

INCONSISTENT, INCOMPLETE AND INCIDENTAL: SITE SAFETY CULTURE FROM A CONSTRUCTIONIST PERSPECTIVE

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Safety culture is a common concept within both academia and industry, where large UK contractors have made significant efforts to improve the safety culture and consequently the safety of their sites. Although from either perspective, 'safety culture' itself is not yet fully emergent. Academic research has sought to identify and measure safety culture on sites, however such a quantification of culture is something that may not ultimately be possible. Grounded in social constructionism, this study instead sought to explore and examine safety culture in practice. This epistemology enabled the exploration of culture through the discursive patterns and constructional frameworks that surround safety on sites, themselves constructed through shared social practices and resources. Data was collected from five UK construction projects, all over £20m in value, and included site safety signage, safety talk and various safety documents. Discourse analysis, followed by triangulation of the key themes and representations, revealed considerable variation in the constructions of safety on sites. Safety culture was found to be inconsistent, incomplete and incidental; relating to a variety of different realities in a variety of different contexts. This variation not only has significance for the practices of large contractors in their desire to develop safety culture on sites, but also the direction of further academic research. Recommendations for practice were generated, in order to facilitate further improvements in safety on sites.

Keywords: discourse analysis, safety, safety culture, social constructionism.

INTRODUCTION

Working on UK construction sites is frequently perceived to be a dangerous activity, a perception understandably grounded in the high level of industry accidents and fatalities; construction is currently the third most dangerous occupation in the UK (HSE 2011a).

Unsurprisingly, this situation is not tolerated by the UK government or by the UK construction industry itself. Focus on improving the safety record of the industry has

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been continuous, and supported by academic research, considerable efforts have been made to improve safety within the industry. Most recently, safety culture has become a key concept in the management of safety on sites, despite on-going debates about its manifestation in practice.

This paper presents the findings of a wider research project which sought to examine the social construction of safety on large UK construction sites. The aim of the research was to provide deeper insight for practitioners of safety management of the associations and understandings of 'safety' amongst the site-based workforce. Building on precedent from other social constructionist studies (Gergen and Gergen 2004; Wiggins and Potter 2007), a deeper understanding of safety within the site environment has the potential to inform recommendations of different practices and interventions to produce change and improve safety management on sites.

CONTEXT

'Safety culture' has recently come to the forefront of pro-active safety management in the construction industry. There has been a sea change amongst larger contractors since the safety summit of 2001 (Chevin 2007), and the concept of a safety culture has been adopted on a significant scale by those seeking to improve safety on their construction sites (Ridley and Channing 2008). Seen by industry as a natural progression after the implementation of Safety Management Systems (SMSs) within organisations, safety management then focuses on safety culture (Hudson 2007).

The original concept of safety culture had close links with the human factors theory of accident causation, and unsafe behaviours were frequently cited as evidence of a poor safety culture (HSE 2003). Indeed some have argued that the popularity of safety culture as a concept was due to the convenience for accident investigations to report 'poor safety culture' as the underlying cause (Baram and Schoebel 2007).

There are a large variety of definitions, models and processes which attempt to clarify, predict, develop or examine safety culture within the literature; for examples see ISOH (2004); HSE (2005); Ridley and Channing (2008); Mohamed and Chinda (2011); Maloney (2011); Wamuziri (2011). However, agreement as to what a safety culture actually is, how to measure it, or how to effectively develop one has yet to be definitively established within the construction arena (IOSH 2004; Wamuziri 2011). The quantification of safety culture is also attempted, seeking to measure safety culture through means such as surveys and questionnaires (Guldenmund 2007) which have developed the quantifiable construct of safety climate (Lingard *et al.* 2010).

