DEVELOPMENT OF SAFETY CULTURE IN THE CONSTRUCTION INDUSTRY: A STRATEGIC FRAMEWORK

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Abstract

The construction industry is unique among industries. Construction activities often take place outdoor under conditions not conducive for safety and health. Workers in the construction sites have to face constant changes in the nature of work, the location of work and mixed workers. The nature of construction work is inherently dangerous and injuries are more likely to occur compared to other sectors. Most of accidents show that the construction industry is unique, involved with human behaviour, different construction sites, the difficulties of works, unsafe safety culture, dangerous machinery and equipment, and involvement with many procedures. Studies show that an accident and injury at the worksite are the result of workers’ behaviour, work practices or behaviour and work culture. Safety and health culture are more related to workers’ safety practices. An efficient safety management system, ought to be based on the safety awareness that become a culture in the construction industry where involving all the parties. The efficient safety culture and management system should be shown to the public, and as well as healthy and safely in environmental value business. This paper discusses the strategic framework in social aspects for the development of safety culture in the construction industry to ensure that construction industry (which is known as one of the dangerous industry) provides a safe working environment as well as become a safe and promising career. By understanding that safety culture is one of the alternative for the increment of competition mainly in international level, thus construction industry must have a safety culture in order to reduce number of accidents, fatalities and injuries that involves workers. Research finding show that for a long time, the construction industry which has been labelled with a poor occupational safety and health culture, can be improved through a strategic framework in management and leadership roles. As a result, there is a need for a major paradigm shift regarding attitudes on occupational safety and health in construction sites through the leadership roles and commitment.

Keywords: culture in construction, construction industry, safety culture, organizational culture

1. Introduction

The construction industry is unique among other industries as the activities of construction often take place in the outdoor under conditions not conducive for safety and health. Workers in the construction sites have to face constant changes in the nature of work, the location of work and the mix of workers. The nature of construction work is inherently dangerous and injuries are more likely to occur compared to other industries.

By considering the situation of economy of construction industry, there are main issues facing the construction industry, namely; low quality, low productivity level, image, low level of ethics, lack of skilled labour and highly prone to of accident (Loosemore et al. 2003; Abdul Rahman, 2003). Most of the people tend to relate construction industry by dangerous working environment and high risk as compared to others. The reputation of construction industry is relying on the expertise of implementation and management of safety and also how it can be completed safely and meet the consumer's requirements (Hayes et al. 1986; CoVan, 1995; Mills, 2001; Loosemore et al. 2003; Root, 2005; Goetsch, 2005). A recent study on industrial accidents show that the frequency of injuries and fatalities occurring within the construction industry ranks amongst the top. Hardly a position to be envied. The construction industry has a disproportionately high number of industrial injuries.

One of the actions that can be undertaken in order to develop good or better image of construction industry is by providing safe working environment (Mohamad Khan et al. 2005). High accidents in construction industry are causing losses in number of labour and also losses in millions of ringgit of properties for every year in the country (CoVan, 1995; Alves Dias and Coble, 1996; Singh et al. 1999; Fong, 2000). If this situation is not reduced or prevented, it will disturb the country's economic growth to be a developed country in year 2020 (CIDB, 2000).
Nowadays, quality and safety are two main issues in construction industry. ISO 9000 has been promoted in construction industry to ensure the quality of construction work done by a contractor. Apart from quality, a safe working environment is necessary to put aside the current industry pictures of high risks in construction works. Construction safety is a standard of quality that is indicated in the contract and required by the client (Alves Dias and Coble, 1996). As projects become more complex, safety has become a main focus for ensuring safe both life and properties. There are developed countries such as UK and Australia have enforced practice safety rules in contractor's works on site. Revolution and changes in safety system management has become as a mandate in practicing safety action that can be managed interminable (Low and Sua, 2000). The worldwide construction industry is still practicing work process by labour intensive where based on wet trades. This factor contributes to the low quality of work due to the workers are lack of expertise and training and also exposed to the accident easily (CIDB, 2000).

