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Construction Management and Economics

ISSN: 0144-6193 (Print) 1466-433X (Online) Journal homepage: https://www.tandfonline.com/loi/rcme20

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To cite this article: Fred Sherratt , Peter Farrell & Rod Noble (2013) UK construction site safety: discourses of enforcement and engagement, Construction Management and Economics, 31:6, 623-635, DOI: 10.1080/01446193.2012.747689

To link to this article: https://doi.org/10.1080/01446193.2012.747689

Construction Management and Economics, 2013
Vol. 31, No. 6, 623–635, http://dx.doi.org/10.1080/01446193.2012.747689

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UK construction site safety: discourses of enforcement and engagement

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Received 27 April 2012; accepted 2 November 2012

Developments in safety management on large UK construction sites have seen a paradigm shift from enforcement-based systems to safety-culture programmes, which seek to engage with the workforce to create fully cooperative and safety-conscious sites. Founded in social constructionism, recent research sought out the master discourses of safety on large UK construction sites through the examination of safety signage, talk around safety and safety documentation. Two of the most prominent discourses of safety on sites were found to be safety as enforcement and safety as engagement, reflecting the change in safety management strategies. These discourses were found to be interrelated in their constructions of safety, yet also varied in their associations with practice, responsibility, social interactions and the management hierarchy of the sites. These findings develop the current understanding of safety found on sites, with relation to the hierarchical structures of safety management and the discourses of enforcement and engagement in practice. The findings have significance for the safety practices of large UK contractors in developing and improving their safety-culture programmes, as well as suggesting potential new directions in the academic research of safety in construction.

Keywords: Construction sites, discourse analysis, safety, social constructionism, UK.

Introduction

The UK construction industry is one of the most dangerous in which to work in terms of health and safety; 28% of all fatal workplace accidents in the period 2011/12 occurred in construction, making it account for almost a third of all deaths at work (Health and Safety Executive, 2012a). In addition, in the period 2011/12, 10% of major injuries and 6% of over three-day absence injuries to workers were also to those working within the construction industry (Health and Safety Executive, 2012b). These statistics remain a fundamental contributor to the common perception that construction sites are dangerous places to work (Jordan *et al.*, 2004; Chan and Connolly, 2006). They are considered places of un-safety. Indeed, it could be argued the industry labels itself un-safe; the common sign 'Danger! Construction Site' defines construction sites as inherently dangerous at their entrance gates and perimeter hoardings.

Unsurprisingly, this situation is not tolerated by government, the construction industry and academia, united in the belief that even 'one death is too many' (Donaghy, 2009). Constant efforts are employed to reduce accidents and incidents, alongside legislation and regulations developed to improve safety on sites. Most recently, developments in safety management on large construction sites have seen the implementation of safety-culture programmes, which have become a regular feature of site life under main contractors in the UK (Health and Safety Executive, 2008; Rawlinson and Farrell, 2010).

This paper is drawn from wider research which explored safety, and un-safety, on large UK construction sites. The aim of the research was to provide deeper insight for practitioners of safety management as to how 'safety' was understood and related to by the site-based workforce. A social constructionist approach enabled explorations of safety and un-safety within this context, through talk on site, documents

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and signage, to seek out the master discourses of safety. This paper focuses on two of the most prominent emergent discourses of safety, those of 'safety as enforcement' and 'safety as engagement'. These two closely linked discourses are considered highly relevant because of their contextual associations with recently developed cultural safety programmes.

Context: safety management on UK construction sites

Safety requirements for UK construction sites are controlled by a hierarchy of legislative elements: European law, UK statutory law, including the Health and Safety at Work etc. Act 1974 and UK safety regulations (Howarth and Watson, 2009). In addition to these legal requirements, many larger companies have also established a systematic approach to safety management within their organizations and on their sites (Health and Safety Executive, 2009). Safety management systems (SMSs) comprise several key components, as prescribed by the Health and Safety Executive in its guidance documentation, *Successful Health and Safety Management* (Health and Safety Executive, 2006), for example clear site rules, site inductions, permits to work and communication systems such as site safety notice boards and safety committee meetings (Howarth and Watson, 2009). Effective communication and worker involvement strategies and processes are often seen as critical for successful SMSs (Fryer *et al.*, 2004; Health and Safety Executive, 2007) and a characteristic of organizations with good safety performance (Lingard and Rowlinson, 2005). Management commitment has also been seen as essential, in order to receive similar commitment from the workforce (Lingard and Rowlinson, 2005; Health and Safety Executive, 2007).

However, more recently 'safety culture' has come to the forefront of proactive safety management in the UK construction industry. Since the government's safety summit of 2001 there has been a change among larger contractors, and the concept of a 'safety culture' has been adopted on a significant scale by those seeking to improve safety on their construction sites (Dingsdag *et al.*, 2008; Ridley and Channing, 2008). Seen by industry as a natural progression after the implementation of SMSs within an organization, safety management develops to focus on the 'safety culture' (Hudson, 2007; Meldrum *et al.*, 2009). Such development is supported by the Health and Safety Executive, which actively encourages the development of a proactive 'safety culture' on sites, and sees it as essential for the improvement of the safety record of the construction industry (Health and Safety Executive, 2000).

