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THE ROLE OF COLLABORATION IN DEFINING AND MAINTAINING A SAFETY CULTURE: AUSTRALIAN PERSPECTIVES IN THE CONSTRUCTION SECTOR

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The nature of the Australian construction industry, with strict time and work demands, serves to challenge construction organisations in how they can develop and maintain a positive site safety culture. Much research has examined the role management has in influencing culture, however more is needed to specifically elucidate the attributes required by leaders within organisations (Cox, Tomas, Cheyne, & Oliver 1998; Glendon & Stanton 2000; Williamson, Feyer, Cairns & Biancotti 1997). To answer this question, focus groups were held with eleven of the twelve largest construction companies across Australia. Discussion centred around safety culture and the attributes required by those who hold 'safety critical roles' i.e. key safety positions. Data was analysed qualitatively to identify key themes. The results indicated the strong role that leadership style, communication and workplace collaboration had in influencing the ability of organisations to develop and maintain a positive safety culture. Specifically, the participants indicated that leadership and communication styles that served to reduce conflict and work demands, and sought to involve workers in decision making and problem solving appeared to increase personalisation, which in turn increased safety awareness and safety performance.

Key words: collaboration, leadership, safety culture, safety management.

INTRODUCTION

How to maintain and develop a positive safety culture is an issue of great concern for many construction companies, as poor safety can lead to significant financial, legal and ethical problems. Safety culture as a concept has benefited from greater research attention in the past decade; however, despite the increase in research, more investigation is required to understand how safety culture can be improved in hazardous industries such as construction. Construction in Australia, by its nature, is characterised by competition, resource supply and demand issues and potential situations of conflict. Construction organisations face heavy time demands coupled with stringent sequencing of tasks. Often the pre-occupation with logistics management and supply chain considerations can compel management staff into taking an autocratic approach to solving problems. Potential outcomes of this adversarial culture include the depersonalisation of the workforce, disengagement by individual workers from safety requirements, and a demonisation of competitors,

supervisors and employees. Hence, there is significant question as to how management can express the required values, attitudes and norms required to develop and maintain a positive and pro-active safety culture. The authors are a part of a two year industry funded research project which is examining the critical nature of safety culture in engendering safe behaviours in the Australian construction industry. This article reports on research conducted as part of this project and examines the role leadership, communication and collaboration have in developing and maintaining a positive site safety culture.

Safety Culture

The safety culture construct is used to describe the values, norms, attitudes and beliefs that are held collectively towards safety within an organisation (Cox, Tomas, Cheyne, & Oliver 1998; Glendon & Stanton 2000; Williamson, Feyer, Cairns & Biancotti 1997). It is thought that these values, attitudes, norms and beliefs guide behaviour by indicating to employees and management what will be rewarded or punished by the organisation.

Much research attention has been given to the various factors that comprise and contribute to safety culture. Typically, most research has found that safety culture is determined by the commitment, ability, leadership and communication styles of management; and the participation, competency, training, behaviour and attitudes of individual workers (Farrinton-Darby, Pickup, & Wilson 2005; Guldenmund 2000; Neil & Griffin 2004; Glendon & Stanton 2000).

With specific reference to the Australian construction industry, Mohammed (2002) used structural equation modelling to investigate the independent factors that accounted for safety climate. He found four independent constructs determined safety climate: management, safety, risk and competence. The management construct incorporated the following aspects: communication, commitment, supervisory environment, and supportive environment. The safety construct referred to the safety rules and procedures of the organisation. Risk referred to the workers' appraisal of the work hazards they faced and their personal risk appreciation. Finally, competence referred to the level of skills, knowledge and ability of workers. With the exception of risk, higher values on these constructs were associated with a better safety climate. For risk, greater work hazards were associated with a poorer safety climate.

