

Does mandatory training work? Investigating compulsory pre-site training certification in the WA construction industry

Dr Susanne Bahn

Dr Llandis Barratt-Pugh

Edith Cowan University

Contact:

Dr Susanne Bahn
Sellenger Research Centre,
School of Law and Justice,
Edith Cowan University
270 Joondalup Drive
Joondalup, WA, 6027. Australia
s.bahn@ecu.edu.au

Author Bio:

Dr Susanne Bahn is a Research Fellow in the Sellenger Research Centre, Edith Cowan University, Western Australia. Her doctoral study focussed on management values and safety culture. She has worked on several social research projects over the past five years and is currently involved in a number of evaluations of social programmes. Her interests lie in workplace values, middle management change practices, OH&S processes and social justice.

Author Bio:

Dr Llandis Barratt-Pugh is a Senior Lecturer in Leadership, Change Management and Management Development in the School of Management, Faculty of Business and Law at Edith Cowan University, Western Australia. His research focuses on developing understanding about the orchestration of workplace learning. He is currently President of the Australian Vocational Education and Training Research Association (AVETRA).

Does mandatory training work? Investigating compulsory pre-site training certification in the WA construction industry

ABSTRACT

Reducing the high level of deaths and injuries in the construction industry is a continual challenge. It is a specific challenge in WA where the industry is adapting to the additional pressures of the 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 on the commercial sector of the industry, the training organisations, and the employees. The mixed methods study collects both the perceptions of the stakeholders and analyses the accident statistics. These interim 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.

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 programme, commonly referred to as the 'Blue Card' which required re-certification tri-annually. In 2009, WA adopted the national Construction Induction Training ('White Card') programme, based upon national competencies that form part of a training package within the Australian Qualification Training Framework (AQTF) that offers a once-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 programmes has been to develop the industry training culture towards mandatory, competence-based, and nationally accredited pre-site safety awareness certification. Construction Induction Training (CIT) programmes have been delivered in a variety of modes and in very diverse conditions across many different locations in WA. The Construction Induction Training 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 programme is 80% funded for the industry by the Construction Training Fund (The Fund). The Fund is built from a levy on all major construction projects (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. Conceptually, this study is about both the implementation of a managing initiative across an industry and about the use of mandatory training to effect culture change.

BACKGROUND

Industrial accidents 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. Martin (1992) recommends that in order to promote a safety culture organisations need to introduce organisational behaviour change models and initiatives. Gherardi & Nicolini (2000) state 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 (Reiman & Oedewald, 2002). A study conducted in 2005-08 by Bahn (Bahn & Barratt-Pugh, 2009) in the civil construction industry that found that the value managers placed on safety led to the level of safety culture in the workplace. Those that place a value on safety often place a higher priority on training. Marsh, Robertson, Phillips, & Duff (1995) 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.

Safety training interventions have led to an improvement of safety behaviours and a reduction of hazards in the workplace (Kinn, Khuder, Bisesi & Whoolley, 2000; Dong, Entzel, Men, Chowdhury & Schneider, 2004; Gillen, Baltz, Gassel, Kirsch & Vaccaro, 2002). Biggs, Sheahan & Dingsdag (2006, p.2) add to the complexity of training issues for the Australian construction industry in 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'.

In 1997 the United States Occupational Safety and Health Administration developed a Union-based ten-hour hazard-awareness training program (Smart Mark) for the construction sector. This program is the most widely used construction safety and health awareness training course in the US (Sokas,

Nickels, Rankin, Gittleman & Trahan, 2007) 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 al. (2007) evaluated Smart Mark to assess the strengths and weaknesses of the training materials, to determine the most commonly encountered hazards and the impact the training may have had, and to determine whether interactive instruction and the inclusion of supervisors impacted the training. 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.

Worksafe WA took a step towards addressing safety culture issues 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. The Construction Induction Training does not replace company, site specific, or job role inductions, but is additional to them. In 2009, state Blue Card was replaced with the national Construction Induction Training (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 more universal and transferable national competencies. Therefore, Worksafe WA moved to a national minimum safety standard for all construction workers. The changes from the state Blue Card to a national training program (Construction Induction Training) may have future ramifications for the learning practices and organisational outcomes. The state Blue Card required renewal and re-training every 3 years, however the national Construction Induction Training provides workers with a unit of competency that does not require reassessment.

Mandatory Training Programmes

Society and organisations determine the rules and guidelines that individuals should follow to ensure that social interaction can continue safely, with the minimum of unsettling conflict to achieve the current goals. There are no greater risks than those that may result in death and injury. It is therefore understandable that society and organisations attempt to produce greater compliance to minimise risks in these areas. Past experiences are distilled to form regulations to guide subsequent practice. While much social learning is offered as a voluntary activity, issues of health and safety are in the vanguard of those that are often positioned to be mandatory (NOHSC: 3020, 1994). In many cases, because of inherently dangerous environments, individuals are faced with mandatory training and certification process that act as a precondition for accessing a workplace. Compliance with safety regulation is positioned as an imperative and given the highest priority. Mandatory 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 (Knowles, 1990; Kolb, 1984; Lave & Wenger, 1991; Rogers, 1969). 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. 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, with its pedagogic limitations justifiable in terms of safety training? Indeed, do such process, or can such processes be orchestrated to provide learners with ownership and an active role in the process? Can they display relevance to the learners, and produce a learning interaction that guides and embeds enduring subsequent work practices? Is the need for compliance compatible with effective learning practices (Noone, 2008)?

Hart (2000) indicated 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. Table 1 depicts the differences between voluntary and mandatory training.

'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' (Raske, 2009).

Perhaps the desired result is to accept the necessity and desirability of a program based upon mandatory compliance and yet build the program so that contextual relevance, and individual needs are privileged in the process and not subjugated to content acquisition. How can such programs ensure they are embedding valuable long term behaviour patterns and not just short term administrative aims?

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 change 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 accidents on sites.

METHODOLOGY

The study focussed 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 and inter-industry relations.

The study used a mixed mode data collection as both social perceptions and recorded data are relevant to the phenomena under investigation. 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 Construction Induction Training system in the construction industry during the past 3 years in WA:

How effective has the Construction Induction Training certification system been for the industry? How effective have the Construction Induction Training practices been for the industry? How has the Construction Induction Training 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.

