SAFETY AND VOLUNTEER CONSTRUCTION WORKERS

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The construction industry is dangerous – 39 fatalities were recorded in the UK in 2012/13, with comparable and even larger figures reported worldwide. Yet every year, at least several hundred UK-based people take part in construction activities on a voluntary basis, examples being international development projects using 'gap-year' students and the substantial UK heritage railway sector that maintains its permanent way and civil engineering infrastructure using volunteers. Most of these volunteers have limited training and no technical qualification, whilst safety regulation frameworks range from being comparable to professional sectors to zero regulation in some international contexts. This research investigates how these volunteer workers construct safety in their volunteering environment. A series of unstructured interviews have been conducted with members of permanent way gangs at several UK heritage railways and with students who have taken part in development projects including the construction of housing and water infrastructure in Eastern Europe and Africa under the auspices of various charities. Taking a social constructionist perspective, the interviews were explored using discourse analysis to illuminate the master discourses of safety within this unique construction 'industry'. Those with engineering or technical backgrounds developed more tangible constructions of safety, around risks and hazards, within their activities, yet volunteers without this knowledge also acknowledged this wider context of danger. Volunteers on overseas projects developed discourses of 'difference' between safety at home and safety outside of the UK; this discourse closely associated with negative practices overseas y*et al*so with an acceptance of the inevitability of this context as part of their voluntary experience. Further work is proposed to determine whether these insights can contribute to appropriate management of safety in these contexts, relative to practice in the professional construction industry.

Keywords: development project, discourse analysis, heritage railway, safety, volunteer.

INTRODUCTION

The construction industry is recognised to be one of the most dangerous industries, exemplified by the number of accidents and injuries being higher than in any other land-based industry (European Agency for Safety and Health at Work 2004). As a consequence the industry has been subject to much research, with statistical data providing quantitative indices of the risks inherent in the sector; the latest figures in the UK showing 39 fatalities in the period 2012/13 (HSE 2014a).

As a result, a large amount of safety related literature has been compiled with the aim of recommending ways of improving safety in the construction industry, in order to

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reduce accidents and related incidents. However, investigations often focus on the salaried construction workforce, whereas non-salaried workers, volunteers in the sector, have not received the same attention.

Two areas of voluntary construction are explored here: heritage railways in the UK and civil engineering projects in developing countries. Within these sectors, the way the volunteers understand and relate to safety within the context of their work has been explored from a social constructionist perspective, in order to provide insight into what constitutes 'safety' in the voluntary sector of construction.

CONTEXT: VOLUNTARY CONSTRUCTION

There is a lack of research specifically focused on voluntary construction work and safety, despite the significant contribution volunteers make to this sector. Yet in order to sustain such a contribution, it is important to guarantee individuals' safety during their voluntary work, especially for those who carry out construction activities, with their proven high-risk profile.

The two environments chosen have very different contexts; whilst there is a legislative framework which covers the volunteers' health and safety on heritage railways in the UK, albeit with no actual definition or acknowledgement of volunteers within the law, no regulations exist that specifically cover volunteers who participate in construction projects abroad.

Heritage railways

There are over 100 heritage railways in the UK, and taking journeys on them is an increasingly popular activity, indicated by the growing number of passengers they convey (Heath 2013). In order to facilitate this, in 2013, 18,528 individuals were recorded to volunteer on heritage railways (HRA 2013), a proportion of which carry out construction work on the railways, vital for maintenance and to help ensure that the trains can operate safely. Construction work within heritage railways mainly involves track maintenance, ditching and vegetation clearance. Occasionally more significant projects are undertaken, for example platform construction or major track relays, which can involve large items of plant.

Legislation covering both the public and heritage railways in the UK, including applicable safety regulations is well-established. The Health and Safety at Work etc Act 1974 puts responsibilities on management to protect their workforce and others, as well as placing responsibility on individual workers for the care of their own health and safety. More specifically, The Office of Rail Regulation (ORR) further operates as an 'independent safety and economic regulator' (ORR 2014) which, following the Railways Act 2005, notably includes heritage railways (Butcher 2012). The ORR addresses health and safety of both the travelling public as well as railway workers (salaried and non-salaried) and ensures that those whose obligation it is to safeguard health and safety on the railways are fulfilling their duties and are otherwise held accountable for any safety shortcomings (ibid). Heritage railways must also comply with the Railways and Other Guided Transport Systems (Safety) Regulations 2006, again enforced by the ORR, which specifically defines work and voluntary work throughout, including the need for a Safety Management System, and to ensure that all staff, including volunteers, are adequately trained and possess the necessary skills for the work they are to undertake (ROGS 2006).

