A Case for Alternative Approaches for Better Education in OH&S in Construction

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Abstract – **The paper advocates the need for a pragmatic approach to construction engineering safety and curriculum in Australia. Construction industry fatalities and work related injuries continue to beleaguer the industry due to culture, complacency, and cost. An appraisal into work practices, priorities, and perceptions should be the first initiative to challenge the paradigm of habit. Other overlaying factors need to be addressed on a pragmatic platform of a safety, and a meaningful curriculum to prepare Construction supervisors and Project Managers, to focus on achievable goals. Workplace Safety is enshrined is legislation, statutes, regulations and codes of practice to ensure compliance, but they are ambiguous and provide only sketchy guidelines, information, and procedures for audits. Consistency and a training regimen to comply with the law yet sensitive to the demands of the industry is needed. This paper outlines the need for specific OH& S education to affect a zero tolerance concept in workplace injury and disease. Construction Safety is achievable if the focus can be shifted from the traditional to curriculum inculcating a business-oriented perspective, active participation of all players and research regimen to cater to this conundrum. This paper aims to provide a fresh initiative to achieve this end.**

Key Words – Construction Engineering, Culture, Complacence, Occupational Health and Safety, Project Managers.

INTRODUCTION

When Occupational Health and Safety in Australia is being looked at various aspects manifest themselves. First is its challenge given the high incidence of workplace injuries, disease, and fatalities especially in the construction industry. It is not for want of policies and legislation, which are seemingly adequate, but the ambiguity, lack of cohesion, uniformity and a workplace culture that permeates the rank and file. Workplace Health and Safety laws, regulations and codes of practice are promulgated through States and Territories Authorities, and the Workcover/Worksafe Authority of each State/Territory is responsible for providing safety programs, information etc. to administer safety and health matters. The Australian Safety and Compensation Council as a tripartite working party with the government, industry and unions coalesce to administer a national response towards workplace health and safety. Their concerted efforts are a necessity since there is a lack of uniform legislation between the States and Territories with each having disparate legislation and views on interpreting the requirements to fulfil the spirit of the Occupational Health and Safety [Commonwealth Employment] Act 1991 [OH&S Act].
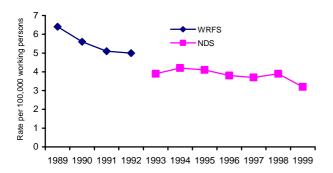
Promulgating the OH&S Act and trying to find a common ground and working agenda without disadvantaging any players was a hard enough ask without having political ideology influencing policy initiatives. This has left the various parties working in OH&S sequestered and helpless at times. Ruse 2004, points out that 'the deregulatory ideology of the Howard Government in 1996 saw the then National Occupational Health and Safety Organisation [NOHSC] budget slashed by 33% and its research capacity crippled' [1]. The decision to place 'less emphasis on the development of national OHS standards....' by the Labour Ministers' Council thus seemingly ratifies the retrograde ideology of the federal government. In the face of such crippling erosion the Australian Safety and Compensation Council [ASCC], as is necessary, bravely puts out. A more recent ASCC Business Plan 'The 2006-2007 Business Plan'[2], endorses the National OHS Strategy 2002-2012 which aims as it's '…National Priority 1: to reduce high incidence and severity of risks…' Here among others it proposes to develop national coordination and awareness of the importance of OHS, as well, to '…undertake a program of research and to review and support National Strategy…'[2]. What we see here are efforts being made, but no matter what progress is done or initiatives launched by the many forums which administer and oversee OH&S, it has become perfunctory and superficial. It is under these circumstances Occupational Health and Safety tries to perform, but ultimately has to settle for just incremental gains. This is another aspect of OHS we encounter.

TABLE 1
CONSTRUCTION INDUSTRY: NUMBER OF FATALITIES

INDUSTRY SUBDIVISIONS	1996/7	1997/8	1998/9	1999/00	2000/1	2001/2	2002/3
Construction trade service	22	18	26	26	21	24	29
General Construction	34	19	21	18	17	13	12
Total Construction Industry	56	37	57	44	38	37	41
All Fatality Claims	398	352	324	316	288	276	238

Source: Compendium of Workers' Compensation Statistics Australia 2003-2004, Pg. 37.