'Safety culture' manifested itself in practice in the implementation of what can be termed safety-culture programmes (SCPs), the very first of which were implemented in the late 1990s (Health and Safety Executive, 2008). Fundamental to SCPs is the employment of a top-down change model to alter the norms, values and attitudes of organizations as a whole, leading to an improved 'safety culture' on sites (Dingsdag *et al.*, 2006). In order to achieve this, the programmes seek to win the 'hearts and minds' (Worthington, 2007) of organizations including site management and operatives, through worker engagement (Wamuziri, 2011). SCPs 'make safety personal' (Balfour Beatty, 2012) and ask people to take responsibility for their own safety, encouraging the desire to choose to work safely, rather than compelling safe working by enforcement and policing. The SCP approach relies not on rules or paperwork, but on respect and expectations, and is based on effective communication, worker engagement and creating a cooperative environment which challenges the way work is undertaken on sites (Worthington, 2007). Risk-taking behaviour is targeted by reminding operatives of the consequences a serious accident or even death can have, not only to themselves, but also family and friends. SCPs use training programmes to pass their message on (Cooper and Cotton, 2000) as well as focused media and advertising campaigns on sites; the use of safety propaganda (Hughes and Ferrett, 2007), such as posters, leaflets or other information; and branding, as evidenced by Balfour Beatty's (2012) Zero Harm programme with its highly distinctive orange logo. Forms of communication such as safety newsletters (Health and Safety Executive, 2005) and posters are also common on sites (Hartley *et al.*, 2011). Frequently, such communications are personalized, adopting the notion that workers will engage at a greater level with safety messages if they understand the consequences of poor safety at the personal level (Biggs *et al.*, 2005).

The branded SCP, Incident and Injury Free (IIF) programme, originally from the USA, was adopted in the UK by both Laing O'Rourke and LendLease, two of the UK's largest contractors. As Laing O'Rourke (2012) stated on its website, 'IIF represents a step change in attitudes to safety … underlining the personal responsibility we each have to ourselves and each other', a philosophy echoed by LendLease (2012), who comment that they ' … operate Incident and Injury Free wherever we have a presence'. An alternative approach has been made in Balfour Beatty's (2012) Zero Harm campaign, an example of a combined safety programme. In 'identifying and planning out hazards' and establishing 'behavioural protocols … to eliminate fatal risks' the programme

looks to behavioural aspects of safety management, but in 'making safety personal' the fundamentals of SCPs are also apparent.

However, it must be remembered that these programmes are positioned within the operational construction site environment; indeed it has been stated that the very nature of the construction industry has to date inhibited the development of a proactive 'safety culture' (Cipolla *et al.*, 2006). Industry characteristics have been cited again and again as the root cause of many safety accidents and incidents: competitive tendering for work winning (Morton and Ross, 2008), the use of subcontracting and long supply chains (Donaghy, 2009), the transient and fragmented workforce (Biggs *et al.*, 2005; Donaghy, 2009), bonus and payment schemes that encourage speed and risk taking behaviours (Fellows *et al.*, 2002; Spanswick, 2007) and the constant demand for progress and production (Lingard and Rowlinson, 2005).

It is within this turbulent environment that SCPs, supported by adherence to legislation and structured SMSs, seek to manage, and indeed fundamentally change the process of management of safety on sites. There has been a paradigm shift to personalization, engagement and participation, a shift in the responsibility for and the ownership of safety; safety has been 'made personal' through the active engagement of the workforce. These developments are in sharp contrast to the traditional approaches of safety management, which relied on the implementation of mechanistic regulations and vigorously enforced compliance (Langford *et al.*, 2000; Haupt, 2004). However, old management styles may have long shadows; the fundamental need for legislative compliance may necessitate some level of enforcement, if only to establish the standards and protocols to be met. Indeed, the personalization of safety must be juxtaposed with the personalization of work and other influential factors that will contribute to individuals' understandings and prioritizations of safety within the site environment. The potentially infinite variety of these prioritizations challenges the contextual logic of the individualistic engagement as prescribed by the SCP philosophy, and may also necessitate a level of reliance on the traditional methods of enforcement in practice.

Methodology: the social constructionism of the construction sites

The objective, scientific approach made by the majority of construction management research to social issues such as safety (Love *et al.*, 2002), has arguably led to a body of work that is focused on the tangible and measurable. An illustrative example is the high risk tolerance found on construction sites (Cooper and Cotton, 2000; Rawlinson and Farrell, 2009). Traditional, objectivist research has provided 'reasons' for this phenomenon; contractors and operatives are often prepared to take risks to get the job done, for money, for production, or just to keep their employment secure (Langford *et al.*, 2000; Cipolla *et al.*, 2006; Choudhry and Fang, 2008). However, while these contextual reasons are indeed likely to be significant factors, they themselves cannot explain how and why individuals employ them within their practices concerning safety. Traditional construction management approaches have led to research concerned with explanations of behaviour rather than understandings (Dainty, 2008) and to a discipline eminently aware of what the industry does, but with little understanding of why it does it, or indeed how to change it (Harty, 2008). This study therefore looked to the social sciences to inform and illuminate alternative methods of approach, to establish, and indeed establish what can actually be established, about the construction site workforce and its understandings and attitudes towards safety.