RESEARCH DESIGN

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 15 to 30 minutes. The quantitative incident data for the commercial construction sector was supplied by Worksafe WA and 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 4%, with 25 completed questionnaires. In order to support the low response rate, twenty three semi-structured interviews followed the questionnaires and were conducted with clusters of related site supervisors and OH&S Managers, and Construction Induction Training 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 an RTO involved in designing and delivering the training, and a union representative from the CFMEU. Finally, a small focus group was conducted with representatives from the Training Accreditation Council (TAC). The themes that have emerged from these interviews are compiled as a summary in each section of the report. The quotes used in this report 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.

FINDINGS

Incident and Fatality Statistics

The Construction industry has the fourth highest incident rate per 1000 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 is only 355 less than the peak in 2004/05 and have risen from the previous year. Figure 2 displays the incidence rate and number of workers compensation claims 2000/01 – 2006/07. Worksafe WA is particularly vigilant in this area in WA and has statistics available for the construction industry as a whole in WA. Table 3 displays the Lost Time Injury 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 sixty 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.

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 LTIs 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.

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. 25 or 4% questionnaires were completed. 92% of the completed surveys were from companies operating in the commercial sector; 4% in the civil sector and 12% in the housing sector. 72% conducted work in the city; 52% conducted work in regional locations and 0% worked in remote areas. Of those surveyed they had been employers from 2-45 years; 17% employers for under five years, 26% employers 6-10 years, 52% employers 11-20 years and 26% employers for 20 years and over. The numbers of employees the surveyed companies employed ranged from 1-300 employees. 48% employed under 20 employees (micro-sized companies); 26% employed between 20-49 employees (small sized companies), 17% employed 50-199 employees (medium sized companies), and 7% employed 200+ employees (large sized companies).

Figure 3 illustrates the responses to four key questions that were asked to determine the value of the Construction Induction Training (CIT). 60% 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. No respondents disagreed with the statement.

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. 75% 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. 79% agreed with this statement and 21% strongly agreed. No respondents disagreed. Therefore 100% of respondents perceive 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. 67% 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. 96% of respondents believe that the CIT assisted their business by reducing accident/incident rates; 4% of respondents did not.

Respondents were asked to comment on the extent they believed that the CIT contributed adequately to basic safety awareness, as a first stage, prior to site-specific and job-specific training. 86% of the responses were positive. However, those working in the industry for many years ('old hands') may be less influenced by the training; and some employees do not see the value in the training or indeed absorb the training due to its compulsory nature.

The respondents were asked to suggest improvements that could be made to the CIT. Responses included making the course more detailed for '*different skill levels*'; providing more emphasis on the '*responsibility of individuals for front line safety*'; providing '*more stringent testing*'; and '*no online testing*'. One respondent suggested that the CIT would be more effective if the course was conducted on site. Other responses included specific course content such as a lack of knowledge of their staff in understanding Job Safety Analysis and that this section of the course could be expanded upon; and that some of the test questions were ambiguous. One respondent stated that they had completed the CIT two years ago, while another suggested renewal should remain at every three years rather than life

accreditation. 76% of respondents indicated that they had used a number of different training providers to deliver CIT training to their staff. Some respondents had used the MBA training; others the Construction Skills Training and others had utilised online training due to the '*logistics of their operations*'.

The respondents were asked to indicate from six responses what they looked for when choosing a training provider. Figure 4 illustrates their responses. 71% of respondents indicated that the location of the classroom for training delivery was important. 43% indicated that the cost of the training was a factor. 33% indicated that class start time influenced their choice of training provider. 43% indicated that the length of the training influenced their choice, with one respondent suggesting the length of the course should be increased from two hours to four. Both face-to-face training delivery and online delivery achieved a score of 38% of respondents indicating that this influenced their choice of training delivery. However, one respondent commented that for those companies operating in regional areas that '*online courses are a lifesaver for our business*'. An additional comment was made by one respondent in that there were issues of availability of the courses run by training organisations which limited when they could enrol their prospective employees.

Interview Findings

The interview data revealed that in general participants were happy with the course content of the CIT. Most participants acknowledged that the course is 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 OSH 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'. 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.*

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 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.*

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.

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. 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.*

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 commercial construction sector has embraced the move to national CIT training even though in 2010 OHS in Australia is still regulated by a number of different individual state OHS Regulations, supporting the Federal OSH Act. 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 participant 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 programmes.

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. 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.

CONCLUSIONS

The data has revealed that the commercial construction sector values the CIT. 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 (Bahn 2007). At that time, participants were vehemently opposed to the safety awareness training claiming the content was too light-weight. 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. Indeed, 79% of respondents to the survey claimed there were measurable benefits to their business having their employees complete the CIT, while 96% claimed the CIT assisted in reducing accidents/incidents on their worksites. The study has shown that mandatory training has had a positive effect in changing the safety culture of this industry.

The fatality and accidents statistics show that there is a rising trend in Lost Time Injury's and Diseases (LTI/Ds) in the construction industry. 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. While there is no hard evidence that the CIT is responsible for these figures it could be suggested that the mandatory training has increased safety awareness across the industry and has therefore had a positive impact.

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 change in the 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 upon organisational cultures.

