very informative course and I do honestly believe that it should be a minimum requirement for anyone working on a construction site.”

The most valued section of the training was the information on duty of care. It was stated by some employees that this was the only forum that they were exposed to the OHS legislation and they appreciated the chance to be informed of current requirements:

“When it’s being delivered it is basically focussing on the duties of care. People often still don’t understand that.”

However, some participants felt that the content was delivered at too high a level and should be “dumbed” down for the construction audience. This was particularly an issue for non-English speaking participants, where understanding could be limited due to the use of complicated language. In addition the quality of the assessments was questioned by many, indicating that they were ineffectual, as “those who paid passed”. Indeed RTOs need to consider these areas when designing their training delivery to fulfil the AQTF requirements but deliver the content to achieve maximum understanding:

“If I had any criticism of the Blue Card courses it’s I would say that the questions at the end are possibly just a little bit too easy. I don’t know of anybody who’s failed the Blue Card course. Multiple choice and a lot of the questions are pretty obvious.”

The majority of those interviewed were unaware that the CIT is now a unit of competency. This is partly due to the unit of competency only coming into effect since the transition from the Blue Card in September 2008. Participants suggested that if the significance of the accreditation was emphasised there would be more support for the CIT and the training might hold a higher value within the construction industry:

“Most workers may just want the card, however RTOs also don’t understand what a statement of attainment is now that it’s a unit of competence. The Blue Card didn’t have a statement of attainment; it’s only with the White Card.”

“The unit of competency means nothing to them (apprentices); they are just interested in getting back to work as soon as possible.”

Participants suggested changes to the CIT content and these included: practical assessments, provision of standardised supporting materials, and additional emphasis placed on the unit of competency in the form of certificates rather than merely statements of attainment.

CIT training is delivered in WA in face-to-face and online modes. Generally participants believed that the face-to-face delivery mode was the preferred option as it allowed interaction between trainer and participant. However, the mandatory requirement of the CIT resulted in resistance from workers, particularly those who had been in the industry for some time. For these workers their intrinsic knowledge of the industry enabled them to pass the CIT online and receive accreditation with a minimum of engagement with the training, and loss of production. However, this is highly problematic in terms of the safety values of the training. For those working in remote areas in WA the online mode provided easy access and accreditation. However, the data indicates that there are issues of certification by deception, where other employees complete the training for those with limited language or English skills, or where certification is required immediately:

“The issue we have with doing it online is we don’t know the person holding the card actually went through the course online and answered all the questions. You know anybody on his computer at home to do it for you online and we would never know but if you’ve got to go in there yourself, that’s not so easy. That’s the only reason why, we can’t be sure that person has actually done it themselves.”

In contrast some companies are opposed to the quality of the online delivery and assessment and do not accept accreditation through this method of training. Despite the introduction of a national system this study has uncovered instances of such as WA workers moving interstate having completed the CIT online and yet have not had their training recognised in another state:

“The disappointing part of it is there are states who are not happy to accept a White Card from WA. They are opposed fundamentally to online training and they won’t accept online

training to be adequately providing the participants with what they require and making them do it again.”

The commercial construction sector has embraced the move to national CIT training even though in 2010 Occupational Health and Safety (OHS) in Australia is still regulated by a number of different individual state OHS Regulations. The CIT addresses OHS content with a particular focus on duty of care. This aspect of the legislation is consistent across the state jurisdictions with the main difference being the levels of fines for a breach. Most in the industry believe the CIT provides enough content to make the participants aware of their duty of care and this is of paramount concern in the industry. The levels of fines are viewed as secondary. However, the industry is generally opposed to one-off training of the CIT. The participants were very vocal about the need to refresh the CIT as a means of revisiting the content, informing employees about legislative changes and checking up on continued competency. Changes to OHS legislation are occurring (national harmonisation of OSH Acts and Regulations) and the CIT is positioned as a suitable forum that could be used to inform the industry. The construction industry has a transient workforce with workers moving in and out of the industry that it appears would benefit from localised refresher programs:

“I’m an opponent for the one off training, as we go through the harmonisation process with safety at the moment nationally; there are changes to Regulations and Acts nationally. I think when these sorts of things happen people should be made aware of them therefore I think there needs to be a review and a refresher process.”

“It’s destroyed a lot of the confidence within the work force, particularly the unionised workforce. They can’t comprehend that something that is compulsory and mandatory for all construction workers is just a one-off thing.”

“We have people who leave the industry for a number of years and go to mining or other primary industry and then come back into it (construction) and obviously things do change. They might have done their white card today, then go to work on a fishing boat for five years and then come back in and things have changed. The basic principles are probably there but there could be regulatory change.”