Such an approach was found within social constructionism. Social constructionism considers the entire world itself to be socially constructed by the people within it through systems and practices, to form a variety of social relations, and for various reasons such as self-interest (Gergen and Gergen, 2004; Shotter, 2007). These interactions and shared practices result in shared versions of knowledge within particular communities (Gergen and Gergen, 2003; Filmer *et al.*, 2004), and the 'truth' is seen as the current accepted way of understanding the world (Burr, 2003). Consequently, 'safety', when considered within the context of construction sites, can itself be seen as a social construction; the site workforce will construct 'safety' throughout their working day, through interactions with each other, which vary with context and circumstance. There will necessarily be a 'truth' about safety, yet with the constant reconstruction of this 'truth' through the various social interactions, the truth about safety will itself be changeable and in a constant state of flux (Gergen, 1999). Indeed, variability in the 'understandings' of safety in the construction site environment is already an emergent phenomenon, identified through alternative methods of enquiry (Choudhry and Fang, 2008; Rawlinson and Farrell, 2009).

People construct their social realities, and the various truths of their lives through the use of discourses, which are central to all human activity (Potter and Hepburn, 2008). Discourse is neither language nor

linguistics, rather it emphasizes the language-in-use aspect of social constructionism and seeks how it is used within everyday activities and settings (Augoustinos *et al.*, 2006; Potter, 2007). Based in the work of Wittgenstein (Gergen and Gergen, 2004), a discursive approach seeks understandings and explanations of the world through linguistic exchange, undertaken in specific patterns of human relationships and contexts. Realities and truths are therefore constructed by language in the form of discourses, which include talk and text, or indeed any situation involving interaction (Potter and Wetherell, 1992). Construction sites will inevitably contain a variety of master discourses of 'safety', created and developed through the variety of texts, both verbal and visual, produced by people as they develop and construct safety within the site environment.

The methodological tool of examination of these discourses within social constructionism is discourse analysis (DA) (Augoustinos *et al.*, 2006). DA is itself very hard to define, as it is still a growing methodology within many different disciplines in the social sciences (Peräkylä, 2005). However, fundamentally, DA does not seek to examine motives, intentions or other cognitive processes that reside within people (Peräkylä, 2005; Edwards *et al.*, 2009). The discourses form the sole exploratory tool and topic of research; there is no attempt to 'move beyond' them to the topic or subject of the discourse (Potter and Hepburn, 2008). Fundamentally, DA is the study of talk and texts, and constitutes a set of methods and theories for investigating language in use within social contexts (Wetherell *et al.*, 2001). The approach employed for this research was that developed by Potter *et al.* (2007), with focus on the function of discourse, emphasizing the outcome orientation, alongside inherent variations as discourses are created during different activities.

A social constructionist approach was considered highly relevant due to its frequent employment within the social sciences to provide detailed insight into everyday life within specific contexts and situations (Taylor, 2001a). Although the epistemological position of such studies dictates that findings are not generalizable in the traditional sense, they have provided the foundation for recommendations of different practices and interventions to produce change and solve problems within the social sphere (Gergen and Gergen, 2004; Wiggins and Potter, 2008). A relevant example can be found in the discourse analysis of workplace interactions and practices undertaken to make recommendations for training and in the design of work environments and equipment (Taylor, 2001b).

Therefore, building on precedent, this approach will be able to provide a unique perspective, through the application of social constructionism and discourse analysis, of safety within the construction site environment. Analysis of how people construct safety within their working lives through their interactions and discourses on sites will provide insight and understanding which can then be utilized by practitioners to inform interventions for change. An improved understanding of how safety is constructed through the interactions of those on sites, and the 'truths' of safety in the developing safety management context, has the potential to illuminate areas of harmony or conflict within the differing social constructions and discourses of the different hierarchical groups: working operatives, site management and strategic management.

Such an approach does not negate the validity of other methodologies within construction safety research; rather it seeks to contribute to the establishment of a range of approaches and epistemologies within the discipline (Cairns, 2008). It is not suggested that the social constructionist perspective forms the unique foundation for the development of interventions, which would seriously limit application to practice; instead it is proposed that it provides insight and understanding for practitioners when considering the wider context and knowledge base already established within construction safety management. Such an inclusive approach is ultimately recommended to develop the opportunity for more effective safety initiatives to be undertaken, for example with consideration of cognitive research as already employed on site through the IIF programmes, to bring about positive change.

Method: seeking the discourses of safety

The research drew on a small sample size, common within discursive research (Taylor, 2001a) because of the highly intensive nature of the analytical process (Wetherell *et al.*, 2001), and an approach directed towards situated and local phenomena, rather than wider contexts. Data were collected from six sites within North West England, the regional criterion employed for logistical reasons. All the sites were operated by main contractors included in *Building Magazine*'s 'Top 30 contractors of 2006' in terms of national work won (Building, 2007) and were over £20m in value. This criterion was imposed to ensure that a certain standard in terms of health and safety was likely to be found on the sites, including the use of safety-culture programmes, and a high level of commitment to health and safety would be in place (Donaghy, 2009).

