

DEVELOPING A WORKER ENGAGEMENT MATURITY MODEL FOR IMPROVING OCCUPATIONAL SAFETY AND HEALTH (OSH) IN CONSTRUCTION

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ABSTRACT

Research on worker engagement (WE) has identified the increased importance of meaningful discussion, communication, knowledge sharing, and shared decision-making regarding occupational safety and health (OSH) practices within the construction industry. This paper reports on initial findings on the development of a meaningful discussion framework for improving OSH and engagement of the construction workforce. The main purpose of the framework is to rank levels of discussion amongst construction operatives and supervisors related to positive performance at work and enhancement of OSH. This reflects the legal and ethical requirements for management to collaborate with the construction workforce for the improvement of OSH. For effective WE in OSH to become the norm, the effectiveness of corporate OSH engagement programmes needs to be assessed using a valid and reliable tool. Also, there is a need for a practice-driven and -validated worker engagement maturity model (meaningful discussion framework) that not only identifies and aligns with existing organisational capabilities, as shown in the HSE leadership and worker involvement research, but also addresses a set of dimensions specifically targeted at construction workers. The methods used to develop the framework discussed here involved qualitative interviews to gain accounts of episodes of worker engagement, which were categorised using NVivo and ranked based on feedback from expert focus groups. The meaningful discussion framework highlights the link that higher levels of worker and organisational maturity can have with higher levels of construction OSH performance. This is based on a number of logically progressive worker maturity levels, where higher levels build on the requirements of already existing levels, from discussing issues affecting individual workers to issues that affect other workers, and ultimately to issues “beyond the site gate”, such as design processes. Final validation testing of the model will be reported on at a later date.

Keywords: worker engagement, meaningful discussion, operatives, supervisors

1. INTRODUCTION AND BACKGROUND

The construction industry is one of the UK's most important economic sectors, with 2.1 million jobs, or 6.2% of the UK's economically active population employed in construction jobs (Rhodes, 2015). The industry has realised that managing people and their behaviour is a core requirement for better work-related performance and higher output. Managers have realised that employees are key factors that constitute the base of their accomplishments. Thus, engaging employees at work is an important element for the success of the industry and improving all the outcomes that lead to this success (Bakker and Demerouti, 2008; MacLeod and Clarke, 2009).

The concept of worker engagement was originally defined by Cameron et al. (2006) as a process where every worker on a construction site actively participates in improving health and safety by influencing others. More specifically, workers are keen to share their experiences and knowledge with other workers and managers, managers positively encourage worker participation to identify and resolve health and safety problems, and everyone on-site benefits from safer working conditions. HSG263 guidance (Health and Safety Executive, 2015) has identified worker engagement as a consultation process where management gives information to the workforce (including the supply chain and subcontractors), or employees, and they, in turn, obtain feedback from them before making decisions.

The definition developed for the research reported in this paper builds on these existing definitions, but includes factors identified in the literature search, namely meaningful discussion, motivation, empowerment, commitment, and trust. The current definition therefore considers worker engagement as

a process where every worker on a construction site is motivated and empowered to participate in improving health and safety through meaningful discussion with workers before decisions are taken, where others are influenced, and it is committed to the sharing of experiences and knowledge, where managers positively encourage workers to identify and resolve health and safety problems in a culture of trust, leading to every worker on-site benefiting from safe and healthy working conditions.

This also includes aspects such as recognition of the positive influence that trained trade union safety representatives have through the exercise of their workplace rights and functions, through effective consultative structures and the duty of the employer to consult with them (see section 3(6) of the Health and Safety at Work etc. Act 1974).

Little research has been conducted on worker engagement specific to construction workers (operatives and working supervisors), and that is why this paper on meaningful discussion related to worker engagement is significant. Previous research has identified informal lines of communication, hazard reporting, and informal disciplinary roles (see Cameron et al., 2006). Following on the work of Cameron et al. (2006), research has identified that direct worker engagement in construction has been studied in relation to workers identifying hazards and reporting injuries, and that training is paramount for meaningful discussion.