REFERENCES

- Bahn, S. (2008). Producing safety: Exploring occupational health and safety values in action within the WA Civil Construction Industry. VDM Verlag Dr Muller, Saarbrucken, Germany.
- Bahn, S., & Barratt-Pugh, L. (Oct, 2009). What's a life worth? The value placed on safety. *Journal of Occupational Health and Safety*, 25 (5), pp. 393-404.
- Biggs, H. C., Sheahan, V. L., & Dingsdag, D. P. (2006). *Improving industry safety culture: The tasks in which safety critical position holders must be competent*. Brisbane: Cooperative Research Centre for Construction Innovation.
- Callan, V. (2010). Bridging the divide: the challenges and solutions around e-assessment: As voiced by practitioners and auditors, AVETRA.
- Commonwealth of Australia (Dec, 2009). Safe Work Australia: Work-related traumatic injury fatalities, Australia 2006–07 report.
- Dong, X., Entzel, P., Men, Y., Chowdhury, R., & Schneider, S. (2004). Effects of safety and health training programs on work-related injury among construction labourers. *Journal of Occupational Environmental Medicine*, 46:1222-1228.
- Gherardi, S., & Nicolini, D. (2000). The organisational learning of safety in communities of practice. *Journal of Management Inquiry*, 9(1), 7-18.
- Gillen, M., Baltz, D., Gassel, M., Kirsch, L., & Vaccaro, D. (2002). Perceived safety climate, job demands, and co-worker support among union and non-union injured construction workers. *Journal of Safety Research*, 33: 33-51.
- Hart, B. (2000) *Mandatory continuing education*. Professions and Occupations Bureau of the Province of Alberta, USA.
- Knowles, M. (1990) - *The adult learner: A neglected species 4th Ed*, Gulf, Houston.
- Kolb, D. A. (1984) *Experiential Learning: experience as the source of learning and development* New Jersey: Prentice-Hall.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.

- Marsh, T. W., Robertson, I. T., Phillips, R. A., & Duff, A. R. (1995). Improving safety behaviour using goal setting and feedback. *Leadership & Organization Development Journal*, 16(1), 5.
- Martin, J. (1992). *Cultures in Organisations: Three perspectives*. London: Oxford University Press.
- NOHSC (1994) [Guidelines for Integrating OHS into National Industry Training Packages](#) (3020), NOHSC, Canberra.
- Noone, S. M. (2005). Mandatory versus voluntary adult learners: implications for trainers. Engel Ltd, NY.
- Raske, M. (2009). *Voluntary and Mandatory Training*. Society for Human Resource Development, Dehli.
- Reiman, T., & Oedewald, P. (2002). *The assessment of organisational culture: A methodological study*. Espoo: VTT Technical Research Centre of Finland.
- Rogers, C.R. (1969) *Freedom to learn*, C E Merrill, Columbus, Ohio.
- Sokas, R.K., Nickels, L., Rankin, K., Gittleman, J.L., & Trahan, C. (2007). Trainer evaluation of a Union-based ten-hour safety and health hazard-awareness program for US construction workers. *International Journal of Occupational Environmental Health*, 13: 56-63.
- The Safe Work Australia Online Statistics Interactive National Workers' Compensation Statistics Databases (2010). <http://www.safeworkaustralia.gov.au/swa/AboutUs/Publications/DataandStatistics>. Accessed 22/1/10.
- WorkCover New South Wales (2008). New South Wales Workers Compensation Statistical Bulletin 2006/07. WorkCover Tasmania (2008). All claims frequency rate. <http://www.workcover.tas.gov.au/>. Accessed 22/01/10. Worksafe WA (2010). Work related lost time injuries and diseases in WA 2005-06 – 2007-08p. <http://www.commerce.wa.gov.au/WorkSafe>. Accessed 28/01/10.