Such variation within the definitions and models of safety culture within construction management research can be directly related to culture as a concept in the wider academic field; indeed there have been hundreds of different definitions of culture employed in psychology, anthropology and other disciplines (Toomela 2003). For example, culture can be defined as '... the beliefs of a society, represented through words and actions, ideas of what is held as important and expectations of acceptable behaviour' (Fulcher and Scott 2007: 14); or '... socially shared information that is coded in symbols' (Toomela 2003: 37); or Hofstede and Hofstede's (2005: 4) famous '... collective programming of the mind ...'; or even the self-proclaimed 'plain speaking' definition: 'it's the way we do things around here' (HSE 2011b).

It would appear that all that can be stated with any certainty is the uncertainty of any consensus as to what safety culture is, how to measure it or, more practically, how to influence it. Academically, the concept of safety culture within construction is not yet

fully emergent. Although research has sought to identify and measure safety culture on sites, such a quantification of culture is something that may not ultimately be possible. The dissonance within current research suggests that safety culture itself may not be sufficiently coherent to enable such investigation, capture or modification.

However, academic debate has not prevented industry from embracing the concept, and the quest for a 'strong safety culture' can be identified through the adoption of certain processes and practices within the site environment. Wamuziri (2011) identified the following practices among others, as positive influences on safety culture: top down management commitment, worker engagement with formal and informal communications founded on trust, a no-blame culture to encouraging accident and near miss reporting and the use of programmes such as behaviour based safety. Some of these aspects are further supported through legislation, for example worker engagement is legislated for within the CDM2007 Regulations in a section devoted to such communications (HSE 2007) and the HSE also promote a specific Worker Engagement Initiative for the construction industry (HSE 2011b), to achieve a '... step-change in the health and safety culture of the construction industry.'

The most prominent manifestation in practice of safety culture is found in the implementation of Safety Culture Programmes (SCPs). Such programmes seek to win the 'hearts and minds' (Worthington 2007) of all members of organisations, by the promotion of a caring attitude on sites (Illia 2006). The most prominent branded SCP in the UK is the Incident and Injury Free (IIF) programme, originally from the USA, and adopted in the UK by both Laing O'Rourke and LendLease. As Laing O'Rourke 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' (Laing O'Rourke 2011), a philosophy echoed by LendLease, who have commented that IIF requires '.. individuals to take a personal stand ... with a mindset intolerant of any injury or incident ..' (LendLease 2011). However, these programmes have not been without their critics, and the HSE have reported that there is little firm evidence of their success, despite positive reports about their implementation on large sites (HSE 2008). Whether these practices are effective or how they influence safety outcomes has been explored far less within academic research (Biggs *et al.* 2005) than the broader concept of safety culture itself.

METHODOLOGY

Culture is about people. Although research examining people and safety is high on the agenda within construction management, it is generally approached from a quantitative methodological position (Fellows and Liu 2008). However critics have argued that this has led to a field of research concerned with explanations of behaviour rather than understandings (Dainty 2008). Consequently, this study was grounded in social constructionism (Burr 2003; Gergen 2009), an interpretive approach which would enable an exploration and examination of safety and safety culture in practice.

Social constructionism sees the world as socially constructed by the people within it through systems and practices, and for various reasons such as convenience (Gergen and Gergen 2004; Crowther and Green 2006). This challenges the concept that knowledge is a direct perception of reality; if the only realities are those which are constructed by individuals or societies in specific contexts (Gergen 1999), they are therefore in constant flux; there can be no such thing as an objective reality or fact (Burr 2003). Furthermore, if there is no objective reality (Gergen 1999) the 'culture' of that reality certainly cannot be established objectively, definable or measurable

perspectives of safety culture become defunct. Rather, realities are constructed by language in the form of discourses, which include talk and text, shared practices and resources (Potter and Wetherell 1992).

However, an examination of the discourses of safety can be seen as an examination of culture, the context of the discourses. Discourses are shaped by shared cultural resources from the immediate community (Augoustinos *et al.* 2006), and culture can therefore be seen as the network of discourses that socially construct the world (Gee 2011). This study, in its focus on safety within the site environment, will inevitably enable some illumination of how safety is constructed within this cultural context; the 'safety culture' of the sites.