However, for meaningful discussion to take place there should be some degree of trust in management's commitment to safety, where any unsettling of this trust relationship by management will potentially disrupt meaningful discussion. The views of workers related to trust in management and emotional commitment to the organisation can be assessed to measure progress in the meaningful discussion process (see DeJoy, 2005). Maloney and Cameron (2003) have suggested that meaningful discussion can only take place when workers possess some elements of capability, i.e. training, experience, and knowledge. Therefore, provision of the requisite training for workers and management, especially "soft skills" that are fundamental for informal communication and meaningful discussion, can help in the identification of hazards, the reporting of unsafe conditions and near misses. This creates an opportunity for a two-way communication mechanism, which is required for imparting information to workers and eliciting their views in a structured manner (Cameron et al., 2006).

Jensen (2002) and Cameron et al. (2006) reflected on five dimensions to workplace assessment which can serve as a guide to assessing the level of meaningful discussion:

1. The area of the issues that are covered, e.g. whether they relate to physical hazards or organisational management (safety culture, i.e. how safety is managed within an organisation);
2. The objectives in developing solutions, and where these objectives rank in the UK's hierarchy of risk control, e.g. "eliminate, prevent, control";
3. The depth of understanding of accident causation;
4. The range of solutions presented in relation to proactive and reactive decisions; and
5. The capability to transfer issues to the immediate chain of command, e.g. workers involving senior management, plant managers, or directors.

Research has continued to highlight the advantages of developing a highly engaged workforce, and for this reason many organisations are striving to enhance levels of engagement within their influence (Wollard and Shuck, 2011). Workers that are highly engaged are involved and immersed in their jobs, so that they enjoy the challenge (Staples et al., 1999), they lose track of time while working (González-Romá et al., 2006), they have stronger organisational commitment (Hakanen et al., 2006), they expend more effort on the job, and they are intrinsically motivated.

The importance of meaningful discussion within the construction industry lies in the perception of its importance in predicting positive performance at work and improvement of construction occupational safety and health (OSH). Most construction workers will support formal organisational goals if they understand how these goals benefit them, the business, their fellow workers, the organisation's customers, and society as a whole. Therefore, meaningful discussion within the construction industry can be considered a precondition for sustainable competitive advantage, and it can make a real difference in the survival of an organisation (see Macey and Schneider, 2008; Hoon Song et al., 2012).

There is also an important element of reciprocity in trust (Scholefield, 2000). For workers to be engaged and to strengthen their commitment to an organisation, an employer should invest in workers' well-being, and the workers, in turn, will feel valued and will directly reciprocate through renewed employer loyalty and by working harder and more efficiently.

There are also legal and ethical requirements for management to collaborate with the construction workforce for the improvement of OSH. This study therefore considers approaches to the development of a meaningful discussion maturity framework for the construction industry. Workers that are involved in the workplace should be engaged and should be given the opportunity to share their own views and opinions in matters related to improvement of the workplace and performance (Hummerdal, 2015). Baucus et al. (2008) identified that workers' inherent creativity is mostly suppressed as a result of lack of support from management and bureaucracy.

When discussion (face-to-face) is mediated by feedback and has a direct impact on the capabilities of workers, such discussion can be considered meaningful. Experience shows that within the construction industry, effective meaningful discussion is wholly dependent on individuals, teams, and organisations. Also, because of the transient and inter-trade nature of most construction projects, the industry is often characterised by groups of workers that are peripatetic and unacquainted with each other, working together over a limited period of time before disbanding to work on other projects (Dainty et al., 2006).