Three types of data associated with safety management were collected from the sites: documentary data

in their original form, be this hard or electronic copy, digital visual images of signage and digital audio recordings of conversations. Safety documentation, such as site inductions and safety booklets, have been created by a specific author for a certain audience and for a specific purpose (Flick, 2007), and therefore such documents will contain the discourses used to socially construct specific versions of safety within that particular context (Macdonald, 2008; Flick, 2009). Safety signage was collected and recorded as digital images. Such signs form a significant discursive contribution to the social construction of safety. Through prohibitions, warnings, directions, advisories, alerts and watches, signage not only invokes a common underlying discursive framework incorporating an implied reader, an implied object and an implied author exercising authority (Hermer and Hunt, 1996), but is also highly revealing of the constructed attributes of these participants and their motivations (Kellehear, 1993). A holistic approach to the data collection process was employed on the sites for these two sources; all available safety documentation was collected, and all safety signage within the site boundary was photographed and recorded.

The talk data were collected in the form of conversations between the lead researcher and site operatives, supervisors and managers, held as informal 'interviews'. The underlying epistemology of the research was significant here; rather than seeking descriptions of 'fact', the interviews became interactional, active engagements (Potter and Hepburn, 2005) with the researcher and participants actively engaged in constructing meaning in the course of the conversations. Critical within these interactions was a high level of emic understanding on the part of the researcher of the field and social world the participant was constructing (Fetterman, 2010). The lead researcher for this study has over 10 years' recent experience of working on large UK construction sites, and was able to talk 'safety' in the language of the site, using the conversation to explore the participants' constructions of safety in their own versions of the social world (Potter and Mulkay, 2007). Without such interviews, the difficulties in obtaining naturally occurring talk around safety on construction sites would be considerable—relevant talk would be scattered throughout the working day. This method allowed for talk to be constructed and recorded around a topic that would otherwise remain inaccessible (Peräkylä, 2005).

Analysis of the data was made through a constant comparison method, which ensured that the data from each site visit were examined and analysed with reference to all previous data collected. Therefore the development of the master discourses of safety on sites, including those of 'safety as engagement' and 'safety as enforcement', was an emergent process that spanned all three of the categories of data source: signs, talk and documents. However, in order to facilitate clarity and enable the developmental process to be in some way explicated to the reader, the data have been explored here utilizing these various sources as a framework to demonstrate the emergence of the discourses in context.

The product of the DA was an exploration and explication of the master discourses which contributed to the social constructions of safety on construction sites, and is usually presented in such a way as to allow readers to assess the interpretations made during the analytical process itself (Wetherell and Potter, 1992). However, owing to constraints of space, unpacking of the texts has here been limited only to illustrative examples, those which facilitate understanding of the development of the discourses of 'safety as engagement' and 'safety as enforcement' within the wider construction site context. These discourses will be further explored and examined through later discussion, which draws on the data and analysis from the study as a whole.

Unpacking the texts

Talking about safety

The talk within Extract 1, that of a subcontractor's site foreman, initially commenced in a debate around the construction of safety itself, the speaker unsure of responsibility, influence or indeed what constructs safety on sites. However he does ultimately ground the construction of safety within a specific location, that of 'the site', which firmly places safety in practice:

Extract 1: Sub-contractor's site foreman

225. R: I think (0.4) I think it's more sort of erm (0.2) driven from
226. management isn't it ↑↑whether it's because of the [safety
227. programme] I'm not one hundred percent sure . hhhh I think it's
228. more to do with whoever's running (0.2) the site. (0.6) if
229. they're (.) health and safety conscious (0.6) then I think it
230. drives everybody else to be health and safety conscious. If
231. they're giving out yellow cards and red cards and people see
232. they're doing that then (.) I think it makes them more aware
233. (0.4) that people are (0.2) you know coming down hard on health
234. and safety.

The speaker then further developed his own constructions of safety through a discourse of safety as enforcement. Rather than looking to management practices that may have supported or encouraged safe actions on site, the speaker drew on the practice of enforcement as illustrated through the common site process of a card-based punishment system, to develop his talk around safety. By its very nature, the discourse of safety as enforcement constructed a reality where enforcement was seen as an inherent part of the practice of safety itself. By drawing on the practices of enforcement in the talk of safety, the speaker constructed a reality where people need enforcement in order to positively participate in safety in practice.

The need for enforcement as an integral part of safety in practice was also constructed by a subcontractor's site supervisor within Extract 2:

Extract 2: Sub-contractor's site supervisor

49. R: I've always sa-↑they've always been good the lads who work with
50. us and like (.) they don't really break the rules but (.) just
51. to enforce them cos sometimes .hhhh you do a lot like the odd
52. thing or like they might not put the barriers round the machine
53. proper but now .hhhhh I tend to go out now and reinforce it a
54. bit more.

Here, the speaker again constructed safety through the discourse of safety as enforcement within the context of site practice. In contrast to Extract 1 above, the speaker positioned himself as the enforcer within the talk, although this positioning was located within a reality where people did not always fully participate in safety in practice. The speaker as enforcer did not position the enforcement process in a practice or process framework, and in contrast to Extract 1, the enforcement was not linked to punishment, rather safety as enforcement was seen as the means to its own end.