Dedobbeleer and Beland (1991) examined safety climate in the American construction industry and found that two factors represented the construct: management commitment to safety, and workers' involvement in safety. Management commitment to safety included aspects such as management's attitudes towards safety, as evidenced by their safety related policies, practices and actions. Workers' involvement with safety encompassed their perception and control of risk at work. Despite finding a different number of factors than the Mohammed (2002) study, it is apparent that both studies established similar constructs. That is, both found that management's actions and workers' perceptions were important in determining safety climate.

Early work in the field of industrial safety culture, such as that by Zohar (1980), stated that the strong commitment of top management to safety is vital for building a strong safety culture. While this position has been adopted by many construction firms, including most of executive management of the eleven largest construction organisations in Australia interviewed for the above research project, it still remains debatable as to whether the application of the principle has been anything other than lip service. Where a true adoption of safety as a chief organisational goal would see it integrated among other top priorities such as finance, a cursory investigation of the literature sees it often relegated to independent, isolated committees without any true power to shape policy (Herrero, Saldana, del Campo & Ritzel 2002). In much of the industrialised world safety policy and procedures themselves are frequently transmitted from management in an autocratic style that neither encourages nor elicits involvement of individual employees, leading to feelings of cynicism, decreased value and depersonalisation among workers (Zohar 2003). As a result, safety management systems have to be policed in a 'by exception' style, which succeeds largely in promoting a disengaged and depersonalised safety orientation in workers. Rather than encourage safety, these 'top down' systems often result in employees feeling a lack of support from their employers resulting in failing to get employee 'buy-in' which owing to a lack of 'ownership' makes them less likely to be proactive in the identification and communication of potential safety hazards (Gillen, Baltz, Gassel, Kirsch & Vaccaro 2002). Given that globally such approaches to safety have not been successful in preventing workplace injury in the construction industry, it may be time to adopt a new approach. Improved safety performance in the construction industry may be facilitated through a more personally engaging leadership style across the industry, taking steps collaboratively to institutionalise safety as a core organisational concern.

From this brief review of literature it is apparent that there is some evidence to suggest that there is a potential to improve safety culture through innovations in communication styles, leadership strategies and workforce collaboration. However, these findings only provide broad guidance as to how to improve safety culture in complex and hazardous industries such as construction. The current research sought to gather information relating to Australian perspectives on safety culture in order to elicit the specific attributes required by leaders to effectively develop and maintain site safety culture. To avoid any research bias, a broad qualitative approach was employed to enable industry members to give their own account of the variables that they believe impact on safety culture – free as much as possible from a priori assumptions.

METHODOLOGY

Eleven construction companies were approached to participate in the study, of which ten agreed to participate and to arrange a focus group. It was decided to use a focus group approach in order to gather information without biases from previous research. For instance, a survey approach would ask questions based on past research and assumptions, whereas a free flowing focus group can gather data without many prior assumptions. This was argued to allow for a greater understanding of safety culture in the Australian environment. However, it is acknowledge that several weaknesses in the focus group approach exist including the risk of group phenomena such as social

inhibition of participants due to the presence of others and other common group processes. To account for this, the facilitator was careful to ask for input from quieter participants and to control the discussion so that it was not dominated by one or more people.

The researchers did not request specific staff, but rather asked the company representative (typically the Senior Safety Manager) to invite four-six people whom they thought were in a position to drive safety culture and attitudes. As can be seen in Table 1, this approach resulted in a range of different staff. All fifty participants involved in the study were employees of major construction contractors in Australia and came from all States and Territories in Australia.

Table 1: Position Title and Number of Participants

Position	Number of Participants
Senior Management (Inc CEO & MD)	6
Senior Safety Managers	14
Senior Project Management	11
Site Safety Coordinators / Managers	10
Site Management (Engineers, Foremen & Supervisors)	9

The group interaction lasted on average one hour and fifteen minutes and was structured around a discussion of safety culture and the attitudes, skills and behaviours necessary for key staff to hold, in order to drive a positive safety culture. The focus groups were recorded using digital voice recorders and then transcribed. A visual thematic analysis was undertaken with the transcripts to identify the major themes and trends.