The reason for meaningful discussion, therefore, is to ensure that the flow of information is effectively managed, that messages are conveyed appropriately, and that the worker is able to interpret and act on such information in a way that is consistent with the expected intentions. Meaningful discussion is considered a fundamentally social activity, which includes engaging in conversation, listening to co-workers, networking, collecting information, and directing subordinates. Meaningful discussion will be more successful in a workplace where there are some predictive elements of co-worker knowledge, team tenure, co-worker and supervisory support, group orientation, and group cohesion (see Burt et al., 2008). Discussion that directly influences a worker's intellectual growth, learning, and curiosity and engages them in productive instructional activities can be regarded as meaningful discussion (see Hirumi, 2002).

It is also suggested that meaningful discussion promotes faster information acquisition, and it facilitates organisational socialisation. The work of Burt et al. (2008) shows that acquisition of information via socialisation, such as induction training, helps in getting to know the personal life of co-workers, their attitudes, families, and interests. These are relevant in developing positive safety-related attitudes, co-worker knowledge, and social relationships.

2. OBJECTIVE

The study reported on in this paper has been developing a framework against which to assess meaningful discussion in relation to OSH engagement. This is part of a wider framework being developed to encapsulate levels of worker motivation, commitment, empowerment, and trust. This section of the framework will serve as a guide that will be useful for workers and managers on construction sites in order to improve meaningful discussion on OSH.

3. METHODS, DESIGN, AND INTERVIEWS

The research objective dictated a qualitative approach to obtain rich data giving accounts of worker engagement episodes which could also describe circumstances and context. The specific type of qualitative design implemented was a phenomenological research inquiry that describes the lived experiences of construction operatives and supervisors regarding

the phenomenon of worker engagement as described by workers (see Creswell, 2014). This design was considered the most suitable for this study, as the type of description articulates the experiences for several operatives and supervisors who have all experienced different types of worker engagement. The phenomenological research design is based on strong philosophical underpinnings, and it involves conducting interviews (see Giorgi, 2012).

Gaining access to construction operatives and supervisors was facilitated by the research steering group, made up of construction industry OSH experts. A purposeful sampling strategy was utilised for selecting construction sites (from house building to large-scale civil engineering projects) and workers from a pool of site options available across the UK. The participants sought for the interviews were “engaged” workers and supervisors. Workers described as engaged will be operatives who show an interest in health and safety (H&S) issues, contribute to H&S, and/or regularly attend H&S meetings, while engaged supervisors will encourage engagement and regularly discuss H&S issues with their workers.

Phenomenological studies typically involve three to 10 participants (Creswell, 2014); however, this study conducted semi-structured face-to-face and open-ended non-leading interviews with 29 operatives and supervisors until saturation was reached (Charmaz, 2014). Each interview lasted an average of 40 minutes. The interviews were audio-recorded, with note-taking done on-site, and the recordings were later transcribed.

Development of the meaningful discussion framework involved using inductive and deductive logic. The inductive process involved working back and forth between the themes emerging from the interviews conducted and the information from the literature search until a comprehensive set of themes was established (Creswell, 2013). This involved collaborating and interacting with industry experts (the steering group) through presentations and workshops, in order to shape the emerging themes of meaningful discussion from the interviews.

Validation of the framework and categorisations was achieved through workshops with members of the steering group iteratively. The visual representation of the meaningful discussion framework was developed deductively with members of the steering group from the categories of information acquired from interviewing the research participants to reach a logically certain conclusion. It was considered ideal to work from the more general to the more specific context of meaningful discussion based on examples.

4. ANALYSIS AND DISCUSSION

The framework for meaningful discussion was conceived and developed by the researchers in collaboration with the industry experts. This resulted in a visual representation of factors radiating out from the individual worker to their immediate surroundings, and ultimately to factors beyond the site gate, as illustrated by a conceptual dartboard (see Table 1 and Figure 1). The reason for involving industry experts was to address the complex issue of diverse views regarding assigning and categorising the levels of the different issues discussed by the workers (Fontana and Frey, 1994). It was identified that meaningful discussion between workers, co-workers, supervisors, and managers was dependent on the fundamental principles of trust, motivation, empowerment, and commitment of the workers, which are some of the key features identified in the work of Cameron et al. (2006).

