CONSTRUCTION HEALTH AND SAFTEY CULTURE IN SOUTH AFRICAN SMALL AND MEDIUM ENTERPRISES

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ABSTRACT

Purpose
Construction health and safety (H&S) culture in small and medium construction enterprises (SMEs) has received little attention in South Africa, in terms of either research or support for preventive initiatives. Previous research suggests that this sector has serious problems exacerbated by limited access to human, economic and technological resources. Moreover it is now recognized that methods developed specifically for large firms cannot necessarily be transferred to smaller and medium firms, hence the need to investigate the H&S culture in SMEs.

Methodology
This exploratory study is based on descriptive survey using semi-structured and structured questionnaire, and non-probability sampling to give an overview of the characteristics of H&S culture and practices in SMEs firms in the South African construction industry.

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Findings
The findings indicate that commitment to H&S, support of health and safety, goal setting and review of H&S, creating structure and process that promote H&S and reviewing leaders' performance/self improvement are part of H&S culture of SMEs. Internal and external communication is also used to address health and safety issues.

Value
The results will be used to make an initial evaluation of SME H&S culture and practices to design and evaluate future interventions and research.

Keywords: Construction Industry; Health and Safety Culture; Small and Medium

1. INTRODUCTION

The construction sector in developing countries plays a significant role in physical development and employment of the otherwise largely unemployed labour force. There are however major challenges to increase the productivity of the sector in developing countries including low levels of macroeconomic performance, limited resources, reliance on institutional structures and procedures largely inherited from developed countries which once ruled them and poor infrastructural development (Gibb & Bust 2006). In the wake of these challenges, it is not surprising that construction in developing countries contributes a large quota to occupational accidents statistics. In comparison with developed countries, construction sites in developing countries are ten times more dangerous than in developed countries (Hämäläinen et al. 2006). The construction industry in South Africa is the third most hazardous industry after agriculture and manufacturing (Construction Industry Development Board (CIDB, 2004).

Small and medium sized businesses dominate the construction industry in many developing countries Kheni et al. (2008). These SMEs are constrained by limited resources as well as regulations and procedures which make it difficult to effectively manage the health and safety aspects of their operations. The quality of working conditions needs to be improved particularly for construction (Addo-Abedi, 1999). Gounden (1997) states that, the South African construction industry and especially SMEs have the potential as a driver of economic growth, despite the South African government commitment to improving productivity of the sector being low.

Improving the H&S performance of the sector is one means of enhancing the productivity of the construction sector in South Africa, which is dominated by SMEs (Ntsika, 2001).

In addition to the constraints mentioned above, SMEs lack the capacity to undertake large construction because contracts are packaged to suit large contractors. In the face of scarce resources and these

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constraints, many of them are unlikely to commit sufficient amounts of funds and the right types of resources in the management of H&S (CIDB, 2004). Although SMEs possess common features with larger companies, their characteristics and management make them unique.

The National Small Business Act (1996), amended in 2004 defines small contractors as those with a total turnover of between R3m to R6m, a total number of full time paid employees between 20 and 50 and a total gross asset value (fixed property) of between 0.5m to R1m, whereas medium contractors are defined as having a total turnover of between R6m to R26m, total full time paid employees between 50 to 200 and have a total gross asset value (fixed property) of between R1m and R5m.

2. BACKGROUND TO OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT

According to Kheni, et al. (2007) the rate of industrialization in developing countries require effective Occupational Health and Safety (OHS) administrative systems to control hazards and to provide decent working environments that meet international standards. High rate of occupational accidents, particularly in construction means developing countries might be poor at managing the risks of hazards at workplaces.

Studies conducted by Peckitt et al. (2004); Gibb & Bust (2006) on health and safety (H&S) management in construction in developing countries provide ample evidence of lapses in the management of H&S at construction sites. Their findings revealed weaknesses in occupational health and safety administration, economic conditions, climatic conditions and the characteristics of the construction industry of developing countries influence H&S at construction sites. Also, the effective implementation of H&S programs is absent in most construction businesses in developing countries. Haupt and Smallwood, (1999) indicated that the construction industry in South Africa shares in many of these problems of H&S management. These sentiments provide an avenue through which this study was initiated.

2.1 Occupational health and safety culture derived from literature review

The term safety culture first made its appearance in the International Atomic Energy Agency's (IAEA) initial report following the Chernobyl disaster (IAEA, 1986). Since then inquires into major accidents such as the King's Cross Fire (Fennell, 1988) and Piper Alpha (Cullen, 1990) have found faults in the organizations structures and safety management systems, throwing the importance of safety culture into the spot light. The Human Engineering Research Report (2005) agrees there is a wealth of

information, articles and reports relating to safety culture, yet there is still no universally recognized and respected definition or model.