In addition, senior representatives of three of the States' and Territories' OHS regulators have been interviewed by the researchers so far to put their views on the roles and functions of their departments or their inspectorates. They were asked how they might be instrumental in fostering pro-activity in safety procedures and whether or not regulators had a role in fostering the attitudes, skills and behaviours necessary for critical safety roles in creating and maintaining a positive safety culture.

RESULTS

A range of themes and issues were highlighted by the research participants. However, the following themes were present in all focus groups and were emphasised by the participants as being of utmost importance: leadership; communication processes; and collaboration processes.

As would be expected, safety leadership was a key theme to emerge from the discussion. Central to this theme is the argument that safety culture is driven by management and that it is management's behaviour that often determines the quality

of the culture. The following section outlines key leader attributes that are seen as important with regards to safety culture.

The importance of having management staff who are well experienced in construction was a theme that arose in all focus groups. Essentially, participants believed that an experienced person with management responsibilities would more effectively analyse and evaluate the risk on the work site. This increased understanding of safe work methods and the consequences of safety breaches was believed to increase the value the leader would hold in safety. This value would then improve safety culture.

Another attribute thought to contribute to management / leadership success in driving safety culture is good organisation skills. That is, the ability to manage time and work so as to minimise the level of work demands and conflict on site. This ability to organise a site was thought to reduce the pressure on junior management and the work force to take risks in order to save time. Hence, good organisation / time management skills would enable leaders and managers more easily to behave in ways that were congruent with espoused safety values.

Leader communication style was an additional factor thought to influence the development and maintenance of site safety culture. Major themes were the need to have clear and un-ambiguous communication about safety expectations and the ability to use effective communication (including listening) strategies to persuade and convince others of the need to behave safely. For instance:

I think it's listening, not only listening but hearing what people are saying to you, also the ability to put yourself into their shoes and see what they're [saying], what sort of frame of mind they're coming from.

A commonly discerned complaint relating to the onerousness of legislative compliance and enforcement within the individual disparate OHS jurisdictions in Australia as well as the variability of legislative compliance when operating in one as opposed to others was voiced. As alluded to above, there are nine separate Australian jurisdictions. Even though all rely on a Robens type of legislative framework, the (relatively minor) differences for a intra-nationally operating construction company can cause uncertainty in terms of compliance because of the subtle differences in enforcement (ie, when the inspector comes). These uncertainties can lead to expensive hold-ups in production owing to relatively minor OHS infringements where they are found.

A further major theme to emerge was the role collaboration could have in developing and maintaining safety culture. This premise tended to emerge when discussing communication and leadership. Typically, collaboration involved leaders asking for worker involvement and input in problem solving safety issues. The participants argued that a collaborative approach encouraged workers to raise safety issues without fear of censure and reduced the amount of conflict between management staff and workers. Additionally, a collaborative approach encouraged the formation of closer

work relationships between management and workers, which was then thought to decrease depersonalisation on site. All of the participants who were instrumental in putting in place collaborative and proactive safety policies and practices reported increased safety awareness, a reduction in risk taking behaviour and reduced injury rates. However, participants raised issues relating to putting in place safety programs based on shared input from various levels management, employees and contractors. For example:

….You need to be able to go in with solution one, solution two, solution three, and get their input, and the more input that you can get from them, the more you can mix their idea in with yours, therefore they think if it's more their idea then you can sell it, and it will work, like a sales pitch.