FIGURES AND TABLES

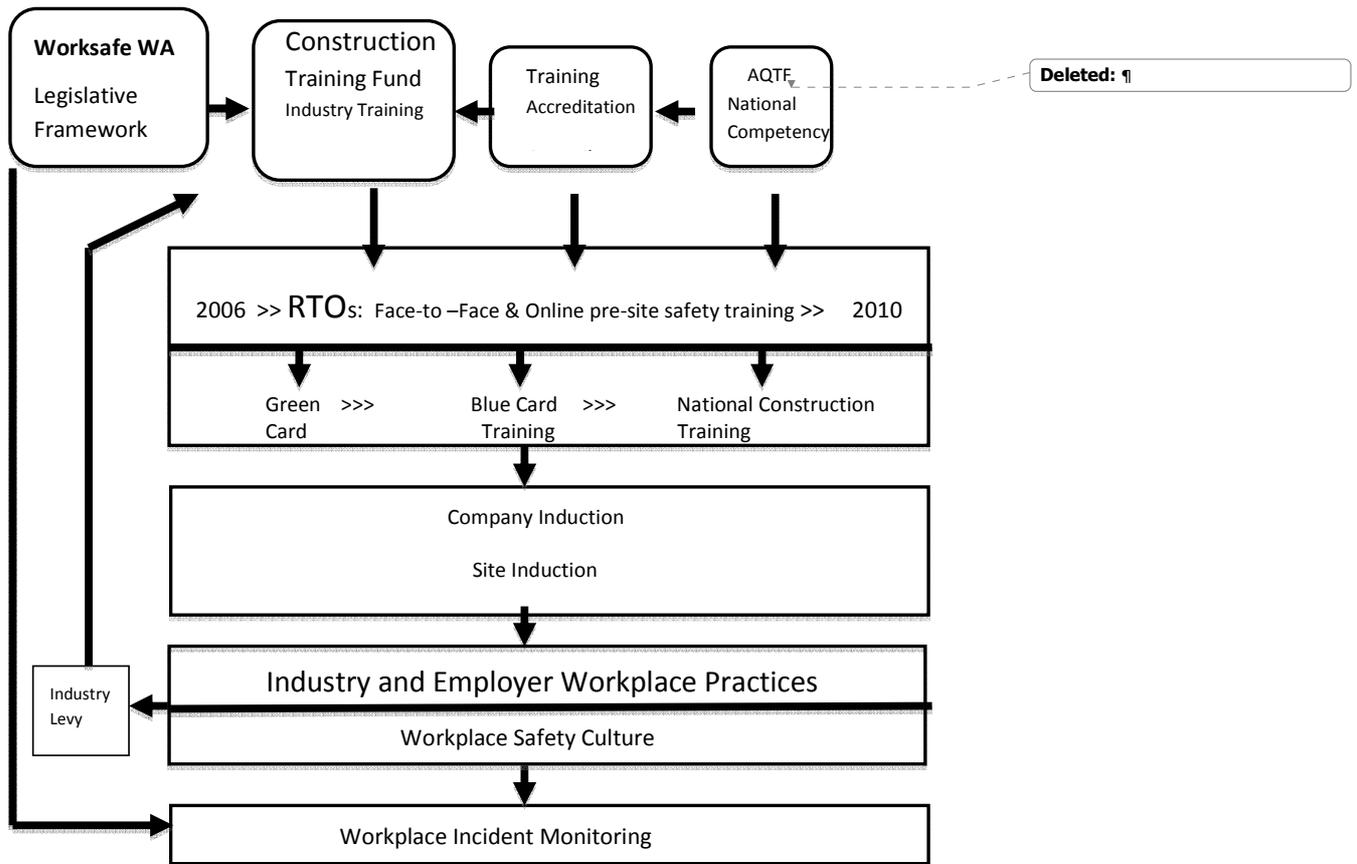


Figure 1: WA construction industry safety training relationships

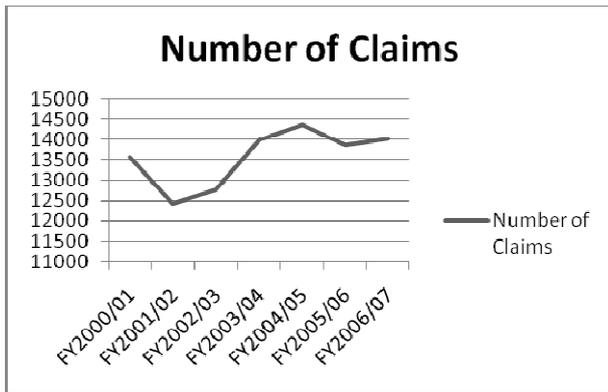


Figure 2: The number of workers compensation claims 2000/01 – 2006/07 for all Australian workers in construction

Source: Adapted from Safe Work Australia, 2010

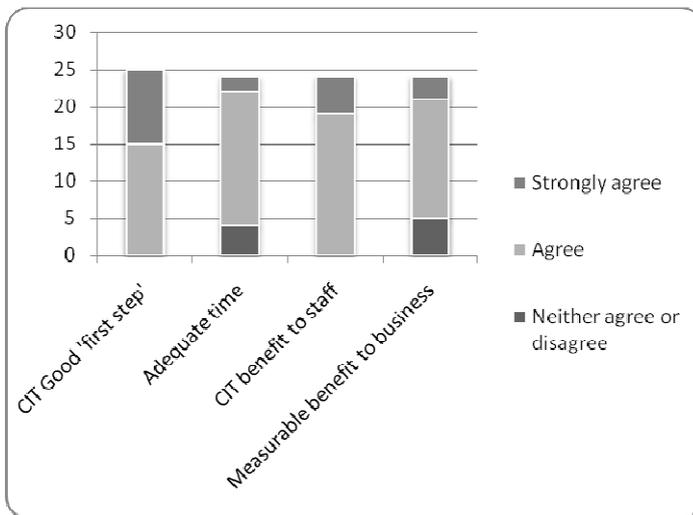


Figure 3: CIT value to respondents

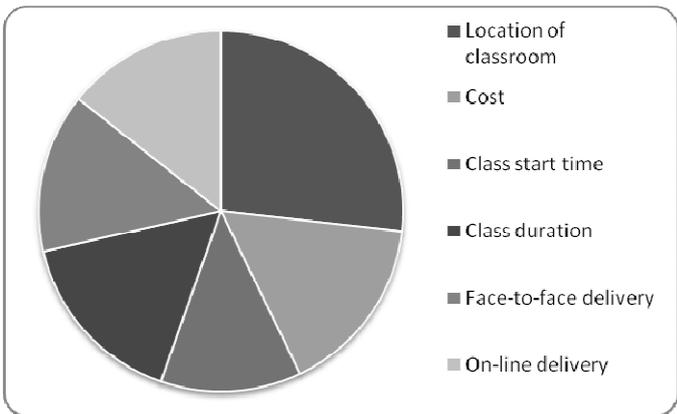


Figure 4: Influences in selection of a CIT provider

Table 1: Voluntary versus mandatory training

<i>Voluntary Training</i>	<i>However:</i>
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.
<i>Mandatory Training</i>	<i>However:</i>
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.
Formalizes 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.

Table 2: The Sample

Instrument	Sample frame
Incident Statistics	Tabulation and segmentation of Commercial Construction sector records from Worksafe WA for the previous 6 years – Pre and during the Construction Induction Training scheme.
Questionnaire	Distribution to the complete MBA Membership of approximately 669 CEOs and supervisors - 25 returned completed.
Semi-Structured Interviews	23 interviews with clusters of supervisors, OH&S Managers, trained employees at two commercial construction sites. 17 were conducted as telephone interviews and 6 as face-to-face. 7 interviews with representatives of peak/key bodies: CTF, Worksafe

WA, CCF, the CCF Board, MBA, HIA, CFMEU, and a RTO. 6 interviews were conducted as telephone interviews and 1 as face-to-face. 1 focus group with representatives from TAC.

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
3yr Average	15.3	3.2	3.3	0.7	2,405

Source: Worksafe WA, December 2009

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
6yr Average	857	631	199	79,255

Source: Worksafe WA, December 2009

Does mandatory training work? Investigating compulsory pre-site training certification in the WA construction industry

ABSTRACT

Reducing the high level of deaths and injuries in the construction industry is a continual challenge. It is a specific challenge in WA where the industry is adapting to the additional pressures of the 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 on the commercial sector of the industry, the training organisations, and the employees. The mixed methods study collects both the perceptions of the stakeholders and analyses the accident statistics. These interim 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.

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 programme, commonly referred to as the 'Blue Card' which required re-certification tri-annually. In 2009, WA adopted the national Construction Induction Training ('White Card') programme, based upon national competencies that form part of a training package within the Australian Qualification Training Framework (AQTF) that offers a once-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 programmes has been to develop the industry training culture towards mandatory, competence-based, and nationally accredited pre-site safety awareness certification. Construction Induction Training (CIT) programmes have been delivered in a variety of modes and in very diverse conditions across many different locations in WA. The Construction Induction Training 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 programme is 80% funded for the industry by the Construction Training Fund (The Fund). The Fund is built from a levy on all major construction projects (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. Conceptually, this study is about both the implementation of a managing initiative across an industry and about the use of mandatory training to effect culture change.

