

Behaviour change and worker engagement practices within the construction sector

Prepared by the **Health and Safety Laboratory**
for the Health and Safety Executive 2008

Behaviour change and worker engagement practices within the construction sector

Jennifer Lunt, Simon Bates,
Victoria Bennett & Jane Hopkinson
Health and Safety Laboratory
Harpur Hill
Buxton
Derbyshire
SK17 9JN

Behaviour change and worker engagement (BCWE) practices were qualitatively investigated in an opportunistic sample of principle UK construction contractors and consultants. These were compared with the contemporary scientific evidence for BCWE. Practices demonstrated an overall shift towards to an integrated approach to behaviour change, tackling the physical, social work environment and individual determinants of risk taking behaviour. Where safety culture is least mature, emphasis is upon installing effective safety management systems, before targeting safety leadership and culture and finally operatives' behaviour on more mature projects. By tackling root causes of accidents in this way, programs should be able to overcome a tendency that traditional behavioural safety programs have in being too symptomatic. Strategies for managing the workforce transience that characterizes the industry included managing BCWE project by project, 'influencing the influencer' and including sub-contractors in BCWE training. The prescriptive nature of observation, feedback and goal setting techniques was advocated as lending itself of improving performance in transient suppliers. Programs are at too early a stage to permit development of a watertight business case. Imposing an integrated BCWE framework over the industry, that applies leverage 'top-down' and 'bottom-up', could be used to widen BCWE uptake.

This report and the work it describes were funded by the Health and Safety Executive (HSE). Its contents, including any opinions and/or conclusions expressed, are those of the authors alone and do not necessarily reflect HSE policy.

© Crown copyright 2008

First published 2008

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) without the prior written permission of the copyright owner.

Applications for reproduction should be made in writing to:
Licensing Division, Her Majesty's Stationery Office,
St Clements House, 2-16 Colegate, Norwich NR3 1BQ
or by e-mail to hmsolicensing@cabernet-office.x.gsi.gov.uk

ACKNOWLEDGEMENTS

The authors would like to acknowledge the valuable help and contributions made to this project by members of the Behaviour Change and Worker Engagement Forum for Construction and their colleagues who also participated in this research. Thanks are also due to the Consultants not directly involved in the forum, but who acted as participants in this research and who made a valuable contribution to the findings. Finally the authors would like to thank the companies who supported this research. This includes Bovis Homes, Bovis Lend Lease, Carillion Building, Kier Building Maintenance, Mace Sustain, Magnox Electric, Morgan Ashurst, Laing O Rourke, M W Kellog, Optimus SHE and Ryder Marsh.

CONTENTS

1	200 WORD SUMMARY	VII
2	INTRODUCTION.....	1
2.1	Background	1
2.2	The BCWE Forum	5
2.3	Aims.....	7
3	METHOD.....	8
3.1	Overall Design:	8
3.2	Literature Review.....	8
3.3	Qualitative study	13
4	RESULTS	19
4.1	Literature Review.....	19
4.2	Literature Review: Summary	52
4.3	Qualitative Analysis	54
4.4	Case studies.....	92
5	DISCUSSION.....	115
5.1	What is BCWE?.....	115
5.2	Contrasting Actual Practice with Best practice	115
5.3	Research Caveats	122
5.4	What is the Optimal Approach to BCWE for the Construction Sector?	123
5.5	Research Recommendations	126
5.6	Recommendations : Quality Assurance.....	126
5.7	Recommendations: Accommodating Occupational Health	127
5.8	Recommendations: Transferability to Small and Medium Enterprises.	127
6	REFERENCES.....	129
7	APPENDICES.....	137
7.1	Data Extraction Sheet: Organisational Focussed Practices.....	138
7.2	Data Extraction Sheet:.....	149
7.3	Data Extraction Sheet: Grey Literature	195
7.4	Interview Schedule	198
7.5	Formal Invite & Consent Form: Companies	200
7.6	Formal Invite & Consent Form: Consultants	204
7.7	Thematic Analysis Coding Rules	208
7.8	Content Brief Template.....	212
7.9	Case studies.....	213