Table 1 shows that there is a steady number of fatalities occurred in the construction industry. While it can be acknowledged that injury and fatalities have dropped as shown in Table 1 and Figure 1 (this being a global trend) there is the spectre that any fatality and workplace injury and disease is one too many. It therefore rests with workers at the coalface to revitalise themselves in the interest of self-preservation since loopholes in the law and legislation allow these to continue. Management must understand that new initiatives must be put in place to achieve a zero tolerance to workplace fatalities, injury and disease. A pragmatic approach and Action Research is required to provide the impetus for the second wind required. But to get an understanding of OHS in the Australian workplace, one has to understand the structural hierarchy in organisations and the constraints prevalent which impede such progress.

FIGURE 1
WORK-RELATED FATAL INJURY RATES, 1989 TO 1999.
Source: Journal of Occupational Health and Safety, Australia and New Zealand, 2001, 17(4):349-361. Note, the WRFS data reflect the calendar years 1989 to 1992, while the NDS data reflect the financial year 1992/93 to 1998/99 and only include employees.

FUNDING OHS EDUCATION

Australia is unique in that OHS is administered by the States and Territories and not federally. Though there is legislation in the OH&S Act Statute 16 of the OH&S Act states in unequivocal terms that all employers '…provide information, instruction training and supervision necessary to enable them (*employees*) to perform their work that is safe and without risk to their health…'[3]. For employers to provide and deliver meaningful safety directives, a dedicated and qualified team has to oversee the organisations' management system as in SABS – Safety Achiever Business Systems. The Commonwealth have provided funds for Research and training among other initiatives. The Industry Commission in its Report 47 in 1995 [4] stated that $10 million was allocated by the Commonwealth to about 25 higher education institutions, Occupational Health and Safety Research through NOHSC for intramural research by NIOSH or funding others to carry out specific research projects extramurally. There was also some involvement by private enterprise but the bulk of the funding was from the Commonwealth. This notwithstanding, research in OH&S is fraught with hurdles from funding (which is difficult to obtain), absence of core funding for OHS research, and when available proposals be resubmitted each year for obtaining grants. Consequently, the critical mass of research groups was always low.

Despite this, OHS does play an important part in an organisation's management structure. The relevance of qualified OHS personnel to administer and ensure the safety in the workplace and the need of training and education in OHS has induced people to take up the cudgels.

From Figure 2, we can see that 31.9% of respondents have a postgraduate qualification as their highest level of OHS qualification (as sampled from the Safety Institute of Australia), with 10.1% holding an undergraduate OHS degree. We can certainly infer that there is no dearth of qualified personnel in OHS. This acknowledgement corroborates still another aspect of OHS unfortunately, however, when one looks at the nature of research taken up – a different disconcerting pattern emerges. From the Industry Commission's Report 47, an Inquiry into Occupational Health and Safety, the Report states that the '…intramural research program will be determined by the interests of researchers…' which does not necessarily coincide with the public interest. Instead of research into risk management measures in health and safety, medical and epidemiological research is favoured. Consequently '…the research is neither useful, relevant or timely…' [4].
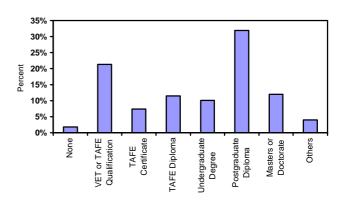

FIGURE 2
QUALIFICATION PROFILE OF AN OHS PROFESSIONAL IN AUSTRALIA
Source: Journal of Occupational Health and Safety, Australia and New Zealand, 2006, 22(2):175-192.

This being the case of fresh initiatives in risk management measures in Health and Safety research and development, an opinion can be drawn that the importance of OHS is seriously undermined. This being the problem, workable agenda's to meaningful workplace safety has to be all inclusive starting from the grassroots.

OHS Culture in the Workplace

It is often seen that construction workers bring with them the 'baggage' culture of behaviour and attitudes from previous projects. When commencing work anew on another project, workers generally are given induction training on the merits of organisational procedures – to contend with relevant procedures and practices pertinent to the project. At this point, the obligations of management seem to become fulfilled. Unfortunately both parties share this sentiment -

OHS is the last priority since getting the job done is paramount.

Iacone [5] concurred that '...workers who are employed intermittently often face pressure to work quickly and therefore do not see OHS as something that warrants too much attention...'. Attitudes such as this are an open invitation to workplace injury. The exposure to risk is real and disregard for health and safety has consequences beyond the self. Its ramifications extend through the whole organisation. It is imperative then to change the way employers and employees think of safety in the workplace.