The data indicated that most participants believed the mandatory CIT had made a positive effect on workplace safety. Almost all participants agreed that their workplace had increased safety awareness and that the CIT along with other safety inductions specific to their individual workplaces attributed to a safer culture. Generally participants held the belief that the CIT had increased their personal safety awareness:

“I think it has to have a positive influence, I’m not sure if there is any hard evidence. If you look at people who have been through the green card, the blue card and the white card, they tended to have a large amount of knowledge about their responsibilities. It has a positive influence because they can demonstrate that basic knowledge.”

Those that did not hold this belief were generally long-term workers in the industry. However, even though these long-term construction employees did not believe the CIT had increased their safety awareness as individuals, these same respondents were convinced that refresher training was essential for maintaining safer workplaces.

Analysis discussion

The qualitative data has revealed that the commercial construction sector values the CIT, however, the low response rate for our online survey shows limited evidence. Participants were supportive of the mandatory nature of the CIT and held the belief that the training had not only increased their personal safety awareness but had contributed to a positive improvement in the safety culture in construction worksites. There was positive support for a refresher CIT course on a regular basis to inform workers of legislation changes and to present changing construction processes. This is evidence of a shift in safety culture that was not apparent during the introduction of the mandatory Blue Card training when considerable resistance was identified from

within the industry.⁴⁴ At that time, participants were vehemently opposed to the safety awareness training claiming the content was too lightweight. They were also unsupportive of the compulsory nature of the training and considered the Blue Card simply a useless legislative hurdle that would be a cost for the industry with no measurable gains. The idea of adding refresher courses at this time was considered laughable. However, as this study shows, there has been a shift away from such perceptions in the commercial sector of the construction industry. In 2010, the industry not only supports the mandatory CIT, but it is very vocal in its request to have a refresher course that has now been withdrawn. The study has shown that mandatory training has had a positive effect of perceptions of improved safety culture of this industry.

Evidence from the interview participants indicates that the level of compliance of course completions in the commercial sector is close to 100%. Workers in WA are denied access to commercial construction sites if they have not completed either a Blue Card or the CIT, and in some cases employers operate a system that requires higher standards than the current legislation. Some commercial construction companies have a policy that workers, who have completed the CIT online in WA or in other states, are required to redo the course face-to-face.

RTOs have found the move from the Blue Card to the CIT problematic as the CIT provides competencies but no relevant supporting training materials. Trainers and participants have requested visual examples of worksite safety breaches be made available as podcasts or webinars that all RTOs could access. This would ensure some equal standard of content delivery for the unit and expose participants to current examples of modern building sites.

The CIT unit of competency, as with other AQTF units, has a required set of elements that need to be delivered in the training. It is the RTO that makes the decision of how to teach the elements that are required, and to develop their own supporting training materials. Some RTOs complained that to deliver all the required elements would take more than a complete day. However, the CIT course length varies considerably between training providers. Some providers train the CIT face-to-face in a day-long course, others in three to four hours and others in an hour, with online completion being as little as an hour. Competency-based training is designed to enable flexibility and customisation in delivery. However, there does appear to be a wide disparity in the delivery times of the same material in this case. The main criticism of the course delivery is the assessment process. The provision of evidence to substantiate competency often requires a practical assessment component. However, there appears to be no evidence of practical assessment in the CIT delivery and certification process. Indeed, many respondents have indicated that online delivery and assessment of the CIT is open to deception as with limited verification of the trainee, the system is open to abuse. There also appears to be an issue with auditing RTOs that deliver the CIT online, especially those that operate in other states, are outside the area of WA regulatory authorities and yet deliver the training to WA construction workers. Participants indicate that there is no guarantee that a person holding such an online CIT card is the one who completed the training online. The response to this dilemma has been the insistence by some companies of introducing a higher ethical standard by only accepting certification obtained by the face-to-face training mode. A requirement to complete a practical assessment would alleviate the issue of deception in the completion of the CIT.

Finally, the industry was mostly unaware that the CIT was a unit of competency and the value of that achievement in terms of subsequent training activity. Participants who complete the CIT are currently issued a statement of attainment. If the statement of attainment for new completions was presented as a certificate, this may elicit more value of the CIT by the industry. There is considerable evidence that workers in the industry value training and would like to see their skills recognised as certified competence.

Those employees who previously completed the Blue Card have been transferred over to the CIT system. However, this means that they have now been accredited with a unit of competency. If the statement of attainment or a certificate was presented to the Blue Card holders, this again may elicit more value of the CIT by the industry, by indicating the achievement of the employees.