1 200 WORD SUMMARY

Behaviour change and worker engagement (BCWE) practices were qualitatively investigated in an opportunistic sample of principle UK construction contractors and consultants. These were compared with the contemporary scientific evidence for BCWE. Practices demonstrated an overall shift towards to an integrated approach to behaviour change, tackling the physical, social work environment and individual determinants of risk taking behaviour. Where safety culture is least mature, emphasis is upon installing effective safety management systems, before targeting safety leadership and culture and finally operatives' behaviour on more mature projects. By tackling root causes of accidents in this way, programs should be able to overcome a tendency that traditional behavioural safety programs have in being too symptomatic. Strategies for managing the workforce transience that characterizes the industry included managing BCWE project by project, 'influencing the influencer' and including sub-contractors in BCWE training. The prescriptive nature of observation, feedback and goal setting techniques was advocated as lending itself of improving performance in transient suppliers. Programs are at too early a stage to permit development of a watertight business case. Imposing an integrated BCWE framework over the industry, that applies leverage 'top-down' and 'bottom-up', could be used to widen BCWE uptake.

Strategies used for overcoming these barriers by programme instigators comprised managing BCWE project-by-project, training intermediaries in worker engagement skills, and using highly prescriptive behavioural modification approaches to manage transience. Greater control over supply chains was exercised by including them within BCWE training, running launch events dedicated to suppliers, building BCWE standards into sub-contracts, and consolidating preferred supply chains. Emphasising the cross issue applicability of BCWE was used to win senior management expectations. Negotiating BCWE into client contracts has been used to manage conflicting productivity pressures. Tailoring approaches according to worksite's safety culture maturity levels is used to manage barriers stemming from workforce diversity. Generally, companies do not implement full-blown BCWE where worksites are not ready for it. Depending on culture maturity and workforce stability, companies ensure that the basics of an effective safety management system are in place first, before targeting culture and management practices, and ultimately workforce behaviour as maturity progresses.

Motivation

- *Contrasting behaviour change and worker engagement:* Worker engagement refers to the extent to which the workforce contributes to decisions that affect their health and safety. It facilitates more sensitive needs analysis, and allows more effective solutions to be generated. Worker engagement also motivates. However, lasting behaviour change requires more structured intervention that progresses beyond motivation. It requires modification of latent and immediate contributors to unsafe behaviour, reinforcement of safer practices, and inclusion of strategies that sustain change overtime.
- *Tackling root causes:* Traditional approaches to behavioural safety that use management-led observations, feedback and goal setting to reinforce safer working practice have an inconsistent track record. They have been criticised as failing to take sufficient account of the multifaceted nature of accident causation; of failing to address root causes as a result; of being construed as blaming mechanisms in safety cultures characterised by distrust, and of overlooking less frequent safety critical behaviours that can perpetuate major accidents. As a result, a concern persists that behavioural safety programmes may not prevent low probability high impact events, certainly within major hazards. Isolating their effectiveness is not helped by a paucity of well-controlled evaluation studies. The actual BCWE practices used by industry practitioners demonstrate movement towards a more integrated approach to behaviour change. This means complementing “top down” culture change and safety management system improvements with individually targeted behavioural approaches. Programme instigator's achieved integration with the safety management system by: Writing BCWE into policies and procedures supporting the safety management system; assimilating BCWE into human resource management and applying it to all stages of project development. Using an integrated approach in this manner allows ability to accommodate root causes to be combined with the precision offered by behaviourally focussed techniques. It should also alleviate fears that the root causes of accidents are not being properly tackled.
- *Actual Approaches:* The actual approaches used by participant companies and consultants comprised a mixture of culturally led, behaviourally led, or integrated approaches. Where behavioural modification was used, it either: Formed the mainstay of a more longstanding programme; was being implemented in a culturally uniform company, or being integrated with a cultural/management level intervention. Where interventions are more culturally led, they were either: Intended to mitigate the latent causes of unsafe behaviour; based on a recognition that the safety culture was insufficiently mature for behavioural approaches; or based on a concern that behavioural modification techniques provide insufficient scope for sanctioning undesirable work practices.
- *Getting workforce buy in:* Strategies used for getting workforce buy-in ranged from using management and union representatives as BCWE advocates; recruiting champions from the