BACKGROUND

Industrial accidents 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. Martin (1992) recommends that in order to promote a safety culture organisations need to introduce organisational behaviour change models and initiatives. Gherardi & Nicolini (2000) state 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 (Reiman & Oedewald, 2002). A study conducted in 2005-08 by Bahn (Bahn & Barratt-Pugh, 2009) in the civil construction industry that found that the value managers placed on safety led to the level of safety culture in the workplace. Those that place a value on safety often place a higher priority on training. Marsh, Robertson, Phillips, & Duff (1995) 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.

Safety training interventions have led to an improvement of safety behaviours and a reduction of hazards in the workplace (Kinn, Khuder, Bisesi & Whoolley, 2000; Dong, Entzel, Men, Chowdhury & Schneider, 2004; Gillen, Baltz, Gassel, Kirsch & Vaccaro, 2002). Biggs, Sheahan & Dingsdag (2006, p.2) add to the complexity of training issues for the Australian construction industry in 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'.

In 1997 the United States Occupational Safety and Health Administration developed a Union-based ten-hour hazard-awareness training program (Smart Mark) for the construction sector. This program is the most widely used construction safety and health awareness training course in the US (Sokas,

Nickels, Rankin, Gittleman & Trahan, 2007) 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 al. (2007) evaluated Smart Mark to assess the strengths and weaknesses of the training materials, to determine the most commonly encountered hazards and the impact the training may have had, and to determine whether interactive instruction and the inclusion of supervisors impacted the training. 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.

Worksafe WA took a step towards addressing safety culture issues 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. The Construction Induction Training does not replace company, site specific, or job role inductions, but is additional to them. In 2009, state Blue Card was replaced with the national Construction Induction Training (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 more universal and transferable national competencies. Therefore, Worksafe WA moved to a national minimum safety standard for all construction workers. The changes from the state Blue Card to a national training program (Construction Induction Training) may have future ramifications for the learning practices and organisational outcomes. The state Blue Card required renewal and re-training every 3 years, however the national Construction Induction Training provides workers with a unit of competency that does not require reassessment.

Mandatory Training Programmes

Society and organisations determine the rules and guidelines that individuals should follow to ensure that social interaction can continue safely, with the minimum of unsettling conflict to achieve the current goals. There are no greater risks than those that may result in death and injury. It is therefore understandable that society and organisations attempt to produce greater compliance to minimise risks in these areas. Past experiences are distilled to form regulations to guide subsequent practice. While much social learning is offered as a voluntary activity, issues of health and safety are in the vanguard of those that are often positioned to be mandatory (NOHSC: 3020, 1994). In many cases, because of inherently dangerous environments, individuals are faced with mandatory training and certification process that act as a precondition for accessing a workplace. Compliance with safety regulation is positioned as an imperative and given the highest priority. Mandatory 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 (Knowles, 1990; Kolb, 1984; Lave & Wenger, 1991; Rogers, 1969). 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. 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, with its pedagogic limitations justifiable in terms of safety training? Indeed, do such process, or can such processes be orchestrated to provide learners with ownership and an active role in the process? Can they display relevance to the learners, and produce a learning interaction that guides and embeds enduring subsequent work practices? Is the need for compliance compatible with effective learning practices (Noone, 2008)?

Hart (2000) indicated 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. Table 1 depicts the differences between voluntary and mandatory training.

In the table the contrast between voluntary and mandatory approaches are reviewed and key issues for such managerial decision-making are highlighted. Managers have to determine which path is best aligned to their strategic objectives, and that of the organisation. Their first consideration is to what extent they need to make a cultural impact. In many cases training activity is begun through pilots, and used as a learning experience to develop the initiative. However, sometimes there is a need to make a public statement about the learning need through total engagement in a training activity. Second, is the need to determine if the organisation requires pools of high capability, or whether such learning is universally necessary within the culture, with minimum standards prioritised above specialist expertise. This decision will sometimes place the individualisation of the training approach above that of broad general organisational coverage. Third, is the need to confront the limitations of resources allocated to the initiative, which may restrict universal training coverage, or at least militate towards a phased response to the issue. Fourth, there is the issue of monitoring capability in the future. Mandatory programmes carry with them onerous monitoring and certification procedures, and the inevitable associated risks of the administrative verification processes overshadowing the training activity, and generating a culture of compliance, box ticking, and evasion.

As with most strategic choices, there is a primary need for managers to match the process to the objective. However, as with all binary tabulations, we are presented with an oversimplification of what are complex organisational relational interactions. The division of learning into mandatory and voluntary approaches is of course a myth. While there may be some social learning that is at the behest of the individual, learning within organisations lies almost always on a continuum between voluntary and mandatory training. What is always important in this assessment are the coercive forces that underpin the mandatory nature of the training, and the power of the actors who set, maintain and monitor such standards and certification. Often the very act of universal certification acts to reduce standards to a minimum that *is* achievable by all. The requirement to comply mediates a culture of compliance, and dysfunctional activity to achieve such compliance. In many systems, while specific learning is not mandatory, there is a range of cultural impediments that can restrict the access to

resources of those who do not comply. Indeed, individuals are unlikely to access voluntary learning/training activities unless in Vroom's terms (1964), they can see the 'valance' or subsequent outcome from their effort and achievement. So, having produced this dichotomy of voluntary and mandatory training criteria to explore the tensions facing managers, the reality they face is far less illuminated. All learning and training practices are associated with incentives to encourage participation and completion, but often in the shadows there are less explicit mediating forces that indicate coercive actions that may be activated if learning opportunities are avoided or failed. In general terms, this means that managers usually attempt to strike a balance between the emphasis given to the various learning priorities that they hope will reshape the culture. However, as Maslow (1966) indicated, (albeit from studying primates), some needs become more imperative than others, and life, injury and safety should head that list.

'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' (Raske, 2009).

Perhaps the desired result is to accept the necessity and desirability of a program based upon mandatory compliance and yet build the program so that contextual relevance, and individual needs are privileged in the process and not subjugated to content acquisition. How can such programs ensure they are embedding valuable long term behaviour patterns and not just short term administrative aims?