Data was collected from five UK construction projects, all over £20m in value, and included images of site safety signage, audio recordings of conversations discussing safety and various hard copy safety documents. The talk data was transcribed using the Jefferson system (2004), and was inputted, along with the digital images of site signage, electronic copies of the PowerPoint induction presentations and scanned copies of the hard copy documents, into NVIVO8.

Data collection, coding and discourse analysis (Augoustinos *et al.* 2006) was a concurrent process, enabling a method of constant comparison to be employed. Through this approach new data was analysed and constantly compared as it was gathered to the existing data analysis library in order to illuminate themes and patterns, or indeed anomalies. This interpretive approach necessitated multiple and repeated passes of the coded data (Taylor 2001) which enabled the researcher to explore the discourses of safety within the data until no new patterns emerged and saturation had been reached (Flick 2009). Examination both within and between the data sources was undertaken during the analysis, which was intrinsically linked to the coding process through shared development. There is no predetermined protocol when performing coding and analysis within this approach (Peräkylä 2007; Gibbs 2007) and the coding was driven by the data to be as inclusive as possible to allow major themes, ideas and interpretations to be identified. The most prominent of these were then developed through further passes of the data and a variety of lenses (Potter and Wetherell 1992). This analysis ultimately produced a detailed, explicative narrative, which explored the data sources in turn, identifying and examining the most prominent, or master, discourses of safety as they developed from the data.

FINDINGS

Safety on UK construction sites was found to be highly chimeric, demonstrated by the variety of discourses of safety identified within the data, as well as the variety and disparate nature of the discourses themselves. Due to constraints of space, the findings presented within this paper explore only one of the discourses of safety identified within the study as a whole, that of 'safety as practice'. This master discourse was thought to be highly relevant with regard to safety culture, and eminently demonstrative of the findings of the study overall in terms of the understandings of 'safety' on sites.

Representative examples from the data have been included within this section in order to demonstrate the development of the discourse of 'safety as practice' from the data. This discourse was itself highly diverse, and two opposing representations readily emerged from the data; safety as 'entity', totally disassociated from practice, and safety inherently bound up in practice. Both were also associated with various relationships

between safety and practice, safety positioned as a negative influence on practice and practice as a negative influence on safety.

The talk of a main contractor's male site operative discussing a recent safety programme that has been introduced on the site is highly illustrative:

36. R: yeah=[it has but (0.2)] erm (0.8) some↑times its (0.2) it just
37. I: [what od'ya thinko]
38. R: stops the jobs half the time some of it, dun[nit?]
39. I: [yeah]
40. R: you know when some of the stuff gets to:o (02.) carried away
41. really I think (0.8) when it's just common sense at some of the
42. ti[me]=

Rather than explore recent changes in terms of accidents or with regard to safety practices, the speaker instead positions safety as a hindrance to work practice. Safety is constructed as an entity rather than inherently linked to any specific practices or tasks; and is positioned by the speaker as a behemoth with the power to actually stop work. This construction is then developed into safety practices, although these remain distinct from site practices and are themselves belittled by the speaker as beyond 'common sense'. There is no consideration of consequences in terms of accidents or incidents if safety impositions were not in place, nor of the possible good these safety practices may be performing, rather these safety is positioned as directly hindering work practices.

In drawing on the discourse of safety in practice through the negative within his talk the speaker has constructed a version of reality where production is king. Safety practice, although arguably not actually too onerous when considered within the scope of site work, is accorded the status of a considerable hindrance when positioned within a production-driven reality.