In many cases the term safety culture has emerged with a meaning that appears to be very similar to that for climate (HSC, 1993) and, as noted by Cox & Flin (1998), the terms are often used interchangeably in many areas of literature. A more refined definition of safety culture and climate are:

The safety culture of an organization is the product of the individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determines the commitment to, and the style and proficiency of, an organization's health and safety management (HSC, 1993).

Whereas Zohar (1980) and Gonzalez-Roma *et al.* (1999), describes [health and] safety climate as a construct that captures employees' perceptions of the role that [health and] safety plays within the organization. It is regarded as a descriptive measure reflecting the workforce perception of and attitudes towards health and safety within the organizational atmosphere at a given point in time.

A literature review established elements that are associated with successful health and safety management which are; commitment by management, effective management system, risk management and control of hazards, auditing of both management systems and physical hazards, training and education, communications and consultation (National Occupation Health and Safety Commission (NOSHC, (1999). These and some other identified elements were used to address the research problem.

2.2 Health and safety culture within South African construction SMEs

The Occupational Health and Safety Act (OHSA) 1993 and the Construction Regulations 2003 set out a legal framework for workplace H&S. Specific sections of the Act apply to the development of policies and procedures, and employers' general duty of care, which states that:

"... provide and maintain so far as is practicable for employees a working environment that is safe and without risks to health" (OHSA, 1993 8(1) pp12). Occupational health and safety should be seen as a value and not driven by a legal framework.

Despite isolated reports of improvement, there is very limited commitment to comply with basic requirements, let alone promote a culture of health and safety. Employers view health and safety as a cost in the system. Small contractors can barely maintain tools and regard safety equipment as luxury items. Even where protective clothing and equipment are provided, workers often avoid their use, including the use of safety goggles and masks when working with grinders and asbestos. Aside from the direct compensation and medical costs associated with accidents the costs to the economy are immense and include rework, lost time, damage

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to plant and equipment, disruption, productivity loss and loss of skills to the economy (CIDB, 2004).

Compliance with construction legislation, codes and standards such as the Construction Regulations (2003) in South Africa and the Construction Design and Management Regulation (2007) in the United Kingdom (U.K), presents significant challenges involving cost, compliance, design and implementation capacity. Clients such as the Department of Public Works (DPW) and consultants agree that implementation would require better understanding on the implications and importance of H&S (CIDB, 2004). These views highlight the importance of determining the H&S culture in the construction industry among SMEs.

3. PROBLEM STATEMENT

Employees of construction SMEs are exposed to hazards which cannot be ignored, as international funding bodies and some clients of the construction industry demand that SMEs demonstrate corporate social responsibility in respect of a decent working environment and physical environment. The South African government needs to address these issues to increase productivity of the construction sector in line with its growth program. To address these problems and concerns this study aims to:

- Establish the sample composition of the respondents;
- Determine required health and safety leadership skills;
- Determine the health and safety culture of SMEs in the construction industry; and
- Determine how health and safety is communicated.

This paper reports on the findings of an exploratory survey of health and safety conducted among SMEs personnel in-charge of H&S.

4. RESEARCH METHODOLOGY

A review of the literature led to the identification of available elements to manage a health and safety culture. Eight (8) elements were identified in the plethora of literature available. A descriptive survey method was adopted, which involved the use of a semi-structured and structured questionnaire in an in-depth exploration of the constructs underlying the subject matter of the research. Creswell (1994) describes a survey as a quantitative or numeric description of some fraction of the population – the sample, which enables researchers to generalize their findings from a sample of respondents to a population within the limitations of the sampling method.

A random sampling was used where the researchers selected sample members to conform to some or other criterion in this case

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contractors. As no sampling frame exists and no parameters are known, probability sampling could not be used. The respondents were involved in construction activities ranging from general contractors, civil contractors, home builders, subcontractors and specialist contractors. Sixteen (16) usable completed questionnaires were gathered from a total of thirty-nine (39) distributed, 41.03% was the response percentage. This sample size was sufficient to meet the statistical test requirements for group statistical testing of an exploratory study. As part of the delimitation process (Creswell, 1994) of this research, the geographical aspect of the sampling limits the generalization of the sample. Purposive sampling is a non-probability method of sampling it is impossible to evaluate the extent to which such samples are representative of the relevant population (Welman & Kruger, 2001), it also gives the research qualities of a case study (Creswell, 1994). These problems with generalizing from the sample to the whole population of SMEs are limitations of the research design and fully acknowledged in this research.

The structured questions were analyzed using statistical formulae to calculate the mean values of the statements indicated in Tables 3 to 10. This resulted in the computation of mean value and ranking of the statements.