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 change 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 accidents on sites.

METHODOLOGY

The study focussed 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 and inter-industry relations.

The study used a mixed mode data collection as both social perceptions and recorded data are relevant to the phenomena under investigation. 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 Construction Induction Training system in the construction industry during the past 3 years in WA: How effective has the Construction Induction Training certification system been for the industry? How effective have the Construction Induction Training practices been for the industry? How has the Construction Induction Training 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.

RESEARCH DESIGN

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 15 to 30 minutes. The quantitative incident data for the commercial construction sector was supplied by Worksafe WA and 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 4%, with 25 completed questionnaires. In order to support the very low response rate, twenty three semi-structured interviews followed the questionnaires and were conducted with clusters of related site supervisors and OH&S Managers, and Construction Induction Training 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 an RTO involved in designing and delivering the training, and a union representative from the CFMEU. Finally, a small focus group was conducted with representatives from the Training Accreditation Council (TAC). The themes that have emerged from these interviews are compiled as a summary in each section of the report. The quotes used in this report 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.

FINDINGS

Incident and Fatality Statistics

The Construction industry has the fourth highest incident rate per 1000 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 is only 355 less than the peak in 2004/05 and have risen from the previous year. Figure 2 displays the incidence rate and number of workers compensation claims 2000/01 – 2006/07. Worksafe WA is particularly vigilant in this area in WA and has statistics

available for the construction industry as a whole in WA. Table 3 displays the Lost Time Injury 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 sixty 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.

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 LTIs 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.

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. 25 or 4% questionnaires were completed. 92% of the completed surveys were from companies operating in the commercial sector; 4% in the civil sector and 12% in the housing sector. 72% conducted work in the city; 52% conducted work in regional locations and 0% worked in remote areas. Of those

surveyed they had been employers from 2-45 years; 17% employers for under five years, 26% employers 6-10 years, 52% employers 11-20 years and 26% employers for 20 years and over. The numbers of employees the surveyed companies employed ranged from 1-300 employees. 48% employed under 20 employees (micro-sized companies); 26% employed between 20-49 employees (small sized companies), 17% employed 50-199 employees (medium sized companies), and 7% employed 200+ employees (large sized companies).

Figure 3 illustrates the responses to four key statements that were presented in the questionnaire to determine the value of the Construction Induction Training (CIT). The figure shows the number of responses that either agreed, strongly agreed or neither agreed or disagreed with the statements. There were no negative responses from the participants to these statements. 60% of the respondents agreed with the first statement that 'the CIT provided a good first step to developing safety awareness for their staff'; with a further 40% of respondents strongly agreeing. No respondents disagreed with the statement.

In the second statement, 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'. 75% 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. In the third statement, the respondents were asked whether they believed that 'the CIT provided benefit to their staff'. 79% agreed with this statement and 21% strongly agreed. No respondents disagreed. Therefore 100% of respondents perceive the CIT to be of value to the safety awareness of their staff. In the fourth and final statement, the respondents were asked if they perceived that 'after their staff completed the CIT there was a measurable benefit to their business'. 67% 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. 96% of respondents believe that the CIT assisted their business by reducing accident/incident rates; 4% of respondents did not.

Respondents were also asked to comment on the extent they believed that the CIT contributed adequately to basic safety awareness, as a first stage, prior to site-specific and job-specific training. 86% of the responses were positive. However, those working in the industry for many years ('old hands') may be less influenced by the training; and some employees do not see the value in the training or indeed absorb the training due to its compulsory nature.

The respondents were asked to suggest improvements that could be made to the CIT. Responses included making the course more detailed for '*different skill levels*'; providing more emphasis on the '*responsibility of individuals for front line safety*'; providing '*more stringent testing*'; and '*no online testing*'. One respondent suggested that the CIT would be more effective if the course was conducted on site. Other responses included specific course content such as a lack of knowledge of their staff in understanding Job Safety Analysis and that this section of the course could be expanded upon; and that some of the test questions were ambiguous. One respondent stated that they had completed the CIT two years ago, while another suggested renewal should remain at every three years rather than life accreditation. 76% of respondents indicated that they had used a number of different training providers to deliver CIT training to their staff. Some respondents had used the MBA training; others the Construction Skills Training and others had utilised online training due to the '*logistics of their operations*'.

The respondents were asked to indicate from a further six responses what they looked for when choosing a training provider to deliver the CIT. Figure 4 illustrates their responses. 71% of respondents indicated that the location of the classroom for training delivery was important. 43% indicated that the cost of the training was a factor. 33% indicated that class start time influenced their choice of training provider. 43% indicated that the length of the training influenced their choice, with one respondent suggesting the length of the course should be increased from two hours to four. Both face-to-face training delivery and online delivery achieved a score of 38% of respondents indicating that this influenced their choice of training delivery. Therefore the respondents were equally divided as to their support of both modes of training delivery. However, one respondent commented that for

those companies operating in regional areas that *'online courses are a lifesaver for our business'*. An additional comment was made by one respondent in that there were issues of availability of the courses run by training organisations which limited when they could enrol their prospective employees.

Interview Findings

The interview data revealed that in general participants were happy with the course content of the CIT. Most participants acknowledged that the course is 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 OSH 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'. 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.*

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 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.*

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.

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. 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.*

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 commercial construction sector has embraced the move to national CIT training even though in 2010 OHS in Australia is still regulated by a number of different individual state OHS Regulations,

supporting the Federal OSH Act. 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 participant 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 programmes.

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. 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.

CONCLUSIONS

The data has revealed that the commercial construction sector values the CIT. 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 (Bahn 2007). At that time, participants were vehemently opposed to the safety awareness training claiming the content was too light-weight. 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. Indeed, 79% of respondents to the survey claimed there were measurable benefits to their business having their employees complete the CIT, while 96% claimed the CIT assisted in reducing accidents/incidents on their worksites. The study has shown that mandatory training has had a positive effect in changing the safety culture of this industry.

The fatality and accidents statistics show that there is a rising trend in Lost Time Injury's and Diseases (LTI/Ds) in the construction industry. 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. While there is no hard evidence that the CIT is responsible for these figures it could be suggested that the mandatory training has increased safety awareness across the industry and has therefore had a positive impact.