Based on Human Factors Accident Theory, it shows that it is a link of events which are caused by human faults. In this theory three general factors that are causing human faults namely; overload, irrelevant response, and irrelevant activities. While based on Heinrich Theory, accidents are caused by main factor that can be predicted such as human faults, unsafe environment, or dangerous of mechanical (Goetsch, 1998). These accidents and injuries can be avoided by putting aside these factors. Current research shows that construction industry has been labelled as an industry that contains low safety culture and healthy. Compared to other industries, this industry has been indicated among having the highest accidents. The efforts of improving the safety and healthy of work for this industry will become useless until the safety and healthy culture could be improved (CIDB, 2000). The changes have to be undertaken by the construction industry towards establishing the paradigm of safety and healthy culture which may improve the safety and healthy level in line to the safety and healthy in construction industry entirely.

Most of the parties in the construction industry and consultants still do not realize the importance of safety management and unclear about the concept of safety system. The same goes to clients who only think the safety system as mere contract requirement. Most of the consultants are only following the instruction given by clients. They will just consider safety guarantee as a main priority without the ability to fully implement the safety system. The project financial management does not seem to regard safety system as priority. The main cause being that they cannot accept and agree to the reduced cost for safety management in order to abide by legal provisions and safety requirement, also the development of safety culture in construction site may not be fully implemented (Smallwood, 1996; Mohd Saidin et al. 2003).

The agreement to develop safety action among the parties requires changes of culture in construction industry (Lee, 2003; Mohd Saidin et al. 2006a). Nevertheless, it is uneasy and the process are limited. Besides procedures problems, other problems may exist such as refusal to execute changes and implementing the rules that has been stated in the safety management system (Stewart, 2002).

The concept of culture was first known to represent, in a very broad and holistic sense, the qualities of any specific human group that are passed from one generation to the next. This includes religion, way of life, values and beliefs of people. This is known as ‘social culture’. People born in a particular culture are expected to believe and behave differently from others (Shamil Naoum, 2001). Similar to social culture, each organization has its own culture dominated by its values and behaviour. This is known as ‘organizational culture’. According to Booth (1995), the term safety culture was introduced to the nuclear safety debate by the International Nuclear Safety Advisory Group of International Automatic Energy Agency (IAEA) in their analysis of the Chernobyl disaster. IAEA (1986) defines the safety culture of an organisation as the product of individual and group values, attitude, competencies and patterns of behaviour that determined the commitment to, and the style and proficiency of an organisation's health and safety programmes. Overall safety culture can be described as a set of beliefs, norms attitudes and social technical practices that are concerned with minimising the exposure of individuals, within and beyond an organisation, to conditions considered dangerous or injurious.

Cooper (2000) theoretically defined safety culture is a sub-facet of organizational culture, which is thought to affect member's attitudes and behavior in relation to an organization's ongoing health and safety performance. He argued that defining the product of safety culture is very important to clarify what a safety culture should look like in an organisation. He added that this could also help to determine the functional strategies required to develop this product. It could provide an outcome measure to assess the degree to which organisations might or might not possess a 'good' safety culture. This outcome has been severely lacking in construction.
This paper discusses the strategic framework in social aspects for the development of safety culture in the construction industry.

2. Issues and Problems in Safety Culture

Jones (1997) stated that safety is part of important aspects which should be given an attention and guidance to improve the stated safety management to stronger safety culture. Some can be used like the method to improve safety management, plant and equipment, and workers involvement. Two fairly distinct approaches to managing workplaces safety have competed for attention and have generated a considerable amount of debate and controversy during the past decade. The first of these approaches, behavior-based safety, focuses on the identification and modification of critical safety behaviour, and emphasizes how such behaviors are linked to workplace injuries and losses. The second approach, in contrast, emphasizes the fundamental importance of the organization's safety culture and how it shapes and influences safety behaviors and safety program effectiveness. Adding to this mix, each movement has recruited its own persuasive proponents and vocal detractors. On the surface at least, the two approaches appear to be indirect opposition to each other and represent two entirely different world views of injury causation and safety management (Dejoy, 2005).