The data was gathered by the intercept method (Cooper & Schindler, 1998) using self-administered questionnaires (Leedy, 1997). The need for content validity was not established as no, pilot study and pre-testing was done on the questionnaire. As the questionnaires were completed anonymously, the collection of the data and the presentation of this report cannot harm the respondents or the organizations in any way.

5. RESULTS AND DISCUSSION

5.1 The sample composition of the respondents

Table 1 Type of organization

Organization type	Respondents	%
General contractor	6	37.5
Sub-contractor	6	37.5
Civil contractor	2	12.5
Specialist contractor	0	0
Home builder	0	0
Other	2	12.5

Most contractors were involved in general contracting (37.5%) and sub-contracting (37.5%) as indicated in Table 1. As evidenced from Table 2, of the sixteen (16) respondents, 31.25% were involved in construction at top management level, 25% as health and safety representatives, the rest of the respondents i.e. site managers, contracts managers, site agents, project managers and a quantity surveyor accounted for 43.75%

representation in managing health and safety. This finding indicates the passiveness of using health and safety practitioners to manage health and safety activities. The majority of the respondents have been involved in the construction industry for average 9.38 years and 93.75% had a qualification above Matric. The number of permanent employed employees in the past three years was on average 13.38 with an average turnover of R307.78 million.

Table 2 Profile of sample

Type of position	Respondents	%
CEO/Managing director	5	31.25
Contracts manager	2	12.5
H&S officer	4	25
Site manager	1	6.25
Project manager	2	12.5
Quantity surveyor	1	6.25
Site agent	1	6.25
Education qualification	**Respondents**	**%**
Matric	2	12.5
Certificate	5	31.25
Diploma	4	25
Degree	4	25
No qualification	1	6.25
Permanent employees		
Average number of permanent employees	13.38	
Annual turnover		
Average annual turnover	R307.78 million	
Number of years in the construction industry		
Average number of years in the construction industry	9.38 years	

5.2 Health and safety leadership skills in SMEs in the construction industry.

Table 3 Health and safety leadership skills

Action	Mean	Rank
Influence the perceived importance of H&S among staff and other management	4.25	1
Informs workers on how best to respond to unsafe behaviour	4.25	1
Show a caring and humanistic attitude of H&S to their employees	4.08	3
Recognize and reward appropriate H&S behaviours	4.08	3
Actively listen to employees on issues of H&S	4.00	5
Consult with stakeholders inside and outside the organization on H&S matters	3.92	6
Influence the perceived importance of H&S among people outside the organization	3.85	7
Demonstrate commitment to H&S	3.83	8

Table 3 indicate that leadership skills in H&S are vital to enhance a positive health and safety culture in SMEs'. The mean score achieved among the respondents indicate that leadership skills influence the perceived importance of H&S among staff and other team members and informing workers on how best to respond to unsafe behaviour as these attained a mean score of 4.25 and are ranked 1st. Majority of these statements had a mean score of between 3.5 to 4.5, which indicate that H&S leaders should process most of these skills.

5.3 Health and safety culture of SMEs in the construction industry.

The results in Table 4 indicate that there is commitment among management pertaining to health and safety management. The statements are in the band 3.5 to 4.5 which indicates that the respondents agreed that management was committed to health and safety management. The results further indicate that the respondents are not involved directly in reviewing serious incidents and also do not frequently receive reports on health and safety and allowed to comment on them, this is indicated by the low mean rate.

Table 4 Commitment of leadership

Action	Mean	Rank
Actively involved in formal safety deliberations such as safety policy formulation.	4.42	1
Accept responsibility for H&S on equal basis as any other area of management responsibility	4.25	2
Take explicit and continuing steps to ensure that their interest in, and commitment to health and safety is known to all personnel	4.17	3
Involved directly in decisions to remedy the causes of serious incidents	4.08	4
Take proactive steps to plan and organize work to maximize health and safety, minimize production health and safety conflicts, rather than only intervening when conflicts arise	4.00	5
Demonstrate visible and positive commitment to H&S throughout the management style.	4.00	5
Involved directly in the review of serious incidents	3.75	7
Receive reports and publicly comment upon them	3.58	8

Table 5 Support given by leadership

Action	Mean	Rank
Ensure that staff are adequately trained, instructed and motivated to follow H&S procedures	4.33	1
Provide a safe working environment that suits the activity and tasks of their workers	4.33	1
Provide their staff with safe technology suitable for their activities and tasks	4.25	3
Provide training and operating instructions on H&S taking into account non-literate workers	4.08	4
Assess the quality of training and general usefulness, relevance and applicability of H&S training	3.92	5
Ensure staff are released from their commitments and participate in H&S training	3.67	6

Table 5 indicates that there is support of health and safety by leadership. There is indication that training is provided on H&S including taking into consideration non-literate workers. Their might be resistance of releasing the respondents to participate in H&S training as this aspect scored the least mean in this category of element.

