

Safety Climate – Revealing the ‘X Factor’

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1. Introduction

In any high hazard industry today it is almost certain that as part of the safety management system for any project, a behavioural safety programme will be required. It is widely viewed that key to safety performance and the ability to embed behavioural safety is the production of a ‘good’ safety climate (NIOSH 2013) and arguably, it is safety climate that is the necessary precursor or foundation to effective safety management systems. Yet to date, despite numerous reports and guidance on the matter from both academia (Lunt, 2008) and legislative bodies such as the UK’s Health & Safety Executive (HSE, 2007), a definition of the specifics of such a programme required for dynamic environments such as decommissioning and demolition is lacking. This study sought to explore in depth the concept of safety climate within such a high hazard, decommissioning and demolition organisation.

‘Safety Climate’ was a term first used by Zohar (1980) and describes what the shared perceptions of employees are in how safety management is being ‘operationalised’ at a given moment in time. Safety Climate is often confused with Safety Culture which is often phrased as ‘the way we do things around here’ (CBI, 1991). They are similar but not the same thing. Bergh (2011) and Kines (2011) refer to safety climate as a snapshot of the perceptions of the work force at a given time in regard to the safety environment, management skills and their own actions. However the design of a questionnaire for the study of safety climate research has led to various measures, all of which make claim to supporting evidence and enable accurate data generation of safety climate in the workplace, and yet to date there is no set format or specific number of ideal factors which can be refutably argued as providing a sound measure. (Zohar 1980, Flinn 2000).

2. Methods

The present study was a form of mixed methods design utilizing the NOSAQ-50 safety climate tool as the basis of both quantitative and qualitative elements of the study. The NOSAQ-50 was first developed in 2003 by a group of Nordic researchers (Kines et al 2011). The measure is designed to rate occupational safety climates and is based on organisational and safety climate theory, empirical studies, together with underlying psychological theory. It allows for comparative studies not only between companies and industries but also countries (Kines et al. 2011). The reliability and validity of the questionnaire has been tested and confirmed. The fact that the tool is current and continually updated by the Nordic team, and that it was originally primarily tested in the construction sectors adds strength to its choice for this study.

The quantitative element of the study involved administration of the NOSAQ-50 EN (English version) to all of the employees within the organisation to provide the ‘context’ to the subsequent interviews. 118 usable questionnaires were gathered representing a response rate of 82%. 14 participants were then recruited to be involved in semi-structured interviews which were analysed using Template Analysis.

Template analysis is a pragmatic form of thematic analysis which recognises the potential for existing knowledge, models and theories within an area and consequently

allows for the production of *a priori* themes which can be used to produce an initial coding structure. These initial codes are not restrictive however and can be developed (added to, redefined, sub-divided or omitted) as the analysis progresses, if for example, themes which were not predicted become apparent (King, 2004). In this study, the 7 factors of the NOSAQ-50 (see Table 1) were used as a priori themes (initial template).

3. Results

Table 1 describes the scores from the NOSAQ-50. Despite some variations between levels of the organization, scoring ≥ 3 on all factors indicates a 'good' safety climate.

Table 1. Results of NOSAQ 50

	Management safety priority, commitment & competence	Management safety empowerment	Management safety justice	Workers' safety commitment	Workers' safety priority and risk non-acceptance	Safety comms learning and trust in co-worker competence	Workers' trust in the efficacy of safety system
Directors	3.51	3.37	3.76	3.33	3.17	3.40	3.37
Managers	3.32	3.18	3.32	3.31	3.21	3.28	3.32
Supervisor	3.19	3.10	3.11	3.30	3.18	3.27	3.35
Operatives	3.17	3.02	3.00	3.22	3.04	3.10	3.22

The template analysis supported the themes from the NOSAQ-50, providing depth and clarification to each of the themes. In addition, there were two strong emergent themes within the data. The first related to the size of working groups within the organisation with a preference for smaller working groups raised at all levels. The second and most significant emergent theme was related to the individual characteristics of the individuals managing safety on particular sites. Labelled 'persona', this theme emerged throughout the qualitative data. It was very clear that the effectiveness of safety management was seen to be linked very strongly to individual attributes and not simply traditional views of rule-based compliance.

4. Discussion & Conclusions

The NOSAQ-50 performed fairly well in this study, both in quantifying the safety climate within this high risk organization and in providing an initial template for analysis. However, the qualitative analysis identified elements that were missed by this measure and the emergent theme labelled 'persona' appears to be a factor not adequately addressed in any of the currently popular safety climate tools. Whilst perhaps appearing 'self-evident', this data-driven finding shows that we must look beyond simple measures of knowledge and competence if we are to achieve optimum performance from safety systems. Whether these attributes can be modelled, measured and ultimately taught will be the subject of future planned research. In the interim, employers should reflect on this finding when selecting personnel for key positions within safety systems.