Within Extract 2, minor status was accorded to the violation of safety used as the illustrative need for enforcement. This minor status was actually constructed through the use of a common linguistic phrasing found within the data as a whole, with the speaker of Extract 2's violation described as an 'odd thing'. The construction of a violation as 'odd' reduced its impact in both frequency and severity, and revealed a reality where violations (which in practice could be very serious in terms of consequences) were themselves minimized through relatively casual talk and linguistic associations.

Indeed, in contrast to the discourse of safety as enforcement and punishment constructed in Extract 1, and safety as enforcement within and of itself found within Extract 2, the talk of a main contractor's site manager in Extract 3 constructed a further alternative, although still positioned within a reality of violation of safety in practice:

Extract 3: Main contractor's site manager

88. R: a::nd it's basically not about punishing them necessarily for
89. doing something wrong but re-educating them and bringing them
90. into the right way of thinking (0.4) and er: even things like
91. (.) ↓give them reasons why not >whilst your talking to them<
92. pick up on things if it's an older bloke .hhhh you might have
93. family (0.8) if you ↑weren't paying attention you might not be
94. seeing them tonight

As in Extract 2, the speaker of Extract 3 positioned himself in the role of the enforcer. Here, safety as enforcement was inherently tied to practice, undertaken in a reality where violations of the safety rules and safety in practice were constructed as commonplace. Rather than establishing a scenario or specific violation within the talk as a commencement point for the discursive development of safety as enforcement, the speaker focused on his own interaction with the participant during an assumed violation.

Yet in contrast to the talk within Extract 1, the speaker of Extract 3 deliberately avoided the construction of punishment in association with safety as enforcement; rather the enforcement in Extract 3 was one of social interaction and communication, drawing on an alternative discourse, that of 'safety as engagement'. The speaker of Extract 3 employed role play within the talk, envisaging himself during the interaction, and constructed the talk accordingly. The use of role play as a trope within the talk created a highly active and indeed interactive construct within the discourses of safety as enforcement and engagement, and one common within the data as a whole.

Within Extract 3, safety was constructed in the same contextual reality as in Extracts 1 and 2, developed to the point where violation was constructed as such an inherent part of site life it requires no explication, and it was the subsequent enforcement interaction, albeit developed through the discourse of 'safety as engagement', that became the focus of the talk. Again the reality of the site was one where safety as

enforcement was necessary for compliance with safety as part of everyday practice; however, there was significant variation in the associated constructs of this enforcement in terms of punishment, practice and engagement.

Voices of the site signage

These two master discourses were developed through the signage data, which enabled further associations to be made to the 'voices' found to be most prominent within the two discourses. As identified within the talk data, safety as enforcement was a prominent discourse of the safety signage, associated with rules and prohibition, violation and subsequent punishment. However, also prominent within the signage was the discourse of safety as engagement, which sought to 'sweeten' the relationship between text author and recipient, and appeal to autonomous individuals to comply with the requirements of the signs, which were themselves often founded on the discourse of safety as enforcement. The development of safety as engagement was also associated with the voices of the sites, with the managerial hierarchy becoming influential in the balance of the discourses drawn upon for the signs. Two signs that exemplify this are described below, but not illustrated for reasons of confidentiality.

Within the signage addressing the management of safe walking routes, two alternate voices become clear. Example Sign 1 was a 'corporate' sign, professionally produced, fully plasticized and issued from the contractor's head office, positioned on the walking route from the welfare facilities to the site. Example Sign 1 asked its audience to 'choose … to work safely … not to enter segregated areas … not to enter lifting zones … not to jump barriers'. In making these statements, the sign was itself operating within a reality where people performed these behaviours, acted unsafely and specifically violated the access provisions. The sign first employed a discourse of safety as engagement, and sought to develop safe practice through appeal to the individual's autonomy, although this was subsequently juxtaposed with the contradictory discourse of safety as enforcement, with prohibitive 'not to …' rules also located within the text.

The texts of Example Sign 1 can be compared to those of Example Sign 2, a sign produced in the site office, by the site managerial team, laminated and fixed to a barrier with cable ties. Example Sign 2 was also operating in a reality where people had violated the access provisions, although its function was to manage a specific problem in relation to the walking route. As it stated, 'Barriers and yellow walkways are their [*sic*] for your safety and protection and should not be moved … anyone found to be moving barriers or walkways will be subject to … [main contractor] disciplinary procedures! … if you require barriers or walkways to be moved contact block managers first!' This text was very much bound up in addressing a specific previous action by others and establishing future control. The need to construct and display such signs by site management clearly indicated past non-compliance with site rules, and the threat of '… disciplinary procedures!' implied the need to reinforce compliance and addressed the audience in straightforward terms of punishment avoidance. This sign was operating from the discourse of safety as enforcement, drawing on rules, violation and punishment to undertake the safety management function.