In terms of the research questions the following responses can be made. The training system appears to be well established with universal coverage. Indeed the rumours about duplicitous actions to gain certificates ironically support this assertion. In terms of the effectiveness of the CIT practices for the industry there is

general support, and even a groundswell for increasing the rigor, the duration and subsequent repetition of the training. Finally, in terms of how the CIT has impacted upon organisational safety in the industry, measuring the improvement on safety culture is problematic. However, we can say that the training has been well received and supported and there is a general perception in the commercial sector that the safety culture is improving.

Conclusion

This study raises some interesting conceptual issues. There is the issue of trying to draw a correlation between such an intervention and changes in the culture and incident statistics. The study shows that however desirable determining such a relationship might be, the territory is fraught with complexity. There has been a decisive change in the industry safety culture over the past decade as indicated by improved LTI/Ds frequency statistics. These changes are a response to many mediating factors in the construction environment. We would be drawing a long bow to suggest that the CIT had made a major contribution, but it may be that this training, before work, places a visible marker before each entrant and as such contributors to improving the safety culture.

Several participants raised the issue of dishonestly obtained certificates. It is healthy that such comment has been vocalised and that certification is valued in the industry. While the concerns will be of interest to the accrediting bodies, it is inevitable that any certification system, specifically a mandatory system, will produce black marketeers.

Finally, our intentions were to produce immediate recommendations in conjunction with the key players in the industry. However, we recognise that our sample is a specific segment of the industry and that we must study how the same training has impacted in the two remaining segments (housing and civil) of the construction industry.

While, as with any new initiative, there are logistical issues to regulate to ensure consistency and extend the venture, the industry can celebrate some significant achievements. First, a major action has been taken to protect people from death and injury before they step onto a construction worksite. Second, the initiative has gained virtually complete industry coverage and broad industry acceptance within the commercial construction sector, with some employers even imposing higher ethical standards above the legislated norm. Third, this initiative has contributed to a perception of improved safety culture by placing safety as an imperative and before production demands. In terms of managing organisational change, this study indicates the value of collaborative action across an industry and the positive impact that well supported mandatory training can have on promoting improvements in workplace safety. One comment from our reference group perhaps encapsulates the cultural change that has occurred and the multiple actions that are behind such movements.

“I can tell you this ... when I started working on the site everyone went to the pub at lunch time ... now it just doesn't happen!”

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References

Footnotes

¹ Martin J. *Cultures in Organisations: Three perspectives*. London: Oxford University Press, 1992.

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- Gherardi S, Nicolini D. The organisational learning of safety in communities of practice. *Journal of Management Inquiry* 2000;9(1):7–18.
- 3 Reiman T, Oedewald P. The assessment of organisational culture: A methodological study. Espoo: VTT Technical Research Centre of Finland, 2002.
- 4 Prussia GF, Brown KA, Willis PC. Mental models of safety: Do managers and employees see eye to eye? *Journal of Safety Research* 2003;34:143–156.
- 5 Bahn S, Barratt-Pugh L. What's a life worth? The value placed on safety. *Journal of Occupational Health and Safety* 2009;25(5):393–404.
- 6 Farrington-Darby T, Pickup L, Wilson JR. Safety culture in railway maintenance. *Safety Science* 2005;43:39–60.
- 7 Glendon AI, Stanton NA. Perspectives on safety culture. *Safety Science* 2000;34:193–214.
- 8 Guldenmund FW. The nature of safety culture: A review of theory and research. *Safety Science* 2000;34:215–257.
- 9 Cox S, Flin R. Safety Culture: Philosopher's stone or man of straw? *Work and Stress* 1998;12:189–201.
- 10 Clarke S. Safety culture: under-specified and overrated? *International Journal of Management Reviews* 2000;2(1):65–90.
- 11 Perrow C. *Normal accidents: Living with high-risk technologies*. New York: Basic Books, 1984.
- 12 Ballard GM. *Nuclear Safety after Three Mile Island and Chernobyl*. London: Elsevier, 1988.
- 13 Cheyne A, Tomas JM, Cox S, Oliver A. Perceptions of safety climate at different employment levels. *Work and Stress* 2003;17(1):21–37.
- 14 Zohar D. Safety Climate in industrial organizations: Theoretical and applied implication. *Journal of Applied Psychology* 1980;65:96–102.
- 15 Biggs HC, Dingsdag DP, Sheahan VL, Stenson NJ. The role of collaboration in defining and maintaining a safety culture: Australian perspectives in the construction sector. Paper presented at the Cooperative Research Centre for Construction Innovation Conference, Brisbane, 2005.
- 16 Marsh TW, Robertson IT, Phillips RA, Duff AR. Improving safety behaviour using goal setting and feedback. *Leadership & Organization Development Journal* 1995;16(1):5.
- 17 Kinn S, Khuder SA, Bisesi MS, Whoolley S. Evaluation of safety orientation and training programs for reducing injuries in the plumbing and pipe fitting industry. *Journal of Occupational Environmental Medicine* 2000;42(11):1142–1147.
- 18 Dong X, Entzel P, Men Y, Chowdhury R, Schneider S. Effects of safety and health training programs on work-related injury among construction labourers. *Journal of Occupational Environmental Medicine* 2004;46:1222–1228.