This is further illustrated through the talk of a subcontractor's operative below:

113. R: = probably fall into the same bracket as everyone else in that
114. respect whereas .hhhh er:: where yeah-in- (0.2) doing the job
115. where its unsafe and you c-can find little shortcut ways round
116. things I suppose it's just (0.4) jumping in the room you
117. shouldn't be in for two minutes which's got li:ve parts in
118. (0.2) and you know you can be in th-in and out of there in two
119. minutes=you're job's done (0.2) the alternative might've been
120. two or three days sorting stuff out (.) to get in that job
121. (0.4) I just find er:: (0.4) the ↑hassle of safety [is t]he=

Here, the speaker again positions safety in practice, and initially develops a detailed scenario where safety is violated in order to achieve production. This scenario is then contrasted to the correct and safe procedure in which the speaker positions time as the key variable, and contrasted 'two minutes' with 'two or three days' in order to justify the behaviours within the scenario. This scenario construction serves to position

'everyone' as justified in behaviours which value time and consequently production against safety, and the speaker ultimately positioned production as the ultimate goal.

Through the negative discourse of safety as practice, the speaker not only segregates safety from production, but actually places it in direct competition. The potential consequences of the safety violation, which in this speaker's own scenario could potentially be death, are not explored and the construction of the event does not entertain the fact that the individual concerned could come to harm. This construction of safety as practice juxtaposed with production was common within the data, safety was referenced as either entity or practice, yet both were ascribed the power to stop or delay work to the detriment of those concerned. There was no extrapolation of the consequences of safety in terms of positive influence, such as accident mitigation or improvements in process.

In contrast, the discourse also developed around the influences of site practice on safety. An example can be seen in the talk of a main contractor's supervisor below:

97. R: Well if you go down to the root cause of that it comes back to
98. the subcontractor nature—the subcontractor all he's interested
99. in is earning money (1.2) I mean yo—especially now where
100. rates are going down he's got the pressure on him even more to
101. generate money (0.8) to keep his family basically.
102. I: Yeah
103. R: It all comes down to earning money doesn't it? (1.0) the bottom
104. line

The speaker here was discussing unsafe behaviours on sites. The discourse initially establishes the subcontractor as 'other', positioned almost as a different species, with a distinct 'nature'. This nature is then developed as the justification for subcontractor behaviours within the site environment and the lack of participation in safety in practice, with some sympathy. Despite the continued distinction between subcontractor and management supervisor, the speaker's construction of the subcontractor is accepting of the subcontractor's own concerns; considerations of the economy and family are then developed to further justify this inherent 'nature' and consequential action. The participation of subcontractors in safety in practice is constructed here as inherently bound up with money, or rather the traditional payment processes of sites. In this particular text, it is the site practice of payment on price that was positioned as the negative influence on safety.

Acknowledgement and validation of this relationship between safety as practice and site practice could also be located within the site induction presentations, which also developed associations with responsibility for safety. In one induction data source, the text of the MS PowerPoint slide reads "In conducting your works please note: Nothing you do is so important that the time cannot be taken to do it SAFELY!". This entire text was personally directed towards the audience though the use of 'your' and 'you', and constructed a direct association with their behaviour and safety. Safety was bound up with practice, the use of 'time' and 'important' positioned it firmly within the reality of productivity, yet also challenged the association with reference to safe working practice.

DISCUSSION

The discourse of safety as practice developed some significant insights into the safety culture of large UK construction sites. The constructions of safety as entity disassociated it from the social, engagement or interaction with the site environment unnecessary for its existence or function, which has significant consequences in terms of practice. Separation from the social sets safety apart from the quotidian interactions of sites; although present, safety is not necessarily engaged with everyday practices and work processes. This is in sharp contrast to the aims of Safety Management Systems and safety culture programmes of the industry, which seek to instil safety within all aspects of the construction site environment, and embed safety principles within all work practices (HSE 2007).

The opposing representation of safety as inherent in practice fulfilled the aims of the safety programmes far more satisfactorily, with safety bound up as an inherent part of practice, embedded within the actions and interactions of the site. Safety as practice was incorporated within a wide variety of specific work practices and processes as well as more general social interactions on sites.