Safety culture in construction community can be very low. Looking at that weakness in these characteristic and human attitudes, it can be concluded that to protect from accidents need changing of paradigm in the characteristic and human attitudes. Previous reactive and bad attitudes be a norm, should be changed to positive and proactive culture (Mohd Saidin et al. 2006b).

An organization’s upper-level management has long been recognized as playing a critical role in promoting organizational safety culture (Dedobbeleer & Beland, 1991; Fleming et al. 1996; Flin et al. 2000; Gordon et al. 1996; Yule et al. 2001; Zohar, 1980; 2000). Organizational commitment to safety refers to the extent to which upper-level management identifies safety as a core value or guiding principle of the organization. An organization's commitment to safety is therefore reflected in the ability of its upper-level management to demonstrate an enduring, positive attitude toward safety, even in times of fiscal austerity, and to actively promote safety in a consistent manner across all levels within the organization. When upper-level management is committed to safety, it provides adequate resources and consistently supports the development and implementation of safety activities (Anderson, 2000; Marlow and Weyman, 2004). An organization’s commitment to safety is therefore ultimately reflected by the efforts put forth to ensure that every aspect of its operations, such as equipment, procedures, selection, training, and work schedules, are routinely evaluated and, if necessary, modified to improve safety. Safety culture is a culture based on the premise that safety is the priority, the way of life. All activities and processes are accomplished with safety in mind (Helmer, 2002).

3. Safety and Organizational Culture

Culture is defined as those practices common to a group of people. In this context, safety can be expressed in simple direct terms as behavior affected by culture. Note that this topic encompasses both management behavior (action or inaction) and employee behavior (Eckhardt, 1996). Culture is further defined as missions interacting with work processes and corporate values to generate behavior (McSween, 2003). How a company's mission is understood, followed by expectations and processes, determines behavior.

Organizational or corporate culture as defined by Handy (1993) is the 'pervasive way of life or set of norms and values that evolve in an organization over a period of time'. Norms are unwritten but accepted rules which tell people in organizations how they are expected to behave. They may be concerned with such things as how managers deal with their staff (management style), how people work together, how hard people should work or the extent to which relationships should be formal or informal. Values are beliefs on how people should behave with regard to such matters as care and consideration for colleagues, customer service, the achievement of high performance and quality, and innovation.
It should be noted that the proposed definition of safety culture is stated in neutral terms. As such, the definition implies that organizational culture exists on a continuum and that organizations can have either a good or poor safety culture. However, not all definitions in the literature make this assumption. Some suggest that safety culture is either present or absent within an organization. Nevertheless, it is clear from the initial introduction of the term within various operational environments that safety culture is assumed to be a component of an organization that can be improved rather than simply instilled (IAEA, 1986; Cox & Flin, 1998). Obviously, such a distinction is important when it comes to both measuring and changing safety cultures within organizations. More specifically, safety culture is seen as a subfacet of organizational culture and exists at a higher level of abstraction than safety climate. It seems plausible that safety culture and safety climate are not reflective of a unitary concept, rather, they are complementary independent concepts (Cooper, 2000).

4. Cultural Change

Cultural change aims to change the existing culture of an organization. Organizational or corporate culture is the system of values (what is regarded as important in organizational and individual behaviour) and accepted ways of behaviour (norms) which strongly influence 'the way things are done around here'. It is founded on well-established beliefs and assumptions.

Organizational culture is significant because it conveys a sense of identity and unity of purpose to members of an organization, facilitates the generation of commitment and helps to shape behaviour by providing guidance on what is expected. It can work for an organization by creating an environment which is conducive to high performance. It can work against an organization by encouraging unproductive behaviour. Strong cultures will have been formed over a considerable period of time and have more widely shared and more deeply held beliefs than weak ones. Strong cultures are only appropriate if they promote desirable behaviour. If they do not, they are inappropriate and must be changed (Armstrong and Stephens, 2005).