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 change in the 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 upon organisational cultures.

REFERENCES

- Bahn, S. (2008). Producing safety: Exploring occupational health and safety values in action within the WA Civil Construction Industry. VDM Verlag Dr Muller, Saarbrucken, Germany.
- Bahn, S., & Barratt-Pugh, L. (Oct, 2009). What's a life worth? The value placed on safety. *Journal of Occupational Health and Safety*, 25 (5), pp. 393-404.
- Biggs, H. C., Sheahan, V. L., & Dingsdag, D. P. (2006). *Improving industry safety culture: The tasks in which safety critical position holders must be competent*. Brisbane: Cooperative Research Centre for Construction Innovation.
- Callan, V. (2010). Bridging the divide: the challenges and solutions around e-assessment: As voiced by practitioners and auditors, AVETRA.
- Commonwealth of Australia (Dec, 2009). Safe Work Australia: Work-related traumatic injury fatalities, Australia 2006–07 report.
- Dong, X., Entzel, P., Men, Y., Chowdhury, R., & Schneider, S. (2004). Effects of safety and health training programs on work-related injury among construction labourers. *Journal of Occupational Environmental Medicine*, 46:1222-1228.
- Gherardi, S., & Nicolini, D. (2000). The organisational learning of safety in communities of practice. *Journal of Management Inquiry*, 9(1), 7-18.
- Gillen, M., Baltz, D., Gassel, M., Kirsch, L., & Vaccaro, D. (2002). Perceived safety climate, job demands, and co-worker support among union and non-union injured construction workers. *Journal of Safety Research*, 33: 33-51.
- Hart, B. (2000) *Mandatory continuing education*. Professions and Occupations Bureau of the Province of Alberta, USA.
- Knowles, M. (1990) - *The adult learner: A neglected species 4th Ed*, Gulf, Houston.
- Kolb, D. A. (1984) *Experiential Learning: experience as the source of learning and development* New Jersey: Prentice-Hall.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.

- Marsh, T. W., Robertson, I. T., Phillips, R. A., & Duff, A. R. (1995). Improving safety behaviour using goal setting and feedback. *Leadership & Organization Development Journal*, 16(1), 5.
- Martin, J. (1992). *Cultures in Organisations: Three perspectives*. London: Oxford University Press.
- Maslow, A. H. (1966), *The psychology of science*, Harper & Row, New York.
- NOHSC (1994) [Guidelines for Integrating OHS into National Industry Training Packages](#) (3020), NOHSC, Canberra.
- Noone, S. M. (2005). Mandatory versus voluntary adult learners: implications for trainers. Engel Ltd, NY.
- Raske, M. (2009). *Voluntary and Mandatory Training*. Society for Human Resource Development, Dehli.
- Reiman, T., & Oedewald, P. (2002). *The assessment of organisational culture: A methodological study*. Espoo: VTT Technical Research Centre of Finland.
- Rogers, C.R. (1969) *Freedom to learn*, C E Merrill, Columbus, Ohio.
- Sokas, R.K., Nickels, L., Rankin, K., Gittleman, J.L., & Trahan, C. (2007). Trainer evaluation of a Union-based ten-hour safety and health hazard-awareness program for US construction workers. *International Journal of Occupational Environmental Health*, 13: 56-63.
- The Safe Work Australia Online Statistics Interactive National Workers' Compensation Statistics Databases (2010). <http://www.safeworkaustralia.gov.au/swa/AboutUs/Publications/DataandStatistics>. Accessed 22/1/10.
- Vroom, V. H. (1964), *Work and motivation*, Wiley, New York.
- WorkCover New South Wales (2008). New South Wales Workers Compensation Statistical Bulletin 2006/07. WorkCover Tasmania (2008). All claims frequency rate. <http://www.workcover.tas.gov.au/>. Accessed 22/01/10. Worksafe WA (2010). Work related lost time injuries and diseases in WA 2005-06 – 2007-08p. <http://www.commerce.wa.gov.au/WorkSafe>. Accessed 28/01/10.