Table 1 outlines the development of meaningful discussion criteria that were adopted in assigning levels of issues that were frequently discussed, raised or flagged by the workers. The criticality of the issues identified, the impact on workers, and the relevant meaning of such issues, such as welfare, housekeeping, hazard spotting, etc., are summarised in Table 1.

Table 1: Areas of issues discussed by the workers, with their levels, criticality and meaning

Level	Criticality	Meaning
1	Personal work area; housekeeping; and work environment	Hazards that directly affect/relate to the worker
2	Welfare	Issues related to site welfare
3	Hazard spotting; site hazards; and hazard causes/procedures	Hazards that are associated with other workers
4	Proactive site solutions	Proactive discussion or proactive action to resolve issues
5	Beyond the site gate: boardroom/other sites; design; and mental health	Issues beyond the site gate that need management intervention

Figure 1 shows the output from the workshops with industry experts. The subjects discussed by the workers centred on personal work area and welfare, which are considered important to the workers. It is only when issues related to personal work area and welfare have been addressed, and there is that element of trust (Scholefield, 2000) in the management to act on problems, that a worker will have the confidence to raise other immediate issues that impact on either them personally or their work environment. Engaging with workers in resolving immediate issues, such as housekeeping, personal work area, and work environment, will reinforce some sense of empowerment, meaning, competence, impact, and belief that workers are being listened to (Conger and Kanungo, 1988). This is when workers feel empowered and emotionally committed (DeJoy, 2005; Hakanen et al., 2006; Schaufeli, 2013) to identify and raise other issues that pose as hazards to others. These involve issues such as hazard spotting, identifying site or work-related hazards, risk assessment, accident investigation, equipment design, and selecting PPE and equipment. These are more effective if involvement is on a voluntary basis, as this ensures ownership (Lancaster et al., 2001). The depth of engagement and meaningful discussion depends on a range of factors, as highlighted by Jensen (2002) and Cameron et al. (2006).

The Construction Design and Management Regulations (CDM) (2015) in the UK explicitly state the requirements of those who indirectly influence site health and safety during the pre-construction, or planning, stages (see Hare et al., 2006). This requires designers to manage health and safety risks. Regulation 14 of CDM 2015 places the duty on the principal contractor to consult and engage with workers in construction work to cooperate effectively in developing, promoting and checking the effectiveness of measures to ensure the health, safety and welfare of workers. However, the issues discussed by the workers clearly show

that inherent issues related to design were not reflected in their meaningful discussion. Other issues beyond the site gate, such as mental health and boardroom-level issues, were not captured in the discussions that workers had. But this is hardly surprising, as these are the most advanced levels of meaningful discussion, and therefore will be rare until full maturity is gained.