The general perception is that it is the worker who is responsible for the conundrum. However, research shows that it is '…organisational practices rather than behaviour of employees' [6] that is responsible. The organisations' management set precedents and policies, run budgets and are accountable. It is within these cultures of management and worker that a safer culture can be engineered. Culture within an organisation has two aspects – one of what an organisation *is* (beliefs and values), and secondly what it *does* (structures, practices, policies and values). If change in an organisation's culture is to be brought about, the most obvious directives would be to the worker by projecting what the organisation '*is*' - its beliefs and values and does this by playing on the fear factor and vulnerability of worker. What should change however is what the organisation *does* -by '...introducing practices and structures... *if spearheaded with this approach both purposes would be achieved as...*they have a way of bringing people's values into line with them...' [7].

Reason postulates that a safety culture is both a *reporting culture* of analysis and consciously taking ownership, and a *learning culture* which is the gleaning of all information and consolidating it into 'feasible solutions'. A safety culture, being a learning culture is both reactive and proactive. Measures [7] are used for achieving outcomes and not local fixes. Any discrepancies arising from these two measures are used to challenge its basic assumptions and learn from it. The ownership derived from these outcomes is then embedded into workaday practice.

Most players in the construction industry are aware of the injury and fatalities stalk them awaiting a careless moment and are keen on not becoming another statistic. Success is not something that happens overnight but a transformation through an elimination of risk and error [8]. Present research trends in OHS, from available material, tends to cater to the immediate with extramural training imparted through various bodies. Success is limited, the scope is exhausted while the ills still fester due to loopholes being exploited by the unscrupulous companies shielding themselves under the clause of '...*duty of care ...as far as practicable...*' What is needed then is to be pragmatic in the approach to OHS.

PRAGMATISM IN OHS EDUCATION

To apply pragmatism as espoused by William James, the father of pragmatic thought is to have an individual's beliefs substantiated by the test of time, consistently experienced. The values and insights that pragmatism can provide would allow advancement towards democratic goals of equality and autonomy. Without this direct involvement by employers and employees Dewey postulates that '…we engage in shadow play, unable to distinguish experience from illusion…' [9]. Without direct involvement of those at the coalface only theoretical initiatives are spewed forth and OHS endeavours and application in Australia would become illusory. Because representation is only perfunctory it can only deliver common targets and not appreciable outcomes as desired and warranted. From Figure 3 below we can infer that though the number of fatalities has reduced significantly, it is a far cry from the zero tolerance to workplace injury, disease and fatalities.
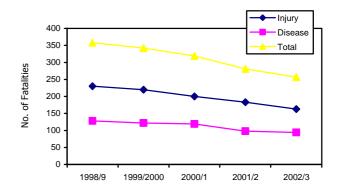
FIGURE 3
NUMBER OF FATALITIES 1998/99- 2002/03
Source: CPM - Sixth Edition 2004, Modern Workplace: Safer Workplace - An Australian Industry Blueprint for Improving OHS 2005-2015, Australian Chamber of Commerce & Industry

Figure 4 presents the comparative fatality incidence rates and indicates a consistent decline pattern in fatalities rate. Australia's improvement was no better or worse than other comparative countries. One can ask whether in following the trend, it points to good governance and performance right directives? Or is it a moot point that it is reaching a stagnation point, of flattening out, with less significant results to follow? Or perhaps, are other fresh approaches for an awareness and adherence to workplace health and safety required?
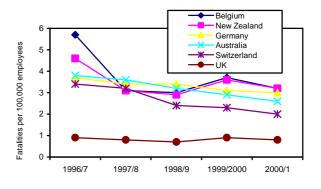
FIGURE 4
FATALITY INCIDENCE RATES, SELECTED COUNTRIES 1996-2001.
Source: NOHSC, Fatal Occupational Injuries – How does Australia Compare Internationally, edited by Australia Government – National Occupational Health and Safety Commission, Canberra, Aug, 2004, Pg16.

CAN THERE BE AN ALTERNATIVE?

While it must be acknowledged that the traditional methods of approaching OH&S has had incremental gains, alternative approaches need to be investigated. The pragmatic approach to workplace safety as mentioned is one such approach; this translates to the approach of not trying to re-engineer constructs and presenting them in another glossy packaging. Each project is unique and everyday new and different risks and project management decisions are needed to be performed. How these decisions filter down to the site workers and safely performed depends on their attitude to project safety.