5. Safety Culture: A Strategic Framework in Social Aspects

Glendon and McKenna (1995) stated that effective safety management is both functional (involving management control, monitoring, executive and communication subsystems) and human (involving leadership, political and safety culture sub-systems paramount to safety culture). The concept of safety culture emerged from earlier ideas of organisational climate, organisational culture and safety climate. They described safety culture as the embodiment of a set of principles, which loosely defines what organisation is like in terms of health and safety.

In this approach, safety is looked into from the culture point of view of shared characteristics of a group dynamic relating to a system (e.g. group, community, race, nation, religion) which include beliefs, values, attitudes, opinions and motivations. Glendon and McKenna (1995) pointed out that building a safety culture on so many diversities is not an easy task. But it had been proven that organisations with good safety cultures have employees with positive patterns of attitude towards safety practice. These organisations have mechanisms in place to gather safety-related information, measure safety performance and bring people together to learn how to work more safely. Ostrom et al. (1993) looked at the employees' perceptions of safety culture as follows:

- management attitudes towards safety;
- perceived level of risk;
- effects of work pace;
- management actions towards safety;
- status of safety adviser and safety committee;
- importance of health and safety training; and
- social status of safety and promotion.

Safety culture involves the participation of everyone in the organisation. On site, it involves everybody from the project manager to the general worker. In order to cultivate the positive beliefs, practices, norms and attitudes among all in organisation, it is important to know the characteristics of safety culture.
Booth (1995) listed the characteristics of safety culture as follows:

a) The many separate practices interact to give added effect and, in particular, all the people involved share similar perceptions and adopt the same positive attitudes to safety - a collective commitment.

b) The synergy of a positive safety culture is mirrored by negative synergy of an organisation with poor safety culture. Here, the commitment to safety of some individuals is strangled by the cynicism of others. The whole is less than the sum of the parts.

c) The dominant themes for safety culture are:
- the crucial importance of leadership and the commitment of all chief executives;
- the safety role of line management;
- the involvement of all employees;
- openness of communication; and
- demonstration of care and concern for all those affected by the business.

Creating a culture of safety means that the employees are constantly aware of hazards in the workplace, including the ones that they create themselves. It becomes second nature to the employees to take steps to improve safety. The responsibility is on everyone, not just the management. However, this is a long process to get to that point (Dilley and Kleiner, 1996).

Safety and health culture within a company is closely linked to the workforce’s attitudes in respect to safety. They share the company’s risk, accidents and incidents. According to Glendon and McKenna (1995), effective safety management is both functional (involving management control, monitoring, executive and communication sub-systems) and humanizes (involving leadership, political and safety culture sub-systems paramount to safety culture). The role of management and the involvement of all employees as important key players in safety and health culture are important in order to cultivate the positive beliefs, practices, norms and attitudes among all in the company. Building a safety culture on so many diversities is not an easy task. But it had been proven that companies with good safety and health cultures have employees with positive patterns of attitude towards safety and health practices. Companies need to gather safety-related information, measure safety performance and bring people together to learn how to work more safely. Glendon and McKenna (1995) also identified four critical indicators of safety culture. They are:

a) Effective communication, it leads to commonly understood goals and means to achieve them at all levels.

b) Good organizational learning, whereby organizations are able to identify and respond appropriately to changes.

c) Organizational focus upon health and safety, how much time and attention is essentially paid to health and safety.

d) External factors, including the financial health of the organization, the prevailing economic climate and impact of regulation and how well these are managed.