19

- Gillen M, Baltz D, Gassel M, Kirsch L, Vaccaro D. Perceived safety climate, job demands, and co-worker support among union and non-union injured construction workers. *Journal of Safety Research* 2002;33:33–51.
- 20 Varonen U, Mattila M. The safety climate and its relationship to safety practices, safety of the work environment and occupational accidents in eight wood-processing companies. *Accident Analysis and Prevention* 2000;32:761–769.
- 21 Biggs HC, Sheahan VL, Dingsdag DP. Improving industry safety culture: The tasks in which safety critical position holders must be competent. Brisbane: Cooperative Research Centre for Construction Innovation, 2006;2.
- 22 Zanko M. Missing in action: Research on occupational health and safety management in organizations. Paper presented at the 20th ANZAM Conference, Yeppoon, QLD, 2006;4.
- 23 Bradley B. Towards a national occupational health and safety regime: Consistency at what cost? Paper presented at the IFAP Safety 2006 Practical Workplace Solutions, Sheraton Hotel, Perth, 2006.
- 24 Mayhew C. The OHS “double whammy”: Adolescent workers who are precariously employed. *Journal of Occupational Health and Safety — Australia and New Zealand* 2005;20(2):127–130.
- 25 Quinlan M, Mayhew C. Evidence versus ideology: lifting the blindfold on OHS in precarious employment: Working paper The University of New South Wales, Department of Industrial Relations, 2001.
- 26 Johnstone R. Regulating occupational health and safety in a changing labour market (Working Paper No 34). Canberra: The Australian National University, 2005.
- 27 Mitchell R. Development of PPIs to monitor performance in the Australian construction industry. *Journal of Occupational Health and Safety — Australia and New Zealand* 2000;15(5):433–439.
- 28 Quinlan M. Flexible work and organisational arrangements. In Bluff E, Gunningham N, Johnstone R, eds. *OHS regulation for a changing world of work*. Sydney: Federation Press, 2004;120–145.
- 29 Wadick P. Learning safety in the construction industry: A subcontractors’ perspective. University of New England, Armidale, 2005.
- 30 Hager P, Crowley S, Melville B. Changing conceptions of training for evolving workplaces: the case of the Australia building and construction industry: UTS Research Centre for Vocational Education and Training. Working paper 01–03, 2001.
- 31 Reason J, Parker D, Lawton R. Organizational controls and safety: The varieties of rule-related behaviour. *Journal of Occupational and Organisational Psychology* 1998;71(4):489.
- 32 Sokas RK, Nickels L, Rankin K, Gittleman JL, Trahan C. Trainer evaluation of a Union-based ten-hour safety and health hazard-awareness program for US construction workers. *International Journal of Occupational Environmental Health* 2007;13:56–63.
- 33 NOHSC Guidelines for Integrating OHS into National Industry Training Packages (3020), NOHSC, Canberra, 1994.
- 34 Knowles M. *The adult learner: A neglected species*. 4th edn. Gulf, Houston: 1990.
-

- 35 Kolb DA. *Experiential Learning: experience as the source of learning and development* New Jersey: Prentice-Hall, 1984.
- 36 Lave J, Wenger E. *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press, 1991.
- 37 Rogers CR. *Freedom to learn*. Columbus, Ohio: C E Merrill, 1969.
- 38 Noone SM. *Mandatory versus voluntary adult learners: implications for trainers*. NY:Engel Ltd, 2005.
- 39 Hart B. *Mandatory continuing education*. Professions and Occupations Bureau of the Province of Alberta, USA. 2000.
- 40 Raske M. *Voluntary and Mandatory Training*. Society for Human Resource Development, Delhi, 2009.
- 41 Maykut P, Morehouse R. *Beginning Qualitative Research: A Philosophic and Practical Guide*. London: Routledge/Falmer, 2000.
- 42 The Safe Work Australia Online Statistics Interactive National Workers' Compensation Statistics Databases 2010. Available from: www.safeworkaustralia.gov.au/swa/AboutUs/Publications/DataandStatistics. Accessed 22/01/10.
- 43 Worksafe WA 2010. *Work related lost time injuries and diseases in WA 2005/06–2007/08p*. Available from: www.commerce.wa.gov.au/WorkSafe/ Accessed 28/01/10.
- 44 Bahn S. Power and influence: Examining the communication pathways influencing safety in the workplace, *Journal of Occupational Health and Safety*. 2009;25(3):213–222.