Example Sign 2 constructed its text from the voice of the supervisors, and used company disciplinary procedures as the threat for non-compliance. Defining the procedures as 'the company's', and not the supervisors' own methods of punishment constructed a hierarchy within the overall site management, and positioned the supervisors closer to operatives, and likely offenders, than the senior or project management. This use of a 'local' management voice supported the likely longevity of this issue within this area of the site, and constructed a reality where the block management were themselves under criticism from more senior management for their own non-compliance in the provision of continuous or safe walking routes. This construction was reinforced by the final text of the sign, which did not prohibit the moving of barriers, and rather implored the audience to contact the block management first. Here, the discourse of safety as engagement was again positioned alongside that of safety as enforcement, appealing to individuals to participate in the safety management of their own volition.

When compared to Example Sign 1, the discourse of Example Sign 2 appears harsh in its approach to managing the violating behaviours. While Example Sign 2 made statements and issued threats, constructing 'safety as enforcement', Example Sign 1 asked its audience to choose their behaviour to comply with the site access strategy, with no threat of punishment or repercussions, and drew on cognitive theories of volition to stimulate avoidance of these violations, the discourse of safety as engagement. The formal construction and company voice, supported by the safety programme logo, also gave a level of authority to Example Sign 1's requests.

Both signs operated within the reality espoused by the talk data, where violation of safety rules is commonplace. Within these two signs, illustrative of the common approaches of management in their interaction with the workforce through this particular

medium, the discourses of both safety as engagement and safety as enforcement are evident and indeed closely associated. Differences in 'voice' and discursive prioritization can be seen between the two signs produced by different managerial levels, with any association with punishment and discipline only evident within the voice of the site management.

The written word

The site safety documents also contained resources produced at the site level and at the corporate level, and consequently similar variations in these discursive employments of engagement and enforcement were also evident. Three examples are used to illustrate this; the documents are described here but not illustrated for reasons of confidentiality.

Example Document 1 was a professionally produced, corporate issued site safety guide handed to all operatives at site inductions, which addressed specific site hazards, such as the page concerned with 'Electricity'. Within this text, safety was itself constructed through a 'safe system of work', which was directly associated with practice and positioned as descriptive of the process of work. Although not directly expressed as such, the text contained rules and the addresser explicitly told the addressee 'do not …', such prohibitions placing the text within the discourse of safety as enforcement. However, despite the communication of rules regarding certain behaviours around safety in practice, no mention of punishment was located at any point within the guide. Despite the presence of prohibitions and rules, which establish a benchmark for violation, no reality of enforcement or punishment was further developed and indeed it was notable by its absence.

Within Example Document 1 the discourse of safety as enforcement was employed in a constrained manner; while rules were set, the consequential actions for their violation were not explicated. This could have been a conscious omission by the authors, to construct a reality where violation did not occur and therefore made punishment unnecessary. However the reality of this suggestion is contradicted by data, such as Example Sign 2, which specifically focused on violation and punishment. Example Document 1 was professionally produced by the corporate management, yet Example Sign 2 was the product of the site itself. This indicated the potential for the level of management undertaking the role of addresser to play an influential role in the discourse of safety as enforcement, as identified through the shift in the discursive rhetoric in the professionally produced site safety guides towards safety as enforcement, and a growing association with the discourse of safety as engagement.

For example, the professionally produced, corporate issued, site safety guide Example Document 2 contained a page entitled 'Incident and Injury Free (IIF)'. Within this text 'behaviours' were 'encouraged', yet the final bullet point still drew on the discourse of safety as enforcement through its identification and establishment of the 'safety rules'. However, the rules were positioned within a discourse of choice and engagement rather than the traditional rhetoric of compliance and enforcement. Although the text still constructed a reality of regulation which must be adhered to by the addressee, whether the individual followed the suggested behavioural approach or not, the discourse was one of engagement in association with enforcement, which are intertwined. The suggestion remains that there was a need for such regulation within the site environment, rather than a reality which would accept a shift, for example, to safety 'processes' which would encompass the same information without the traditional connotations of enforcement and punishment.

This text also developed a personalization of safety; indeed the text directly addressed 'you' and even explicitly asked 'you' to 'take personal responsibility for your own safety and the safety of your colleagues'. Yet, this personalization inevitably also constructed a segregated position: the reader as 'you', an individual, and the main contractor as the voice of instruction and management. Therefore, the discourse of safety as engagement was found to have inherent segregation through the linguistic constructions necessary to develop personal and individual messages within the texts.

An alternative development of this concept was found in a slide of Example Document 3, a site induction presentation entitled 'Our commitment to your safety on this site'. Within the text of this slide, the discourse of safety as engagement was prominent. Several identities were established within the text, including that of viewer, as in the case of a presentation, and the author. Other roles further developed safety as engagement by the assignment of managerial and organizational positions, specifically entitled 'safety', to named members of the site team. Yet through these role assignments, two separate camps were again established within the reality of the site, the inevitable segregation of engagement. However, through its final text the engagement process within this particular text did seek to construct a link between the two segregated parties, and positioned the 'workforce safety committee' as a potential bridge between the two. Although this text constructed a reality where segregation did exist between the main contractor and subcontractors on the site, it also developed, through explicated awareness of that segregation, an implementation of practice in order to overcome the segregation/engagement 'paradox'.