Whilst there is limited research around safety within the heritage railway sector and its volunteers, research has been carried out within the public rail industry, often as a

consequence of safety failures and serious railway accidents (HSE 2005). The Southall and Ladbroke Grove train crashes on the public railway, in 1997 and 1999 respectively, represent such examples and were fully investigated through several public inquiries. The investigations revealed that safety management, specifically safety culture in the industry, required improvement. The resulting 295 recommendations set *"necessary and challenging criteria to change the state of the railways"*, with a particular focus on *"culture, safety leadership and health and safety management"* (HSE 2005, Section 3.1.3, p.5). Since these recommendations, the UK rail industry has been privatised, which led to many different franchisees, companies and sub-contractors gaining responsibility for the rail network. Whilst track maintenance has recently reverted to holistic control, separate sub-contractors remain responsible for sections of the public railway industry (ibid). In 2002 the HSC undertook an appraisal of the progress made since the recommendations and found that safety cultures across the UK railway industry were incoherent, with some companies having cultivated a 'positive' safety culture faster and more comprehensively than others (HSE 2002 and 2005).

Other research has focused on specific aspects of rail construction work, for example to ascertain *"why track workers sometimes behave unsafely and what factors within the IMC could be contributing to a negative safety culture and unsafe behaviour"* (Farrington-Darby *et al* 2005, p.41). This study identified the existence of a positive correlation between safety culture and major accidents on the railway, something also suggested by other work in this sector (c.f. Cooper 2000; Cullen 2001), as well as that carried out in the wider construction industry (c.f. Wamuziri 2008). Indeed, from his work investigating Ladbroke Grove, Cullen (2001) suggests that creating a 'positive' safety culture should be a key strategy for risk prevention and accident reduction, and all individuals within a rail organisation should participate in the process.

Volunteer projects overseas

Although the total number of volunteers participating on construction projects in developing countries is not documented, an indication of the scope can be gained by looking at just one established UK voluntary organisation, VSO (Voluntary Service Overseas), which identified 1,845 people volunteered abroad with them in 2012 alone (VSO 2013). Organisations such as Engineers Without Borders (2014) offer a wide variety of construction specific placements to engineering students and graduates to work in developing countries with a variety of aims, such as improving local infrastructure, developing water and electricity delivery systems or supporting local engineering education and knowledge.

Participation in such projects overseas is not subject to UK legislation, but rather the legislation of the country being volunteered in, and this can be very lacking. According to LaDou (2003), occupational health and safety laws cover only around one tenth of people in developing countries, and many major hazardous industries and occupations are omitted. In addition, it has been noted that the recording of accidents and fatalities is less rigorous, indeed that there could potentially be double the number of reported fatalities per year (Takala 2002). The lack of health and safety legislation, or indeed the lack of any enforcement or formal reporting within the paid work sector would suggest that there is little or no legislation covering volunteers.

Research of health and safety within this context is rare, although a relevant exception can be found in the work of Furber *et al* (2012), exploring the health and safety of community development projects in Ghana. Although Furber *et al* explored the socio-

cultural motivation factors behind the participation of local community members in construction projects, their illumination of the number of different pressures to conform to work perceived as hazardous by the participants is highly revealing, and suggests that this context remains the same for those participating on a voluntary basis, although the types of pressures to participate is are likely to differ.

METHODOLOGY

Ontologically grounded in relativism, and employing a social constructionist epistemology (Gergen 1999), no preconceived 'truths' regarding voluntary construction safety were brought to this study. Instead safety was considered as a social construction, built through the interactions of individuals, in this case volunteers, throughout their (working) time (Sherratt *et al* 2012).

A purposeful sample was taken, due to the timescales of the project. Three heritage railways in the UK were visited and 13 volunteers interviewed in total across these sites. The overseas project volunteers were identified through a snowball process (Walliman 2006 p.79), which resulted in seven volunteers from two voluntary organisations and four different projects, all construction based but differed in length, number of volunteers and location.