1. Increasingly, calls are being made for clearer mapping of behavioural change initiatives onto an underlying model or rationale that explains why that approach should work. While the programmes examined tended to cover the necessary ingredients of behaviour change, use of a common framework could prevent oversight of key components. One such evidence-based framework is provided within this report.
2. Where specific safety critical behaviours are used, care should be taken to ensure that less frequent safety critical behaviours are accommodated. A retrospective analysis, in which major accidents occurring prior to programme launch could be used to establish whether that accident might have been prevented by the current programme. Doing so would lend confidence in each programme's ability to prevent low probability, high impact events such as multiple fatalities.
3. Through influencing decision-making processes that precede unsafe work practices, programmes appear more geared up to preventing non-compliance than unconscious error. More could perhaps be done to reduce the impact of distracters upon vigilance by reducing task complexity or raising situational awareness. Providing skills training in site assertiveness and communication within and between teams and operatives could help serve this purpose.
4. Where project leadership or supply chain leadership are relied on to roll out BCWE programmes, resource should be devoted to periodically observing programme delivery. Without doing so, there is limited means of judging whether the programmes messages are being delivered in a style that motivates and inspires.
5. Including a control group within programme evaluation, whereby progress in projects implementing BCWE is compared with similar projects without BCWE. This would provide a much-needed boost to the quality of evidence currently informing BCWE effectiveness.

Recommendations:

Research: Revisiting programme instigators contributing to this research at a later point and gathering evidence on their progress in rolling out BCWE should ideally be undertaken. This would enable a more watertight and compelling business case to be developed than exists at present. A variety of tools are currently being used for assessing safety culture maturity. Developing a generic safety culture maturity matrix would allow BCWE practices across the industry to be more reliably benchmarked. Job complexity was cited as a particular problem for the house-build and maintenance sector. Identifying any patterns by which jobs differ could be used to inform where operatives can safely assume where jobs are similar, and where they cannot.

Occupational health: As verified by programme instigators, BCWE programmes focus more on safety rather than occupational health. The long time period over which occupational health problems can emerge, lack of legislative threat, and short-lived contact that principal contractors have with most of their supply chain means that construction companies have limited scope in managing occupational health. Solutions for raising the profile of occupational health could include:

- Applying behavioural modification and analysis principles to management, by encouraging them to anticipate the short, medium and long-term consequences of failure to manage occupational health upon their business.
- Developing evocative and persuasive risk communication techniques that target occupational health issues, and emphasis the harm that exposure to occupational health hazards can cause the individual, their family and their colleagues.

Transferability across the industry: An integrated model of behaviour change could be transposed over the industry to encourage wider uptake of BCWE. Overcoming challenges due to the high degree of workforce churn that characterises the industry requires a strong industry leadership in setting the tone for BCWE. Continued communication between the major construction companies on experiences in implementing BCWE therefore remains paramount. Routinely incorporating BCWE requirements into supply chain contracts should help drive standards across the industry. Even for enterprises that do not work for principal contractors, contact with other stakeholders using BCWE should make them more receptive to BCWE programmes. Collectively, strong leadership from the top, systems for encouraging industry learning, and making winning contracts contingent on demonstrating BCWE, should provide the top-down pressure necessary for creating an industry environment conducive to BCWE. However change by this method, although pervasive, will be slow. Simultaneously applying bottom-up pressure could be used to generate quick wins. If done properly, more principal contractors could use behavioural modification to control workforce transience. Doing so would require identification of safety critical behaviours on a trade-by-trade basis, and company observers to be trained in effective worker engagement skills so that they regard observation of an unsafe act more as a prompt to undertake root cause analysis. Even so, this still represents a strategy done by the principal contractor to the supplier. To consolidate impact, a toolkit could also be developed that motivates the suppliers to see value in BCWE for themselves. Such a toolkit could be particularly useful to SMEs. It should contain: A business and morale case for encouraging buy-in from SME owners; advice on how to use worker engagement to conduct baseline needs analysis; advice on addressing the hierarchy of controls; a selection of motivational strategies for priming workforce receptiveness; examples of action plans and guidance on behavioural modification techniques for supporting instigation; and tips for maintaining change overtime. All the essential components of BCWE would therefore be covered. Combined with more widespread application of properly designed behavioural modification techniques, such a toolkit should provide the ‘bottom-up’ leverage necessary for encouraging wider uptake of BCWE by SMEs.