Management of safety: engagement and enforcement

Breaking the rules

The prominence of the discourses of safety as engagement and safety as enforcement can be associated with the constructed realities in which they were operating. Safety management, by necessity, sets rules, practices and processes at the very minimum to meet the legislative requirements of the UK (Howarth and Watson, 2009). Rules and regulations are part of a much wider social paradigm which advocates compliance and rule-following, and contextualizes site rules within the much wider concept of the legal framework of governance in which society operates as UK citizens. However, within the site environment compliance with the rules was not as commonplace as the wider social discourse would suggest, and violation of safety rules was found to be an inherent and accepted aspect of construction site realities. Indeed, violations were constructed as such everyday occurrences that the detailed development of such instances was minimal within the data; they were seen as bending rather than breaking the rules and were consequently constructed with a lack of any associated danger or the potential for any real incident or injury.

Alongside acceptance of safety violation as the natural state of affairs, punishment, or some other form of redress for such violations, was actually expected. Although violations were constructed without consequences of personal injury or accidents, they were constructed within a context where punishment was the correct course of action, should the perpetrator be caught. Construction site people expect safety rules to be bent as a matter of course, and if the perpetrators are caught, punishment is due.

A further aspect of the acceptance of punishments for performed safety violations was the suggestion that the site workforce actually need enforcement in order to positively participate in safety in practice. This reinforced the realities of violation within the site context. The workforce, through their 'natural' behaviours of bending and breaking site rules, constructed themselves as needing enforcement and punishment to enable the development of a level of safety management on sites. This has associations with the responsibility for safety. In positioning themselves as violators, minimizing the potential repercussions of these violations and accepting punishment as it is meted out, this discourse of safety as enforcement also enables the site workforce to absolve themselves of any responsibility for their own safety or that of others on sites. They need to be punished and managed in order to achieve safe working, reducing themselves to the level of children who need to be controlled, yet contradictorily only accepting this control if it is delivered in a 'fair' and respectful fashion.

Site tribes

These elements of the construction site reality developed the discourse of safety as enforcement through the everyday safety management practices of the sites, in terms of the rules and regulations governing management in practice, the process of prohibition and the establishment of rules, the subsequent violation of these rules and the ultimate punishments for these actions. These management practices necessitate the construction of a framework of responsibility, and a hierarchy of management within site society to actually enforce safety, which was reflected within the social constructions and identifiable through the discourses of safety within all of the data sources.

Most prominent was the clear identification of main contractor management as the voice of authority for safety on the sites through formal, branded texts. Yet more informal safety signs and documents, constructed by the onsite management teams, were at times employed to segregate themselves from the corporate level of management. This sought to shift the responsibility for management and control of safety to higher echelons, while simultaneously developing collaborative associations between the lower levels, aligning the main contractor's onsite supervisors with the subcontractor's onsite supervisors and operatives. This transfer of control and the setting of the rules to a higher power than onsite management could be symptomatic of the need to maintain a level of harmony within the social environment of the site in order to facilitate the other necessary processes of the sites such as production. Such a construction generates a 'them-and-us' at a tangent to the more traditional main contractor/subcontractor divide, and positions it at an onsite supervisory/office level management instead. However, the main contractor/subcontractor divide was also evident within constructions of safety management and enforcement, and as would be expected, these dichotomies were certainly not without change, dependent on context.

Tribal views of reality

A more complete construction of 'them-and-us' was identified between site management/supervisors and corporate management of main contractors. Within the corporate data, acknowledgement of the occur-

rence of safety violations and the need for punishments was minimal. Safety-culture programmes, such as IIF, actively positioned violations that result in safety incidents within a 'no-blame' culture; there was no punishment to be meted out. This lack of punishment is one of the key methods employed in seeking to improve the safety culture of sites (Health and Safety Executive, 2005); however, here it had been extrapolated to a preceding stage, corporate management constructing a reality that did not accept or even acknowledge violation that could lead to blame. Yet this contrasts sharply with the more informal constructions of safety through the documentation and signage produced by site management. Here, protracted and highly detailed texts could be found, detailing the punishment mechanisms for violation of certain safety rules. Such documents were also accepting of the potential for violations, directly addressing the workforce to persuade them of compliance with site rules.

This dissonance was found throughout the data. While those at the higher corporate level sought to develop and position safety only positively, through no-blame cultures and realities intolerant of violation to the point of denial, those who managed and participated in construction site practices on a daily basis at site level constructed safety within a reality of rules, violations, enforcements and punishments. Indeed the acceptance of a site hierarchy as necessary to provide such enforcement by the workforce themselves was a further incongruity within this aspect of the site reality. That the two constructions are in operation concurrently also suggests the potential for conflict and dissonance in practice and process, not least the potential for exploitation of engagement through the reality of enforcement.

Continued emergence of the philosophies and language of the safety-culture programmes within the discourse of safety as enforcement led to the close association with the discourse of safety as engagement. Indeed, the two became interwoven at times, dressing enforcement in the clothes of engagement. The corporate constructions of safety as enforcement drew on this blended discourse in order to develop enforcement from the implementation of rules through punishment to the encouragement of individuals to follow the rules of their own volition. Although the rules remain the same, the constructions surrounding them have changed. This leads to the assumed realities of the sites of the safety-culture programmes as places of an obedient and willingly participative workforce in the safety management of the sites. Yet this is at odds with the reality of site level management, which has alternatively been constructed as one of violation, discipline and segregation between main contractors and subcontractors, something that does not necessarily also support engagement and interaction.