Whilst naturally occurring data would arguably be most valid for this study, the practicalities and ethical issues of its collection were deemed prohibitive. Consequently, unstructured interviews, or conversations (Potter and Hepburn 2005), were employed, used to explore the participants variable interpretive practices they employ to construct their versions of the social world (Potter and Mulkay 2007). All interviews were digitally recorded and transcribed as 'verbatim with dialect' (Gibbs 2007 p.14). The transcripts used the common notation of R for respondent and I for interviewer. These files were then managed and coded using NVivo 10 (Bernard and Ryan 2010; Creswell 2013) through a data-driven approach (Gibbs 2007) to reveal the dominant discourses.

It is through the analysis of such discourses that access can be granted to the socially constructed realities around safety. A discursive analysis tries to comprehend and understand the world, by examining its linguistic exchange (Sherratt *et al* 2012) and investigates how individuals 'build things in the world' by making use of language (Gee 2010 p.16). Discourse analysis accepts the notion that different understandings of the world exist, such as those around safety, which can be presented through discourses, and can thus be discovered through the analysis of language formed by different people (Paltridge 2006). Due to constraints of space, only the two most dominant, or master discourses identified within this work are presented below, drawing on representative extracts from the conversations to illustrate the analysis undertaken and how these discourses were formed and shaped by the data to illuminate understandings of safety within the voluntary construction sector.

FINDINGS AND DISCUSSION

'Professional' safety

The constructions of safety within the data were found to closely associate with the individual volunteer's own experiences and backgrounds. Those with engineering or technical backgrounds developed more tangible constructions of safety, around risks and hazards, within their activities, yet volunteers without this knowledge also acknowledged the wider context of danger although without recourse to formal safety

management practices. This discourse of 'professional safety' was drawn upon by both sets of volunteers.

Within the overseas project data, the discourse manifested from two alternate perspectives; consideration of the individual's own professional safety knowledge and comparable consideration with the knowledge of others. This can be seen in the extract below:

R: … sometimes it's argue to, it's hard to argue with them if you can't hammer a nail properly, that you should be doing something in a safe way.

I: if the volunteers can't.. yeah

R: as a volunteer, you're very much in, in, well they are responsible for you, they have the kind of position of power and authority

Here, the speaker is happy to make a judgement from their own understanding of what is a 'safe way', yet he does not position his own knowledge as able to challenge that of the 'professional' as constructed here, i.e. the person with the manual skills to 'hammer a nail properly'. This is an interesting shift from management taking the lead on safety; here professional safety is assigned to those physically carrying out the work, suggesting that, within this context, 'professional safety' is not restricted by the usual hierarchical constraints found on sites.

Here, the speaker draws on the discourse of professional safety to position himself in a passive place, in which he abstains from safety responsibilities by following the lead of the local workers. This is a recurring aspect of the discourse amongst the volunteer data, in which the knowledge and experience of the local workers supports 'unsafe' working practices, and thus volunteers abstain from safety responsibilities. The majority of volunteers in these projects all relatively young, many of them students, which may have considerable influence on this discursive development.

A further consideration can be identified in the way in which some volunteers position unsafe practices as negative to their own environments, whilst others draw on the discourse of professional safety to justify and validate unsafe working practices in this context, due to the value ascribed to the locals' knowledge and experience. This indicates a power relationship associated with the discourse, further illustrated by the speaker within the above extract. Although the local workers may not seek such responsibility, the speaker has assigned his own fate to them, despite the fact that he also ascribes them with negative considerations of safety. This resolution to context is also developed through the discourse of safety as different which is examined in detail in the next section.

Professional safety was the dominant discourse identified in the heritage railway data. Associated with this master discourse were constructs of the skills and knowledge (or lack of) that the individual volunteers brought to the railways from their professional backgrounds, as well as the way volunteers' professional backgrounds influence the 'roles' they are consequently allocated. An example of the former can be seen in the extract below:

R: So, so that - we developed all that stuff ourselves. But I was just saying before then because I'm an operations manager in the aerospace industry, I'm -

I: Yeah

R: I've, I've - this stuff's no bother to me … I use my skills I've got and I transfer it across to the railway

The speaker here creates a direct association between his professional role in the aerospace industry and the work he carries out as a volunteer on the heritage railway, safety becoming an objective, mobile entity which can be transferred from one industry to the other. In contrast to the previous text from the overseas volunteers, there is a strong ownership of safety, the speaker personalising his involvement in safety and, along with others, taking responsibility for its management.