In sum, integrating “top-down” with “bottom up” incentives should facilitate more rapid spread of effective BCWE practices across the construction sector.

also be undertaken (e.g. Dejoy, Michie etc). Corresponding search strings were structured by combining behaviour change and worker engagement terms with work context terms (see Table 1 below).

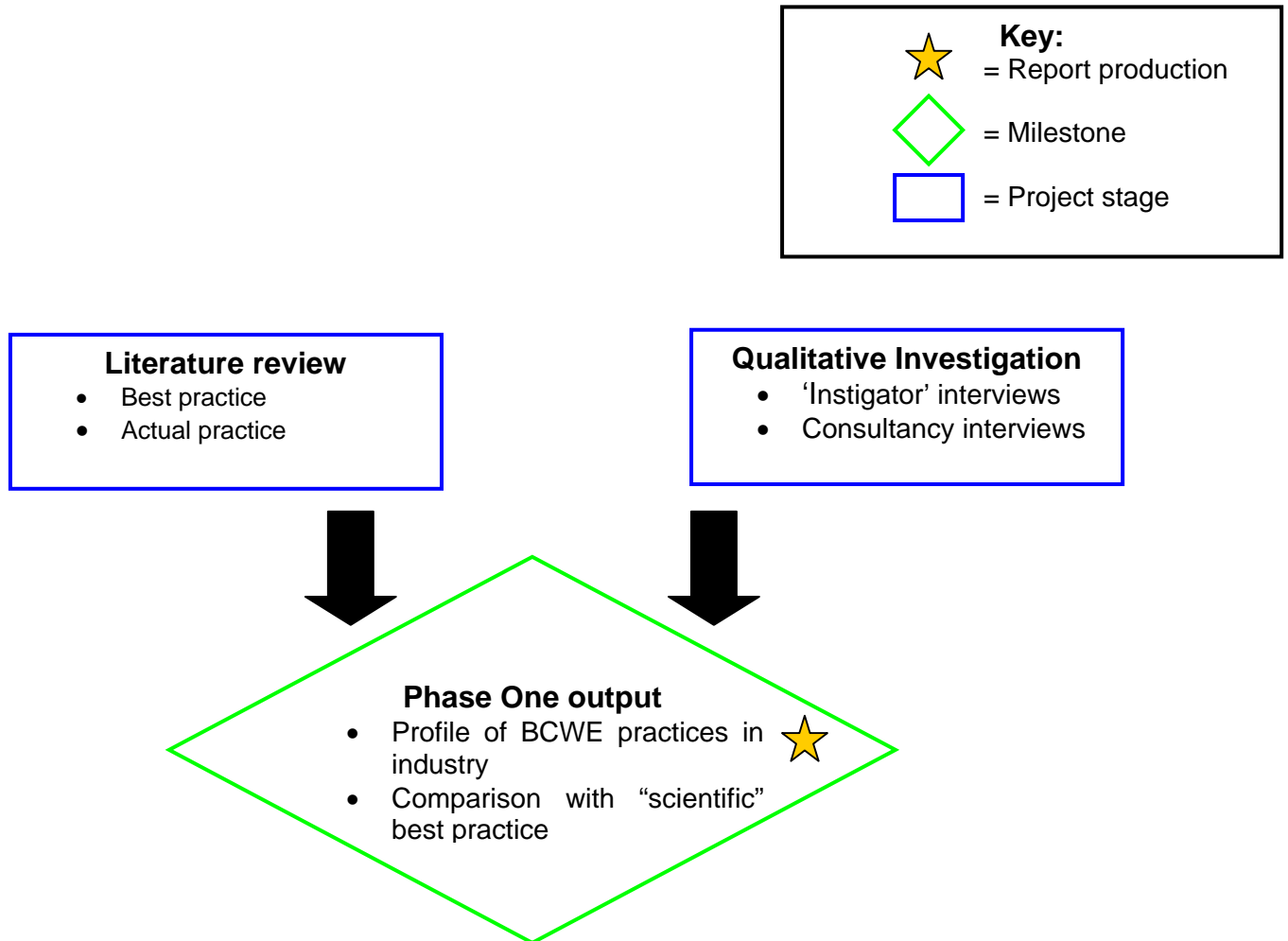


Figure 1: Project Methodology

- **Observation:** Observation of safe or unsafe behaviour, antecedents and consequences are undertaken
- **Baseline:** A baseline of the frequency of safe and unsafe behaviour is obtained
- **Feedback:** Observers provide worker's constructive feedback that positively reinforces safe behaviour. The discussion is behaviour is ideally two-way and covers the occurrence and reasons for unsafe acts and conditions (e.g. through a 'five why's' conversational technique).
- **Reinforcement:** Safe behaviours are reinforced through praise, encouragement, and financial or non-financial rewards.
- **Goal setting:** Goal setting done on a group basis and on a participative basis with employees to motivate performance improvement.
- **Review:** Review of implementation and effectiveness

The main ways by which behavioural safety programmes can differ is according to (a) whether their ownership exclusively resides with management, or is shared with employees, and (b) whether the observations are peer-on-peer, or supervisor-on-worker (Flemming & Lardner, 2002).

Health Behaviours: Until recently, the evidence base for the application of behavioural change interventions to occupational health has been limited (Lunt & Lee, 2007). Guidance on approaches traditionally used in changing health behaviour must therefore be drawn from the public health domain. Based on the premise that health