Responsibility and ownership of safety

The discourse of safety as engagement also developed beyond that associated with enforcement to seek out workforce compliance through personalization, and the suggestion can be made that this may have begun to manifest with the social constructions of the sites. In keeping with the literature around IIF, which seeks to 'make safety personal' (Balfour Beatty, 2012), the personalization of safety was indeed frequently identified within both the talk and documentary data. Through individuals' talk, safety was frequently positioned in direct relation to the speaker, through personal associations of family and the wider repercussions of un-safety. The individual was also identified within the written data, directly addressed through repeated use of 'you' as the reader of the text and consequent identification as the participant in the associated safety processes and practices on site. These constructions are potentially symbiotic; the personalization of safety at the formal corporate level has developed safety for individuals as personal, which through talk further develops safety within the site context as a personal 'truth'.

Further associations with the approach to safety management through the discourse of safety as engagement have potential repercussions of a more practical nature for the engaged individual. Engagement and participation are necessarily bound up with consequential personal responsibility. In enabling individuals to 'make safety personal', a level of engagement also gives them a role of safety in practice, co-opting them into the safety management of sites and assigning personal responsibilities for safety. This is in direct contrast to the developments of responsibility identified through the discourse of safety as enforcement. While the workforce have constructed a reality in which they are absolved of all responsibility, to be managed and punished when necessary to deliver 'safety management' within the sites, the safety-culture programmes directly challenge this through their constructions of personalization.

That the discourse of safety as engagement also constructs an inherent segregation, similar to that of safety as enforcement, could be tempered by the workforce's desire for hierarchical control and management of safety. The natural segregation of engagement in terms of the main contractor/subcontractor roles needed to seek and respond to engagement practices has been suggested to construct dissonance within the process of engagement around safety. The

texts of engagement and interaction around safety were frequently positioned within a segregated/engaged context, potentially developing incoherence around this aspect of safety, as personalization and engagement were associated with the site hierarchy and its mechanistic framework. However, an alternative reading of these segregated realities, considered within the context of this management hierarchy, actually constructs segregation as a positive aspect of site reality. Alongside the acceptance of management for the enforcement of safety, management was positioned as necessary for the practice of safety management. The enabling and facilitating of work practice approvals, safety rules and process were identified within the data, further developing the pattern of acceptance for management in relation to the positioning of safety on sites. Indeed through these various constructions positioning of the responsibility for safety was made clear, supporting notions that good management is essential for the safe running of sites (Health and Safety Executive, 2006).

This can be related to the discourses of safety as both enforcement and engagement. Although safety is being constructed by the safety-culture programmes through the language of engagement, directly challenging the 'old' realities and practices of the sites, there is still retention of management control. Although the workforce is asked to follow the rules, the rules themselves remain. Where engagement and participation are sought, there is frequently still more a monologue than a dialogue of safety developed. Despite the interweaving of enforcement and engagement, there are still constructions within the society of safety on sites which retain the traditional enforcement approach to safety management, albeit clad in the discourse dominant within modern safety-culture programmes.

Conclusions

A social constructionist approach to safety on large UK construction sites revealed several master discourses of safety. Two of the most prominent, those of safety as engagement and safety as enforcement, were directly associated with the management of safety within the site environment, reflecting recent developments in management interventions to a safety cultural approach.

These discourses closely associated constructed realities with the management hierarchies of sites, and illuminated the potential for dissonance and ineffectuality in the approaches made from the corporate level in their engagement with site level realities. The lack of acknowledgement of the realities in which the safety culture programmes are seeking to operate could develop barriers to their success, incompatible and incoherent within a reality of violation and the minor status afforded to such rule-breaking. Indeed the development of the discourse of safety as enforcement within the social constructions of the site level may suggest that hierarchical engagement and management are expected and welcomed by the workforce, indicating that ironically a more 'command' driven approach to safety as engagement would meet with success.

This alternative perspective of safety management on sites could assist construction safety professionals in the production and development of practical safety interventions within existing safety management systems and safety-culture programmes, developed to harmonize with existing safety practices and processes. For example, it could be suggested that safety violations must be accepted as everyday occurrences in order to ultimately eliminate them. Contemporary safety-culture programmes seeking to shift responsibility for safety to the personal could find dissonance with a workforce who feel control and punishment a necessary factor in their own safe working. Formal disciplinary processes and a zero tolerance approach are likely to still be required or at least acknowledged with safety-culture programmes in order to create a paradigm shift in current thinking, and ultimately develop a mature site context which can then manage safety within a more violation-intolerant reality.

The emergence of these two master discourses, and their close association with safety management on sites, developed within a much wider research project which sets out to simply examine 'safety' through its discursive constructions on sites. This suggests opportunities for further research in this area; a more structured methodology, with specific focus on the data collection process, could facilitate exploration of this particular phenomenon in greater depth. This could ultimately produce more detailed practical recommendations for interventions, and a deeper understanding of the social constructions of safety on sites, with the intention of assisting in the ongoing improvement of the existing safety management systems of large UK contractors.

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