This aspect of the discourse can be associated with the type of volunteer predominantly encountered on the heritage railways, namely individuals experienced in their own professions, including many already retired. It is unsurprising that volunteers are inclined to transfer safety from a working environment they know well and to whose safety practices they are accustomed. Within this context, different professions were evaluated by the volunteers, and approval given for occupations that were seen as relevant to heritage railway work. Yet this wholesale construction of a 'mobile' safety contains inherent risks and flaws since every industry possesses its own particular set of risk and hazards, which is why, for example, the HSE provides separate health and safety guidance for different industries in the UK (HSE 2014).

The volunteers are potentially constructing an assumed reality of safety on heritage railways closely associated with their previous experiences, which is not necessarily consistent nor appropriate to the reality of railway practice. Indeed, within the texts, the volunteers also developed a minor discourse of 'safety as different' between heritage railways, which affirms the necessity for differential safety requirements between organisations of the same industry, l*et al*one between different industries. There is a need for volunteers to acknowledge differences in safety practice between their own constructions and reality, and adjust accordingly. However if such differences are not acknowledged then, incongruously, it is possible that 'unsafe' behaviour occurs from those who are professionally knowledgeable about safety.

Professional safety was also drawn upon to influence the way roles were assigned within the heritage railway teams, as illustrated in the extract below:

R: uh ((name)) is the expert

I: OK

R: on the switches

I: so for everything someone - I mean how, how has everyone got their knowledge on this? Or was it just through -

R: ((name)), ((name)) with eh, eh ((acronym of freight operating company))

I: Ohhh

R: ((full name of freight operating company)), ((name)) was in charge

The above evolved from a question posed about who decides what and how things are to be done on the railway. The speaker responds through the identification of an individual, and draws on the discourse of professional safety to justify his attribution of 'expert' due to previous professional experience. Again, safety has been constructed in a way that allows it to be transferred between industries, here: one part of the public railway industry and the voluntary heritage railway industry. Through such associations, the speaker diminishes the existence of a difference in working practices

and safety between the paid public railway and the voluntary heritage railway, and strengthens the justification behind the discourse.

Throughout the heritage railway data, individuals constructed a close association between roles and past experiences, professional or otherwise, reaffirming a transferable construct of safety, potentially generating a management structure which is the product of transferred knowledge from other industries. However, such constructions also enable many of the volunteers to abstain from safety responsibilities themselves, assigning this charge to those with relevant professional backgrounds. Such abstention from responsibility is justified through the knowledge they presume others to have, often accepted on the individuals own cognisance. Potentially, such constructions are detrimental to safety in practice, both the shifting of responsibility for safety away from a holistic approach and its reliance on perceived competence and knowledge.

Safety as 'different' overseas

The master discourse identifiable in the overseas voluntary data was that of 'safety as different'. The volunteers constructed this difference in a variety of ways and at a variety of social levels; on both a personal level, often drawing on examples of incidents that had been witnessed, and on a national level, the latter often used to 'culturally' justify the unsafe actions of the local workers. This difference was juxtaposed with the volunteer's own understandings and experiences of safety in the UK through either their education or professional backgrounds, as the volunteer below illustrates:

R: Well we, well we wanted to, to do it a different way. 'Cause we, we have a bit of experience, a few of us knew that this was not how things should've been done. It's just the people, the construction workers with us were used to cutting corners, taking those kind of risks.

I: Mhh.. That's interesting

R: And there's kind of a, there's a pressure on you then to take those risks.

I: OK

R: So we kind of mentioned it to them and they were like *"You know, this is how we have to do it"*. Eventually don't want to lose time from working by having to argue with them or… especially if they speak a limited amount of English.

In this extract the respondent constructs safety through the discourse of safety as different. An example of when the speaker wanted to go about a task in a different way to that in which it was being performed is drawn upon to illustrate the difference to their own understandings. Yet the speaker is willing to justify and accept this difference as inherent in the context they have been placed in. The workers are more 'used' to unsafety than the speaker, although he does not blame or consider them responsible for this lack of safety, rather they are working in the same construction contexts of time and pressure as the speaker, which are used to justify the lack of ability for either workers or volunteers to develop safety within this context.