Respondents in general stressed the effectiveness of bringing the safety message and safety culture development to the level of the individual. This was a deliberate strategy to personalise the message such that awareness of safety impacts were recognised as having a direct influence and direct consequences for work colleagues as named and known individuals rather than as occupants of particular positions. The strategy was felt to be effective in that the link between an a potential unsafe event and the immediacy of its consequences on an individual and that individual's family, friends, and colleagues provided a powerful learning environment for both messenger and receiver in maintaining a genuine interest in safe and durable work practices. For example:

…But when you personalise it like that it adds a whole different meaning to it, when you know that there's individuals involved and how that impacts on them, and when you go and you talk to people on a project and say to them…. I had a session with some construction workers probably six months ago where the father and the son was on it, and to be able to say to the father I am sure you want your son to go home safely every night, and you say well we need to actually do things a little differently, now that, well what does he say? He can't say anything but, of course, you know what I mean?

Some of the senior managers of the three regulatory bodies interviewed expressed refreshingly frank views on both the efficaciousness of enforcement and endorsement of a stronger education function as a supplement to enforcement to procure compliance. Better resources could facilitate the provision of education, training, information and advice. Several managers were enthusiastic about the potential of safety culture to procure superior safety outcomes in that it encouraged individuals to act and think safely rather than simple compliance with laws often seen as minimalist and undesirable. One commented that under existing legislative provisions the current management of site safety has not proven adequate in reducing risk exposure as Lost Time Injury and fatality rates for the construction industry in Australia testify (in each of Australia's states and territories construction has consistently been amongst the highest rates of any industry). This manager, although firmly endorsing the incorporation of safety culture into current legislation, maintained that penal provisions such as those contained in the current Robens style principal OHS acts must remain to keep the construction industry 'honest.'

DISCUSSION

Semi-structured focus groups held with management staff from large construction companies in Australia confirmed the importance of leader behaviour in maintaining and developing site safety culture. Essential to this approach , is the ability of a leader to manage time demands on site; communicate in a clear and unambiguous way the importance of safety; and to use strategies that involved all workers in making decisions. The following section outlines these points in further detail.

Collaborative Leadership Style and the Promotion of Safety

A key step toward improving safety behaviour on site appears to be improvement of the working relationships between site leaders and their workers. A theory of leadership of particular relevance to safety is the Leader-Membership Exchange Theory, (LMX). In this theory, it has been proposed that, where leaders approach their interactions with workers with a more interpersonally engaged style, site safety is likely to improve (Hofman & Morgeson 1999). This approach recognises that a manager's relationships with individual sub-ordinates are likely to differ in terms of levels of trust, sensitivity, attention and support (Schriesheim, Castro & Cogliser 1999). The theory holds that, where such levels are high, the manager and their subordinate are likely to share a working relationship that is characterised by more open communication and a mutual conscientious concern. When the manager is judged to have a genuine concern for a worker's wellbeing, the sincerity of their safety orientation is likely to be considered greater than that of a manager with a more interpersonally distant style (Zohar 1980). As a result, they are likely to project their message with a more individualised and personally relevant approach, which is inturn likely to have a greater impact. Furthermore, as relationship high in LMX is thought to produce reciprocity between the parties, the subordinate is likely to respond by taking a more proactive stance toward safety, and devoting greater attention to their personal safety behaviours (Martin, Thomas, Charles, Epitropaki & McNamara 2005; Hofman et al. 2003). In safety management theory and practice pro-activity is also seen as a key element in identifying hazards and controlling them to minimise or eliminate risk exposure.

Thus, based on the current and past research it appears that site safety may be favourably influenced by management taking steps to build relationships higher in LMX with their workers, becoming more interpersonally engaged with staff and projecting a more personalised message. This outcome could be achieved by increasing collaboration with workers when discussing the planning of work and when pro-actively problem solving safety issues.