While many of the processes initiated for an awareness of safety has driven the point home, compelling factors entice them to do simple tasks inappropriately - habit plays a part and an urgency to complete jobs contribute to this paradigm. Many injuries and fatalities that happen are because of acceptable risks taken. Legislation in the Act exhorts '…An employer to take all reasonably practicable steps to protect the health and safety at work of the employer's employees...' [3]. Here lies the legislation's Waterloo. For example, broadly interpreted, if there is any likelihood of workplace injury, but it is not feasible to eliminate it – perhaps due to cost or other constraints, then acceptable risks may be taken. Needless to say this clause has been the cause of much litigation, as well as a loophole exploited by some unscrupulous employers. Time costs money, and in a project, budget and cost is a very crucial factor. So the logical step would then be to approach OHS as a Business. Accident costs bump up the project costs, and some conservative estimates put accident costs at 20 times compensation costs [6]. Traditionally, project feasibility is calculated on Net Present Value where cash flows are determined over the life of the project. This however does not paint a true picture of the health of the investment as there are many factors that influence the project. The possibility of extensions, delays, late starts etc are not catered to and cause project cost blowouts. When this happens time becomes crucial and in order to complete the project on time and within budget safety could be compromised. The modern day solution to this is the 'Real Options Analysis' approach which caters to *deferral option*, *option to abandon*, *option to expand* or even *switching options*. Engineering Education is still to explore the possibilities of 'Real Options Analysis' and its usefulness in budgetary forecasting and financial feasibility for projects. A positive outcome of this is that risks need not be taken if it is foreseeable, a project is on time and budget - so safety is not compromised to fulfil milestones of a project.

OHS APPROACHES IN ENGINEERING EDUCATION

Greenwood has advocated democratic inclusion (local stakeholders) and social research quality (from professional research strategies) through the 'Action Research'. This entails '…defining the problems to be examined, co-generate relevant knowledge about them and to learn and execute social research techniques, take action and interpret the results of actions based on what they have learned…' [10]. If meaningful safety education has to be achieved the ideal approach is Pragmatic Action Research'. The method follows an analytical process of plan, execute, evaluate and execute in cyclic stages. This approach is well known but the difference here is that there is the construction of 'arenas' for dialogue and mutual learning as a work form. The relationship is a '*dialogical relationship*' where reciprocal learning takes place. The term 'co generative research participation' allows for new knowledge using multi-methods to tease out experiences through dialogue. 'Search Conferences' are organised where processes of introspection, dialogue and visions spelt out. The creating of goals (and the consequences of any of its failure are spelt out), creative action plans, prioritising and linking action groups and specific actions are debated and scrutinised in its entirety [10]. In simplistic terms participants are called upon to begin a process of systematic reflection, enquiry and action within their own practice. The process is cyclic with action – and critical reflection – and reviewing previous action, plan the next one [11]. The Safety Management Systems following assurance principles should set out safety objectives, terms of reference, the method of achieving them, performance standards and the monitoring of how these standards could be met should be initiated and promulgated. A reference point would be the ISO 9000 for quality assurance. This approach would then provide an opportunity for introspection and ultimately a process for Occupational Health and Safety education and training involving all participants in the industry including Project Managers, Construction Engineers, Researchers and Academics who plan and teach OHS in our Tertiary and Vocational Institutions. Demands on OHS personnel require them to have higher level of skills to match their roles in management. In addition, their skills in environmental protection, emergency planning and rehabilitation are not just desirable skills but have become the order of the day. Safety conscious workers can only happen if there are versatile and knowledgeable OHS personnel with foresight and commitment. For this to happen alternate ways to promote and instil safety into a vulnerable industry is the crying need of the hour.

CONCLUSION

The need for Specific OH&S education is a reality that cannot be ignored given the ubiquitous spectre of workplace injury fatality and disease. Traditional endeavours notwithstanding incremental success still fail to affect a zero tolerance paradigm. What has been outlined here is the workplace culture that exacerbates this conundrum, budgetary constraints and cost blowouts which threaten the timeline (consequently, safety becomes compromised), complacency and specific OHS training methods. Some of the suggested approaches are the 'Real Options Analysis' that could better prepare Engineers and Project Managers on costs so that it does not impact on Safety. An analysis into 'Action Research' involving 'search conferences' for achievable goals so that safety education in engineering could be better achieved. And lastly a renewed training

regime which prepares professionals for future roles in environmental protection emergency planning [12] and rehabilitation. This paper highlights the need for alternative approaches for better education in OH&S in the construction industry. With further research in this area, detailed appropriate approaches can be investigated and specific training outlined to make this industry a much required zero tolerance reality.

GLOSSARY

NOHSC – National Occupational Health and Safety Commission
NIOHS- National Institute of Occupational Health and Safety
SABS – Safety Achiever Business Systems: Performance Standards, Government of South Australia; also reference AS/NZ 4804 – General guidelines on principles/systems and supporting techniques.

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