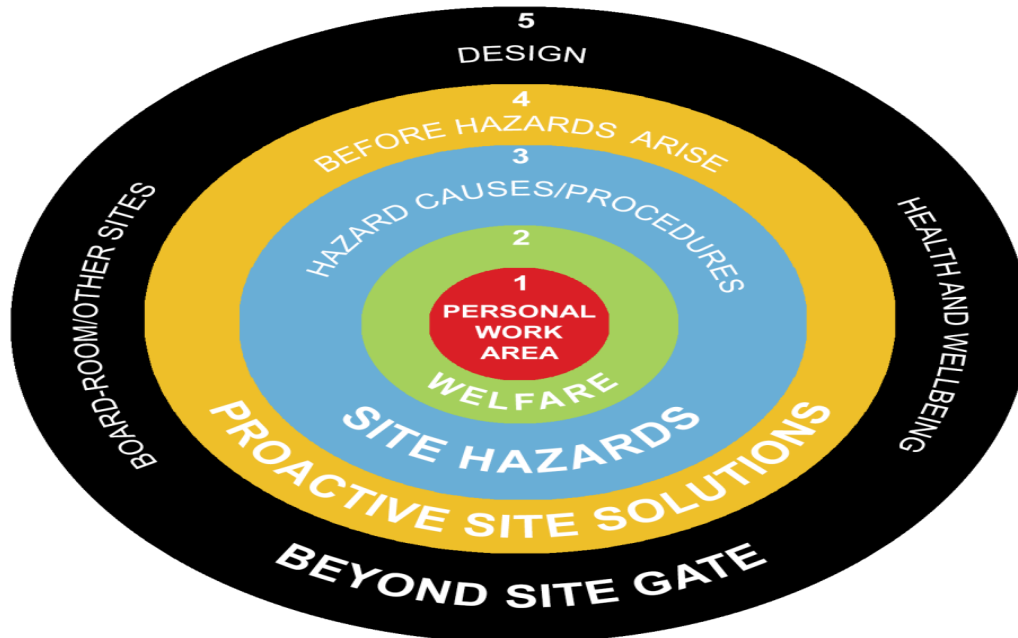
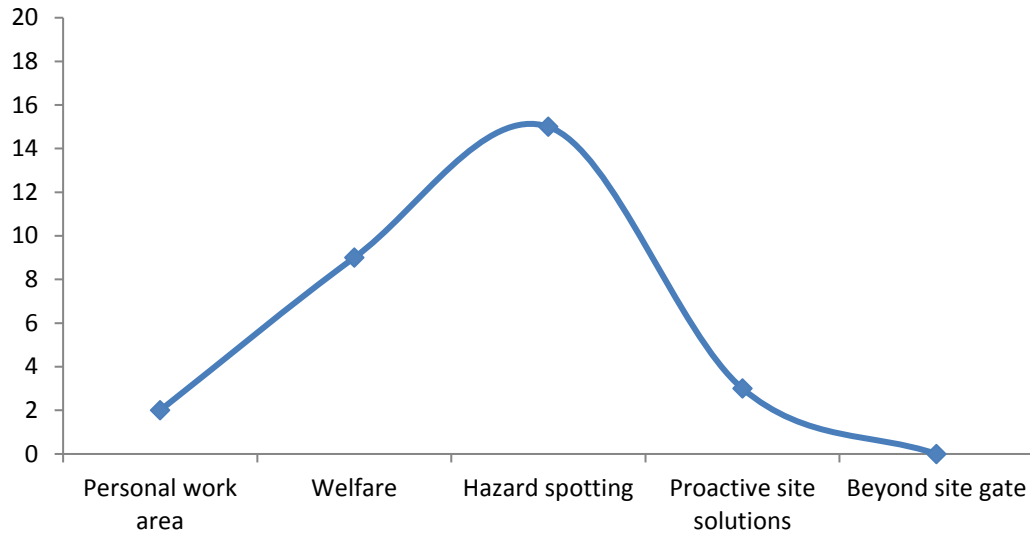


Figure 1: A conceptual framework for meaningful discussion

Table 2 shows the issues that were either discussed by workers or were established by the expert group, actions that were taken to resolve or mitigate the issues.

Nine of the issues discussed by the workers involved welfare (Level 2), which is considered significant to every worker on site. Two issues were related to personal work area or housekeeping (Level 1), while hazard spotting or site hazards (Level 3) accounted for 15 of the 30 issues discussed by the workers. Three of the issues related to proactive site solutions (Level 4), and none of the issues related to design, boardroom/other sites issues, family/personal issues, or mental health issues.



Figure

2: Frequency of identification of issues in the five levels

5. CONCLUSION

Based on the findings of this study, the level of mutual understanding between workers on construction sites, as well as close coordination and communication of design issues, was lacking (beyond the site gate issues). Although there seemed not to be significant barriers to communication between the workers, issues that were relevant to design professionals, construction phase plans, and contractors were not discussed. This gives a sense of the level of reach of the workers in terms of identifying such problems and communicating them to the relevant level. From the interviews conducted, site inductions, toolbox talks, and pre-start meetings were considered by the workers to be critical for the communication of health and safety information between management and the workforce. However, the opportunities for two-way communication relating to the mechanisms required to impart information to the workers and elicit their views in a systematic but not necessarily formal manner are considered to be still lacking. Suffice it to say that meaningful discussion is taking place, but that such discussion needs to go wider and farther than the examples shown in Table 2. For the operatives and supervisors to meaningfully discuss issues up to Level 5 of the framework, they will need to have the requisite skills, experience, competence and training. The expert group recommended further data collection from a sample of female workers and trade union safety representatives to ascertain if Level 5 discussion (beyond the gate issues) is identified.

