



Factors affecting the supervision of safety

Summary report 2010

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In this document, you'll find a summary of the independent study we commissioned from the University of Liverpool: 'Promoting active safety leadership'.



What's the problem?

We expect leaders to be inspirational and act as good role models, so the old adage 'Do as I say, not as I do' is one we'd hope a leader wouldn't follow. This is particularly important when it comes to supervisors. Research shows that it's front-line managers who have the greatest influence on the way people behave and their attitude to their organisation.¹ So, in terms of health and safety, we know that supervisors play a key role in preventing work-related injuries and poor health and improving the performance of the workplace.

We also know that supervisors displaying active leadership behaviours, such as coaching, encouraging employee involvement and challenging poor practices, are likely to have team members who comply with and voluntarily participate in safety. What we're not so clear about is which factors give rise to these active behaviours. The factors we're interested in may be individual or organisational (ie elements within the workplace that are often beyond individual supervisors' control, but which affect their behaviour and ability to lead on safety).

So we commissioned Dr Stacey Conchie and her team at Liverpool University to research into leadership and to focus on the factors that affect supervisors' active leadership behaviour in the construction sector, either positively or negatively.

Why construction? Internationally, the construction industry ranks among the most dangerous. Construction workers are three to four times more likely to die from accidents at work than those in other sectors.² Although there's some evidence to suggest that safety leadership has benefits for improving workplace safety performance, there's little information available about how to increase active leadership among construction supervisors.

The research had two main goals:

- to identify the individual and organisational factors that affect construction supervisors' active safety leadership behaviours
- to assess and compare the relative contributions of these factors in shaping leadership behaviours.

Once we can identify the factors that lead to active safety leadership, it should help organisations to direct their resources and efforts in the right way, and effectively promote safety engagement from their supervisors.

¹ Advisory, Conciliation and Arbitration Service (ACAS). Advisory booklet – front line managers. December 2009. [acas.org.uk/index.aspx?articleid=802](https://www.acas.org.uk/index.aspx?articleid=802).

² International Labour Organization. Construction health and safety. [ilo.org/public/english/dialogue/sector/sectors/constr/health.htm](https://www.ilo.org/public/english/dialogue/sector/sectors/constr/health.htm).

What did our researchers do?

The team carried out the research in two stages:

- focus groups
- a questionnaire survey.

Stage 1

Our researchers firstly ran a series of focus groups a form of group interview – involving supervisors from different construction projects across the UK. The aim was to understand what individual and organisational factors affect supervisors' leadership behaviours. Using focus groups allowed the team to get information from a large number of supervisors at one time, and explore reasons for any differences that emerged in their responses.

The focus groups involved:

- 10 sessions held on 10 construction projects
- 69 supervisor participants (1 female, 68 male)
- six to 10 supervisors in each group
- representatives from eight contractor companies and different trades (eg electrical, grounds work)
- supervisors with between nine months' and 40 years' experience.

Each focus group session lasted for around an hour. The researchers digitally recorded, transcribed and analysed group discussions, noting in particular the factors that helped or hindered supervisors in engaging in active safety leadership.

Stage 2

Based on the findings from the focus groups, the team developed a questionnaire to survey a larger sample of supervisors. The survey set out to identify the prevalence of these factors in construction, and their relative importance in shaping supervisors' leadership behaviours. Table 1 opposite shows the topics included in the questionnaire.

The researchers gathered information from:

- 80 supervisors, representing 41 companies, 27 trades and seven nationalities.
- 277 operatives about their supervisors; they represented 40 companies, 30 trades and seven nationalities.

By comparing the supervisor's response with their workers' responses, the team could spot whether a supervisor made exaggerated claims about their own behaviour. When our researchers analysed the data, they showed that both the operatives and their supervisors' responses were generally in agreement.

Organisational factors	Individual factors	Demographic factors
- Excessive work - Conflicting demands - Autonomy – freedom to decide how to supervise workers' safety	Personality – traits and characteristics	- Gender - Age - Nationality
Constraints – elements that restrict the way supervisors lead safety, including poor training, equipment or supplies, and inadequate help from others	Emotional intelligence – awareness and use of emotions (one's own or other people's) to guide behaviour	Employing company
Safety support – from colleagues or supervisors	Self-confidence to complete a task or perform in a particular way	Trade
Safety culture – shared attitudes and values on safety in the organisation	Perception of safety control – are accidents due to chance or are they within individuals' control?	Number of years working in the industry
Visibility – presence of supervisors among workers	Safety motivation – internal and external drivers of behaviour	Length of time as supervisor
Workers' safety behaviour	Exposure to accidents – as a witness or through personal involvement	Number of operatives the supervisor is responsible for

Table 1
Organisational, individual and demographic factors covered in the questionnaire

What did our researchers find out?