The theoretical and empirical development of safety culture and climate has followed the pattern set by organizational culture and climate, although to a lesser extent. As stated previously, most efforts have focused on the empirical issues surrounding safety climate although it is possible to identify theoretical development of concepts within the safety culture literature. Also, the terms safety culture and safety climate have been used interchangeably in the literature (Cox & Flin, 1998). Cox and Cox (1996) also demonstrated this point by likening culture to personality, and climate to mood. Conducting a survey will assess the current mood state of an individual. Some responses may be indicative of the individual’s stable underlying beliefs, constructs and personality but overall, the survey will reflect how the individual feels at that point in time. The comparison between culture and personality seems attractive because personality is relatively stable over time whereas climate and mood can be susceptible to short-term fluctuations (Pervin, 2003).

Creating a safe and healthy work culture requires the inculcation of safe and healthy practices as part of everyday life, at work and at home among all the workers in Malaysia. Culture means doing something automatically, spontaneously, without having second thoughts about it. In occupational safety, a safety culture means automatically correcting a hazardous act of job task or eliminating a
hazardous condition. In occupational health it means automatically undertaking measures to ensure protection from health hazards at the workplace using personal protective equipment and without having to be told repeatedly to do so (Lee, 2003).

6. Concept of Safety Culture in Construction Industry

Today, the changes in safety management have opened a new outlook to war safety. It is no longer being treated as secondary in the business context rather it is treated as a culture. More emphasis is being put on ensuring everyone understand the importance of safety and changing the attitude and behaviour is the hard task. Safety is not only the manager's responsibility but everyone must play part (Stewart, 2002). Fig. 1 shows the strategic framework of safety culture development. The development of safety culture based from the framework that views the overall of individual to group responsibility that develops the total value of safety culture which support from the organisational culture. Everyone must play part in the organisational culture to ensure everyone understand the importance of safety and changing the attitude and behaviour through the intrinsic and extrinsic element of the culture. Organisational culture will be transmitted to all organisation activities which involved intrinsic and extrinsic elements of the organisation. This will in turn be transmitted to every member in the organisation. All intrinsic and extrinsic elements of culture will affect the organisation culture throughout the development of safety culture. Consequently, it makes the concept of safety culture more acceptable and receives wider attention. It does not mean that the safety system nowadays is not relevance for practices, but this system will function well when the organization have developed safety culture. The reason can be seen from different aspects: the existence of barrier in safety system which may be less if the organization can develop strong safety culture.

For a long time, the construction industry has been labeled with a poor occupational safety and health culture. Efforts to improve occupational safety and health performance will not be effective until the occupational safety and health culture is improved (Mohd Saidin et al. 2006a). As the result, there is a need for a major paradigm shift regarding attitudes on occupational safety and health in construction sites (Glendon and Stanton, 2000). Widening the understanding of behaviour increases insight into possible targets for improvements, for example better planning, more effective job design, or more comfortable personal protection. Human behaviour influence on safety performance is enormous. Therefore this root problem must be managed effectively.

The legislation has changed over the years with more emphasis on safety at work. Still today the rules and regulations are being improved to make the working environment safe. Besides the effect of laws, many safety activism factors also influence the decision of modern managers regarding health and safety such as the active role of the trade unions, consumerism and the legal battle by accident/incident victims. All these factors are forcing managers to change their attitude towards safety. It is clear that working environment safety is going to be better. Managers are now adopting proactive approaches towards safety.
In summary, there appears to be considerable evidence suggesting that organizational and contextual factors are important in terms of a variety of workplace safety related outcomes. However, current definitions of safety culture remain rather vague and variable, and current knowledge does not permit precise statements about which factors are most important in which organizations or situations. Also, systematic studies evaluating field-based interventions specifically targeted to safety culture change are conspicuous in their absence. But this is perhaps not that surprising given current conceptual and measurement limitations. It is also worth noting that intervening into the culture of an organization is difficult under the best of circumstances, because it requires that the organization be willing to look at itself and make fundamental changes in the way it pursues its core activities. These limitations notwithstanding, the importance and usefulness of organizational culture as it pertains to workplace safety appears to be broadly accepted by researchers and practitioners alike.

7. Conclusions

Fig. 1: Strategic framework of safety culture development.
References