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Table 2: Meaningful discussion, with the actions taken to resolve the issues, and their ranking

Level	The issue, and a description of it	Action examples
3	Battery charging points , e.g. batteries are being charged in the canteen	Extension cables ordered, and extensions delivered and now in use
2	Earplug dispenser	Earplug dispenser fitted to the board on the lower ground, and ready for use
1	Temporary lighting	Contractor supplied task lighting, but subcontractors are to supply their own if there is not enough on-site
1	Housekeeping	With lots of new faces on-site, people are not tidying up in last 10 minutes at night. All foremen should ensure that work personnel tidy up before leaving the site.
3	PPE	Everyone is not adhering to the five-point PPE rule. If the same people persistently fail to adhere to the rules, their boss will be informed to take the relevant action.
4	Relevant tickets for scissor lifts	Spot checks will be carried out; charge hands are to make sure that only personnel with tickets use machines
2	No running water in joiners' canteen	Supervisor to talk to subcontractor to resolve issue
4	Work plan – plant, machinery & equipment	Everyone to be aware that the crane operator will be working closer to the building
2	Someone squatting over the toilet, broke seat and made a mess	All personnel spoken to; if for any reason you need to do this, speak to management to see if alternative arrangement can be made
3	Car park mud , e.g. sparks complained that the car park was very muddy and no walkway	New tar car park now in operation, with walkway through the canteen
3	Mixed wastes , e.g. plasterboards, timbers, and metals all mixed in the bins	Everyone told to separate waste bins provided to allow forklift driver to put waste in relevant skips
3	Bottom of plant room stairs has open area you need to jump over	Area was boarded over to make suitable platform
3	Stairs blocked off for pouring, and no dry routes to wing B	New routes with barriers and no mud designed
3	Machinery movement/awareness , e.g. lots of MEWPS moving on-site	Safety advisor suggested signs be made and erected for MEWP working area
2	People smoking outside building and canteen	All personnel spoken to and told to use designated smoking areas. The designated smoking area to be made larger
2	Canteen left untidy, and microwave not cleaned after use	Foremen to speak to men, and more bins and signs to be put up
3	PAT testing equipment	All equipment on site tested
3	Uncovered risers	Barriers erected to protect it
3	Water bottle not used during cuttings	Brickies given water bottles, and they are under observation
3	COSSH bins not being used	Signs were made up and put up on-site
2	No microwave in the canteen	A new one was purchased and put in place
4	Commendation	Scaffolders commended for prompt action taken at east elevation scaffold
3	Fire alarm	Fire alarm did not go off with others during the fire drill. Supervisor to silent-test the alarm
2	Toilet water running out frequently	Signs to be put up to “pull up taps” after use; plumber to look at taps
2	Water not fit for drinking	Signs to be made to warn personnel that water from canteen sink is not suitable for drinking
2	No closer on canteen door	Supervisor will look into fitting new ones
1	Cables on ground at west wing	Cables to use nearest drop points and hung up off the floor
3	Metal cutting with jigsaw very noisy	When cutting metal (trays or ducting) with a jigsaw, do it outside if possible, or warn people in the area before cutting. Earplug dispenser to be put up on-site for easy access
3	Using other workers' platforms without charging after use	All team members to speak to other co-workers and to ask them to charge machines at night. Toolbox talk
3	Signing in book to be used every day	Supervisor to talk to all operatives to ensure they sign in, as it is also the fire drill check book

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