Table 6 Goal setting and review of leadership H&S

Action	Mean	Rank
Regularly review compatibility of their safety performance goals	4.17	1
Have clear goals and objectives for their H&S performance	4.08	2

The respondents agreed that leadership regularly review compatibility of their safety performance and have set clear goals and objectives for their H&S performance. This is a clear indication that there are goals set to improve health and safety performance.

Table 7 Creating structure and process that promote H&S

Action	Mean	Rank
Ensure feedback on the safety performance of the organization and its management	4.08	1
Remove excessive layers of management and empower people to make decisions within their area of authority	4.00	2
Review and change how the organization gets its staff to participate in the review and improvement of H&S	3.33	3

Management tends to promote H&S culture by creating structures and processes that are friendly and reachable among its employees as indicated in Table 7. Staff members who participate in the review and improvement of H&S has a mean of 3.33, which indicates that sometimes they are involved to create structures to promote H&S.

Table 8 Reviewing leaders' performance/self improvement

Action	Mean	Rank
Incident investigation are used as opportunities to review and learn constructively about leadership issues	4.08	1
Leaders receive feedback on how others, including their staff, perceive their commitment to H&S	3.92	2

The results in Table 8 indicate that reviewing leaders' performance /self improvement is agreed upon by the respondents as the mean score is, in the band 3.92 to 4.08, incident investigation and a feedback process is revealed to the leaders to enable them to improve their performance.

5.4 Health and safety communication

The result in Table 9 indicates internal communication is used to address H&S issues. Leadership often communicate with managers from other sites on H&S matters, provide quick and effective action to complaints from their workforce regarding their working environment H&S and respond swiftly to concerns and queries raised by the workforce and /or other managers as these actions had a mean above 4.00. Sometimes leadership internally communicated on H&S as 6 (six) out of the 10 (ten) statements had a mean rating of between 2.50 to 3.50. At times communication was conducted informal between managers and workforce

Table 9 Internal communication

Action	Mean	Rank
Communicate with managers from other sites on H&S matters	4.17	1
Provide quick and effective action to complaints from their workforce regarding their working environment, health and safety	4.08	2
Respond swiftly to concerns and queries raised by the workforce and /or other managers	4.00	3
Discuss health and safety matters with the workforce, listening concerns and queries	3.67	4
Participate in setting H&S targets and explaining this to staff	3.42	5
Communicate formally with managers and workforce	3.42	5
Explain clearly H&S goals and objectives to staff	3.42	5
Keep staff informed about outcomes of any meetings regarding H&S matters	3.42	5
Communicate directly with health and safety practitioners	3.33	9
Communicate informally with managers and workforce	2.83	10

Table 10 External communication

Action	Mean	Rank
Respond to queries or complaints about the health and safety performance of the organization	3.92	1
Participate in dialogue with regulators on health and safety matters	3.75	2
Communicate effectively the approach and commitment to safety of the organization to external organizations by means of publications and applying for awards	3.58	3
Develop a constructive and open relationship with external organizations on H&S	3.58	3
Impose inappropriate control over who may communicate with inspectors due to fear of what might be revealed to them	3.42	5

The result in Table 10 indicates that external communication is sometimes undertaken. Leadership tends to respond to any queries pertaining to poor performance on H&S and sometimes impose inappropriate control over who may communicate with inspectors due to fear of what might be revealed to them. These results are reflected with the mean value between 3.92 and 3.42, which is below 4.00 and in the band of often and sometimes.

6. CONCLUSION

It can therefore be concluded that majority i.e. 93.75% of the respondents have a tertiary qualification.

Leadership skills in H&S are vital to enhance a positive health and safety culture in SMEs' as the characteristics were agreed by the respondents.

The mean score achieved among the respondents indicate that leadership skills influence the perceived importance of H&S among staff and other team members and informing workers on how best to respond to unsafe behaviour as these attained a mean score of 4.25 and are ranked 1st. The elements identified through literature and analyzed indicate that their is commitment to H&S , support of H&S, goal setting and review of H&S, creating structure and process that promote H&S and reviewing leaders' performance/self improvement are undertaken in most of the organizations. Internal and external communication elements are used to address H&S issues. Internally leadership often communicate with managers in different sites sometimes the communication is done informally as it attained a mean score of 2.83. Leadership tends to respond to any queries pertaining to poor performance on H&S and sometimes impose inappropriate control over who may communicate with inspectors due to fear of what might be revealed to them.

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