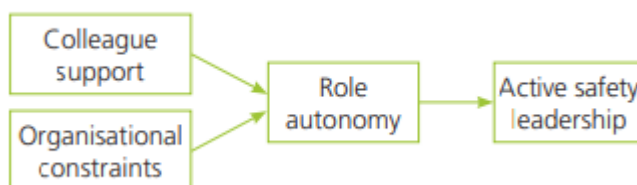
The team found that in the focus group sessions, supervisors talked relatively more about organisational factors than the individual factors. The following factors were emphasised as being particularly powerful influences on leadership behaviours:

- organisational factors:
 - demands, such as programme pressures, conflicting goals of production and safety, and multiple responsibilities
 - autonomy
 - discipline procedures imposed by the organisation
 - social support (from management, colleagues and operatives)
 - safety culture
 - subcontractors
 - foreign labour
 - frequency of contact with workers
- individual factors:
 - experience in the industry and in the role of supervisor
 - accident exposure
 - habit, eg acquiring bad habits after working in the industry for a long time
 - safety motivation
 - perception of safety control.

The results of the survey showed that, of these factors, supervisors' engagement in active safety leadership behaviour was significantly related to the following:

- organisational factors:
 - autonomy
 - fewer conflicting responsibilities
 - safety support from colleagues and supervisors
 - number of hours spent on site
 - limited constraints
- individual factors:
 - levels of self-confidence
 - the extent to which safety was held as a personal value
 - the extent to which they believed that accidents can be avoided.

The team also looked at the relative importance of these factors in shaping supervisors' safety leadership behaviours. The results show that autonomy has the strongest direct effect. Less significant, but still important for promoting active safety leadership, is the number of hours spent on site with workers. In relation to autonomy, the results show that this is increased by social support from colleagues and reduced by constraints. A simplified representation of these results is shown in the diagram below.



What does the research mean?

Overall, this research suggests that the best way to increase supervisors' active safety leadership is to increase the autonomy they have in their role, eg the discretion to decide how to supervise workers' safety and the freedom to change approach if necessary.

Some supervisors believed that their autonomy, or their control over the way that they supervise, is negatively affected by formal discipline systems. An educational approach instead of one involving punishment could work better.

Constraints such as subcontractors' and migrant employees' safety attitudes, poor equipment and supplies, and organisational rules and procedures may negatively affect the supervisors' autonomy. This finding supports other research³ highlighting the problems of a large subcontracted workforce and emphasises the potential constraints associated with migrant labour.

Support from fellow supervisors is important for active safety leadership. This research has shown that although support from more senior supervisors is important, it appears to be secondary to the support received from fellow supervisors responsible for teams that they work alongside. This may be explained by the fact that supervisors generally have more regular contact with these colleagues, so their support would be more immediate than that of more senior colleagues.

Supervisors' active leadership may increase as they spend more time on site with workers. The challenge for the construction industry is to achieve a balance between supervisors' responsibilities of managing paperwork and on-site activity in a way that allows them more time to spend with their workers, coaching them on good safety.

Don't forget

Like most studies, this one had limitations.

- While this research has identified some of the factors that affect autonomy, it was not able to look at all the possible influences because of time constraints. Since autonomy has a direct impact on levels of active safety leadership as measured by workers, it's certainly an area worthy of further investigation.
- The samples represented here were taken from projects operated by the same company and so it's possible that the results haven't taken into account other cultural factors that affect leadership behaviours.
- While the research included some non-British supervisors, the number representing this group was quite small, so we can't be sure whether there are any differences in the factors affecting safety leadership in people from other cultures and nationalities.

³ Dwyer T. Life and death at work: industrial accidents as a case of socially produced error. New York: Plenum, 1991; Schubert U and Dijkstra J J. Working safely with foreign contractors and personnel. Safety Science 2009; 47 (6): 786–793.

What's next?

We've also supported other studies that are relevant to health and safety in the construction industry and these can be found at [iosh.com/research](https://www.iosh.com/research):

- The impact of pictorial OSH training on migrant worker behaviour and competence, Glasgow Caledonian University
- Building safely by design: appraising safety hazards virtually before construction, University of Reading
- The limits of influence - the role of supply chains in influencing health and safety management in two sectors, Cardiff University

Our summary gives you all the major findings of the independent project report by the University of Liverpool. If you want to read about the study in more depth, you can download the full report at [iosh.com/research](https://www.iosh.com/research).

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