These two developments within the master discourse of 'safety as practice' reflect variety in the individuals of the site and their own personal social constructions of safety, and therefore indicate significant variation within the safety culture. Although it could be suggested that safety as entity is a simple rhetorical manifestation of reference to an abstract concept, it is equally suggestible that it is the associations of ownership and responsibility that are important here and have actually directed the rhetoric. Indeed, as evidenced by the legalese that permeated the texts of the documents of safety, it actually is, to some extent, somebody else's problem, articulated through a language far remote from the 'muck and bullets' of the site itself.

The discourse of 'safety as practice' was also bound up with the activity of safety as work practice and safety as safe practice, which were themselves found to negatively interrelate through the negative influences of safety on site practice and the negative influences of site practice on safety. Indeed the practice of safety was frequently constructed as a direct challenge to the practice of work and sought to prioritise safety within the work environment, as promoted by safety management systems (Lingard and Rowlinson 2005). Safety as practice was seen as interfering with the work of the site, and was placed in direct competition to positive production, either abstractly or through development of detailed scenarios.

However, the constructions of safety as a negative influence on practice were challenged by constructions of practice as a negative influence on safety. Within the site environment, common processes within construction site management, such as payment on price (Spanswick 2007), the perpetual pressures of time and money (HSE 2003) were seen as negative to the positive implementation of safety in practice; either safety must be sacrificed for production or production sacrificed for safety. These two constructions also developed through the hierarchical positions of main contractors and subcontractors, although both also acknowledged the potential influences of these pressures on the other, and the negative effect of safety on practice was rarely constructed outside of a context of production and pressure. Safety was not negated for and because of itself; rather it was very much discursively associated with practice.

This association was also addressed directly by site safety management, whose prioritisation of safety within the construction site place was often made in direct

contrast to the values of production. The recipients of the site inductions were given the direct instruction to value safety above production and productivity. Ongoing tension between productivity and safety is a recognised aspect of construction site life (HSE 2009) and its manifestation within the discourse of safety as practice has served to further highlight its scope of influence.

CONCLUSIONS

The literature indicates no consensus within construction management as to what safety culture is, how to measure it, or how to develop one. Indeed, the debate and discussion around culture within academia as a whole suggests that safety culture may not actually be sufficiently coherent to enable investigation, capture or modification. This examination of just one of the master discourses of safety identified by the wider study, that of 'safety as practice', supports this suggestion. When considered with relation to safety culture, a highly complex and mutable construct develops. The paradoxical constructions of entity or practice and the shifting challenges and realities in which the discourse operates, suggest that safety culture can be described as inconsistent and incomplete. That safety culture is so closely bound up with practice and work, further suggests it is incidental in nature, an accompaniment to the main focus of the sites; production and practice.

A change of definition is arguably required to develop safety culture into a relevant and applicable construct for the site context, or a change in terminology is required to position safety on sites within a construct more reflective of its turbulent existence.

However, beyond semantic debates, this discursive approach to safety on sites has also increased understanding of safety within this context. How safety is approached and considered by those who work on the sites should be considered by those who develop and implement Safety Management Systems and Safety Cultural Programmes for sites. For example the inherent inclusion of safety within work practice is arguably necessary, beyond the practice of safety itself, rather than positioning it as an 'add-on' to work activities. Furthermore, safety management must also drive change at the corporate level. The impact of corporate decisions at tender stage can be found in the talk at the site level, and their employment as justification for the common safety violations due to time and money is in direct conflict to the development of safety in practice. In order to develop a safe site, these factors need to be considered and addressed in context to eliminate their influence on un-safety.

It is also suggested that further research to fully explore the social constructions of safety within the site environment is carried out, to develop more robust associations to increase knowledge and understanding of the inconsistent, incomplete and incidental safety culture found there. Such research can also inform the production of positive interventions in order to assist in the improvement of safety management practices on sites.

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