Safety as different is constructed as a fixed entity; the volunteers positioned it as an unchangeable context that was perpetuated by the local workforce, themselves unwilling to change, either in their actions or their own considerations of safety. The resolution of the speaker that this was *"how we have to do it"* is further justified by

language issues, notably as a lack on the part of the workers and not the volunteer, despite the non-English speaking country in which the work is being carried out.

Throughout the text, the speaker refers to himself in the plural 'we', bringing others into his understandings, but also enabling the avoidance of personal responsibility. This is found throughout the text, as although the speaker has positioned himself at the centre of the discourse, he does not want to associate himself with the unsafe practices taking place, the lack of action in terms of change, or the lack of ability to overcome any issues.

This develops notions of resolution, associated with the different context and its inflexible nature, and resulted in the volunteer's discourse of safety as different developing a facet of 'acceptance', as shown in the continuing talk of the same volunteer:

R: maybe they were fine with them but then when it came to volunteers like us, we might not have been as used to them.

Here, the speaker is further developing discussions around 'cutting corners' as common practice, but interestingly positions himself, identified as a volunteer, as 'not … used to them'. Again, the speaker is resolved to the context in which he as a volunteer is being placed, constructing himself as 'other' to this environment.

The discourse of 'safety as different' was identifiable throughout the overseas volunteers' talk. It often originated at a general level around the safety standards of the host country, juxtaposed with UK safety practices to highlight difference, then developed more personal levels. Speakers often considered their own participation within this different context and throughout the texts an inevitability of negative safety practice was constructed; in some cases volunteers positioned their own safety compliance to these contextual levels, and a resolution that this context was unable to be changed formed could be identified as an inherent part of this master discourse.

In consciously possessing such safety knowledge, the volunteers are effectively revealing themselves to be in a position of safety conscientiousness, which is arguably tied to responsibility. The implication to practice therefore, is that they should try and ensure safe working practices are implemented, or at least improved to the safety standards with which they are comfortable. However, as the above analysis illustrates, although some volunteers considered change, the majority stripped themselves of these responsibilities by normalising the 'unsafe' ways of work, or even submitting themselves to these. In doing so the volunteers are effectively transferring all (safety) responsibilities to the local workers, with potential repercussions for their own safety and others participating in the work. The volunteers constructed a context in which safety is dependent on the environment in which it is being carried out, or more specifically dependent on the way people 'belonging' to that environment construct safety, which in turn determines the safety environment.

CONCLUSIONS

In exploring the discourses of safety within these two areas of voluntary construction, the two most dominant discourses, those of 'professional safety' and 'safety as different', were identified.

The discourse of professional safety was found within both environments, although associated with different constructions and applications. Within the heritage railway sector, professional safety created a mobile and transferrable safety drawn from

individuals' previous professional experience, in a wide variety of sectors, which was applicable and harmonious with railway construction work. Although this develops a strong personal association with and responsibility for safety in this context, there could be concerns with the suitability of such direct application, and indeed the potential for complacency in a very different industrial environment.

However, an alternative aspect of this discourse was also present, drawing on others' knowledge and competence to shift responsibility for safety from individuals, despite a lack of evidence or relevant of that knowledge to the context of the heritage railway.

Within the overseas volunteering sector, professional safety was again used to shift responsibility and ownership to those with professional credibility within the work context, and was often associated with a lack of professional knowledge, perceived or real, on the part of the volunteers.

Professional safety was also linked to the master discourse of safety as different overseas, through which the justification of working within unsafe environments was developed through its inevitability and inability for change. The role of power relations developed from the discourse of professional safety was influential in the resignation of the volunteers to this unsafe context: cause for concern given the number of participants in such overseas schemes and their potential exposure to health and safety risks.

Whilst less prominent discourses were identified within the texts that have previously been identified from similar work undertaken in the professional construction sector (Sherratt *et al* 2012), for example the discourses of safety as safe practice as considered against safety as work practice, and safety as PPE, the two master discourses developed here reveal potential issues significant to the voluntary construction sector. The considerations of professional safety, responsibility, ownership and resignation identified within this context have the potential to impact the safety of those participating in such voluntary ventures. It is suggested that these findings support the need for further work in this field, to develop further insight and potentially contribute to appropriate management of safety in these contexts, relative to practice in the professional construction industry.

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