FIGURES AND TABLES

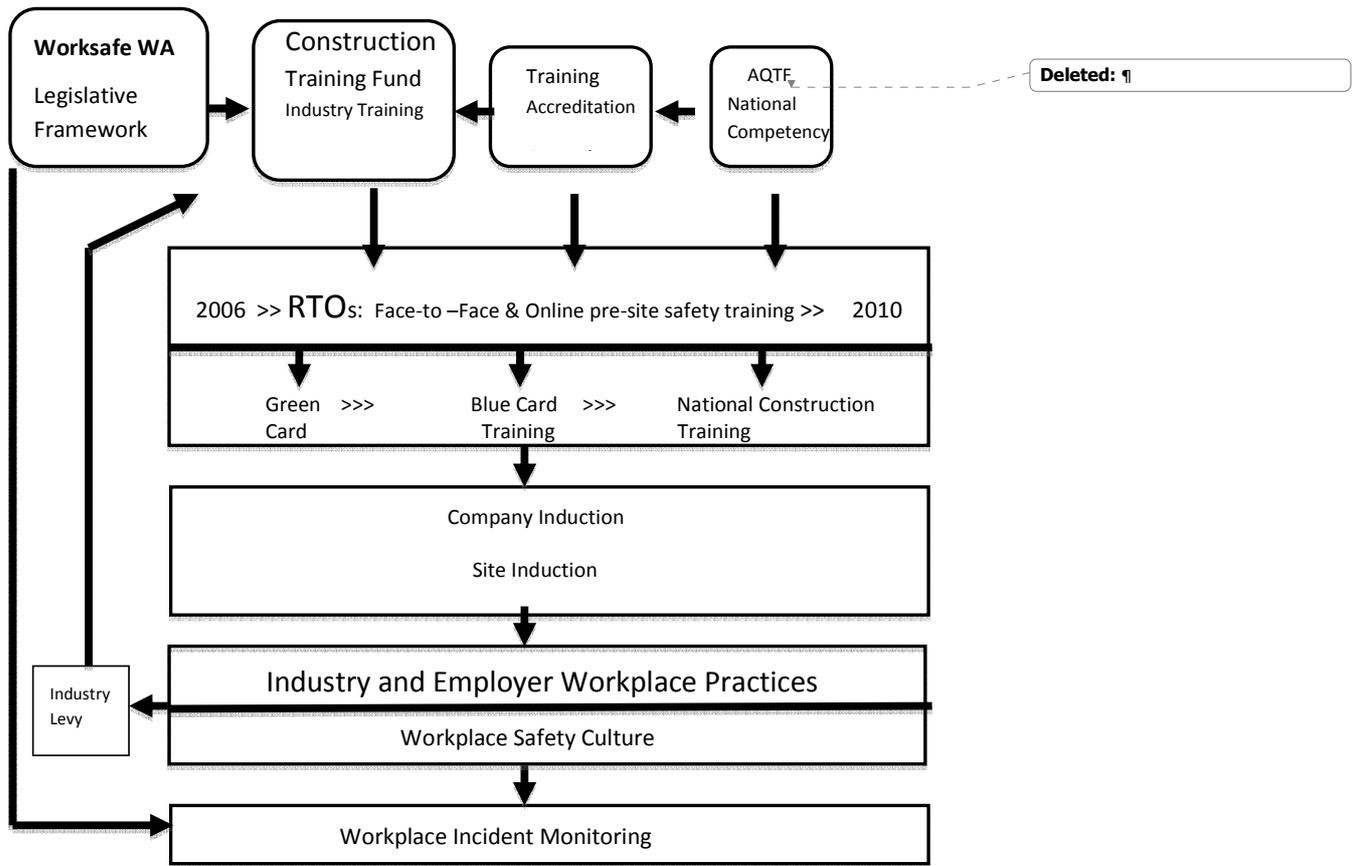


Figure 1: WA construction industry safety training relationships

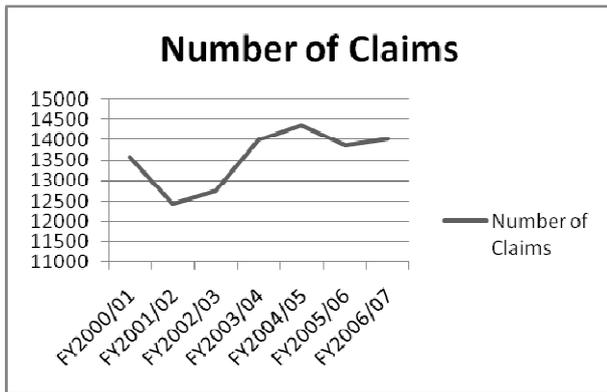


Figure 2: The number of workers compensation claims 2000/01 – 2006/07 for all Australian workers in construction

Source: Adapted from Safe Work Australia, 2010

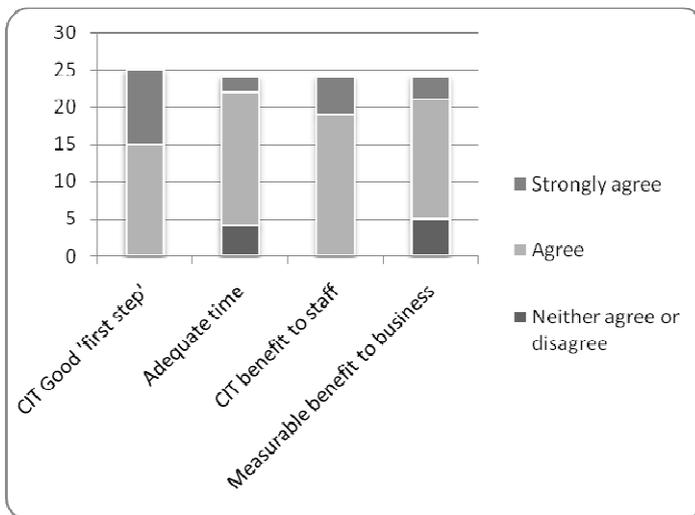


Figure 3: Respondents perceptions of the benefits of CIT completion

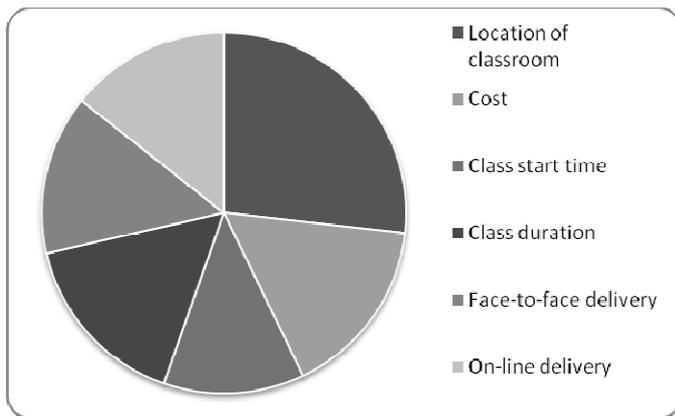


Figure 4: Influences in selection for employers of a CIT provider

Table 1: Voluntary versus mandatory training

<i>Voluntary Training</i>	<i>However:</i>
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.
<i>Mandatory Training</i>	<i>However:</i>
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.
Formalizes 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.

Table 2: The Sample

Instrument	Sample frame
Incident Statistics	Tabulation and segmentation of Commercial Construction sector records from Worksafe WA for the previous 6 years – Pre and during the Construction Induction Training scheme.
Questionnaire	Distribution to the complete MBA Membership of approximately 669 CEOs and supervisors - 25 returned completed.
Semi-Structured Interviews	23 interviews with clusters of supervisors, OH&S Managers, trained employees at two commercial construction sites. 17 were conducted as telephone interviews and 6 as face-to-face. 7 interviews with representatives of peak/key bodies: CTF, Worksafe WA, CCF, the CCF Board, MBA, HIA, CFMEU, and a RTO. 6 interviews were conducted as telephone interviews and 1 as face-to-face. 1 focus group with representatives from TAC.

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
3yr Average	15.3	3.2	3.3	0.7	2,405

Source: Worksafe WA, December 2009

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
6yr Average	857	631	199	79,255

Source: Worksafe WA, December 2009