Collaborating toward Safety

Carrying the principles of LMX leadership forward, the next goal should be for managers and workers to work collaboratively to take responsibility for creating a safer work environment. As stated above, key to the notion of LMX is reciprocity between management and staff. It holds that, once more enmeshed relationships have been established, workers may become more willing to contribute to informing current safety practices (Hofman et al 2003). This presents workers themselves as an untapped resource for informing safety practice, possessing as they have firsthand

experience with risks, often over multiple sites and organisations. A study by Gillen et al (2002) reports that over 60 percent of workers could suggest initiatives to make their jobs safer. As Smith (1996) states, the role of the safety manager should evolve from an enforcer into a facilitator of safe work practices. The ultimate aim of the process is to take safety from being about imposed rules and to embed it in a work system.

The embodiment of collaborative, integrative safety may be a 'total safety management' system based on proactive identification of hazards and controlling them to minimise or eliminate risk exposure. More importantly, it ideally motivates the workforce individually and collectively not only to act safely, but to think safely. Herrero et al's (2002) article on the parallels between quality and safety management provides thought provoking reading. From this work, it is possible to conceptualise safety management in the construction industry as less authoritative and more collaborative. For example, safety and production goals may be determined with greater worker input, facilitating a pace of work with which all parties are comfortable as it meets both the required mandated finishing dates and fewer injuries and no fatalities. In exchange, workers themselves are empowered to take a greater role in ensuring their own safety, through self-monitoring and the monitoring of their co-workers (Rahimi 1995). Vitally, the worksite itself is constantly monitored for evolving safety risks and the progress of dealing with them becomes continuous (Smith 1996). Should such a system be a success, it may require industry-wide awareness.

Collaboration between Competitors

A logical evolution of a system of personalised, collaborative and integrative safety management is for it to become an industry norm. It is one of the objectives of this research project to examine whether a nationally standardised system of 'safety critical roles' can be established based on critical safety skills, behaviours and abilities identified by the study. Though competition within the construction industry is fierce, the cartel-like arrangements of human resources within the industry differentiate it from many others. The transience of workers within the construction industry, as it relates to the movement of labours, tradesmen and contractors, is well-recognised and often cited as a contributing factor to the poor safety environment (Zohar 1980). Currently, the Australian construction industry is no different in that regard: Typically, individual projects bring together the principal contractor which engage the professional staff who are regular staff, their own safety staff and regular employees as well as short-term contract employees and perhaps one hundred contractors of various sizes on large project which at most might last two years on a very large project: When the project is finished, perhaps the bulk of the people disperse and the entire process of mounting a project form scratch including the safety procedures and performance requirements have to be inculcated again: Of the largest organisations who agreed to be involved in this study only few have permanent relationships with contractors. If one accepts that competitors are sharing the same or a similar labour pool, than it follows that the safety innovations of one company will also benefit its competitors. Likewise, however, a failure for the bulk of the industry to support a promising initiative may ultimately sabotage it. Bringing together key managerial stakeholders from a variety of the major industry players, and investing said

stakeholders with the power to act on behalf of their organisations, which is not uncommon to the industry and, in this case, would foster the levels of trust an cooperation needed to make a such a joint venture successful (Chen, Li, Love & Irani 2001). One of the more important roles that such an inter-organisational collaboration may play is that of the existing conflict regarding acceptable safety standards (organisational and those required by the nine disparate OHS jurisdictions in Australia), chiefly finding a mutual compromise between the previously discussed goals of safety and efficiency (de Vlitert & Hordijk 2001). Having reached an industry consensus on such an issue, it may be possible to use the ensuing collective bidding power for project tenders to reach a position that allows companies to compete for contracts without jeopardising employee safety (Vangan & Huxham 2003). Such an industry partnership may allow companies to put action to the desire of improving worker safety, while ensuring that they do not suffer an undue business disadvantage while doing so.

CONCLUSION

Safety culture management in the Australian construction industry presents a significant challenge to construction organisations. Based on previous and the current research it appears that safety culture could be managed easier by increasing the degree of collaboration between management and the workforce and improving the quality of the leader-member exchange. This would in turn, serve to improve problem solving and worker involvement in safety by improving safety culture. An improved safety culture would then entail a decreased likelihood of injuries and fatalities.

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