behaviour is more of an individual choice than safety behaviour (Knott, Muers & Aldridge, 2007), health behaviour change interventions have attached greater importance to tackling the underlying decision making processes that drive health behaviour. Social cognition models, such as the Theory of Planned Behaviour (Ajzen, 1985) and Health Beliefs model (Rosenstock, 1974) have typically provided the basis for designing health behaviour interventions. To illustrate, the main rationale behind the design of such interventions has been to motivate individuals to adopt healthier behaviour by shaping their: Attitudes or health beliefs towards the new behaviour; willingness to comply with social norms; sense of control over their ability to affect change in terms of their own skills base, and the minimizing barriers that exist in their environment.

Traditional behavioural safety programmes focus on changing behaviour by modifying the contributors to unsafe behaviour and rewarding safe behaviour. Less importance is placed on directly modifying underlying attitudes and thoughts processes (Dejoy et al, 2005; Geller, 2006; Hopkins, 2006, Lewis, 1999)**G.

Common features of traditional behavioural safety programmes include specifying safe and unsafe behaviours, training in observational techniques, conducting observations, providing feedback, and goal setting (Flemming & Lardner, 2002, Cooper et al, 2006; Keel Centre, 2000; Dejoy, 2005; Hopkins, 2006; Johnson, 2003; Lewis, 1999; Tuncel et al, 2006; Van der Molen, 2006) ***C

On the basis that health is more of an individual choice than safety, traditional health behaviour change interventions endeavour to target the internal attitudes and decision making that drives behaviour (Hughson et al, 2002; Knott, Muers & Aldridge, 2007; Michie et al, 2005) **G.

