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Developing safety cooperation in construction: between facilitating independence and tightening the grip

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Abstract

Cooperation about safety and joint responsibility between managers and workers is one of the cornerstones of health and safety work. However, attempts at ensuring safety in the workplace run the risk of focusing on formalities and compliance rather than on joint engagement in safety. Drawing on an understanding of safety as practice, this study attempts to empirically unpack the difference between cooperation as engaging with local knowledges and the disciplining of unsafe behaviour. The research involved an ethnographic study at two large construction sites in Denmark and follows empirical examples of how safety breaches are identified, catalogued, and revealed later on at safety meetings. Managers saw this as an attempt to engage the workers. However, the workers saw this as a punitive way of criticising their work at a distance. They felt that this practice of moving safety from the construction site and in to meeting rooms ran counter to aims of establishing engaging and effective safety practices close to the work. Efforts to engage workers in safer ways of working should therefore acknowledge the integrated nature of safety practice and the value placed on independence, discretion and negotiation when developing cooperation about workplace safety.

Keywords: Cooperation, health and safety, risk management, ethnography.

Introduction

Construction has a disproportionately high rate of recorded accidents (Eurostat 2010), and the Danish construction sector is no exception (Grill et al. 2017, Tómasson et al. 2011). In addition to fatal accidents, the need to address less severe injuries or more latent occupational ill health represents a moral as well as economic challenge. Over the years, working environment regulations have become an essential tool for attempts to reduce workplace accidents and improve health and safety at work (i.e. Treaty on the Functioning of the European Union article 153; Work environment Act 2010; Zwetsloot et al. 2017). In the efforts to introduce safer working environments in construction, statutory injunctions have included prescriptions to employ a joint management and worker involvement in safety, in the Danish context this is termed *cooperation about safety*. This has produced a range of behaviour based safety programs, safety management programmes and safety culture programmes (i.e. BFA 2013, DeJoy 2005, Sherratt et al. 2013, Tharaldsen and Haukelid 2009, Antonsen 2009, Hale and Borys 2013ab, Jia et al. 2019). Sherratt and colleagues have identified these programmes as operating at the nexus of two different discourses in construction safety management; firstly a discourse of "enforcement", referring to obligations to ensure and sanction safety in the form of laws and regulations, such as safety meetings, clearly stated rules and responsibilities for safety (defined by Hale and Borys (2013a) as a top-down classical, rational approach), and secondly a discourse of "engagement", largely advocated in the literature and language of safety culture (defined by Hale and Borys (2013a) as a bottom- up constructive approach). This latter approach aims at enabling people to take responsibility for their own safety by constantly choosing safety (Sherratt et al. 2013). Safety culture, however, has also been criticised for essentially being a management tool aimed at diffusing management values under the guise of the

‘right’ safety culture (Antonsen 2009). These discourses cover many aspects of safety management, but they have also been shown to work against the intentions of creating safer construction sites and lowering incident rates (Jia et al. 2017, Provan et al. 2019).

One reason that has been suggested as to why safety management programmes have been difficult to deploy in construction is the industries’ organization and working conditions. The construction industry differs from other industries with regards to environmental, organizational and individual factors (Andersen et al. 2015, Shipton et al. 2014, Törner and Pousette 2009, Chan and Räisanen 2009). Formal safety rules aiming at directing safety behaviour can stand in contrast to the ways in which work environment and safety are practiced (Ozmec et al. 2015, Thiel 2007, Tharaldsen and Haukelid 2009, Tutt et al. 2013, Löwstedt 2015). Often regulations do not match the craftsmen's experience of, for example: how plans are negotiated to meet different demands; how a sense of security is established in practical work; or how work practice is characterised (Bourrier and Bieder 2013, Grytnes 2018, Pedersen 2012, Löwstedt 2015). Wilson's description from 1989 of the difference between "mechanic" and "organic" organisations still holds relevance here (Wilson 1989). In his description, mechanistic types of organisations are characterised by stable environments allowing for close supervision, implementation of rules and procedures, and with less need for decision making at lower levels in the organisation. Yet, in organic types of organisations (of which examples can be found in construction) the opposite holds true, as construction operations are dynamic, being carried out from temporary structures, such as scaffolding, staging and falseworks, through to permanent structures under erection, and therefore are not completely safe themselves (Wilson, 1989:

305). This means that rules and procedures can become hard to apply to the complex needs of construction work (ibid, p. 304).

Another reason that has been suggested as to why safety management programmes have been difficult to deploy in construction is related to the differences of opinion as to what safety is and how it is achieved. Antonsen (2009) has pointed to the concept of safety culture as being one of the institutions of safety that runs the risk of contributing to a standardized notion of what safety is by diffusing company (management) values towards safety to the operative parts of the organization (ibid). Also, Jia and colleagues find that the 'weak link between safety initiatives and desired behavioural outcomes … can find its roots in the production system and the societal cultural contexts where various incentives, constraints, values and beliefs seemingly irrelevant to safety, but in effect, are premising individual decisions' (Jia et al. 2017: 338).

The statutory obligation to foster joint engagement of the parties (workers and management) through a shared, common responsibility for health and safety parallels an increased professionalization and institutionalization of health and safety work. This has led to standardization of safety through measurement procedures, i.e. audits and risk evaluations (Daudigeos et al. 2017, Provan et al. 2019). It is actively debated whether the application of standards and rules to ensure safety has any positive effect in construction (Bourrier and Bieder 2013, Busby and Izzat-White 2016, Dekker 2014, Grill et al. 2017, Grote et al. 2009, Hale and Borys 2013ab, Hasle et al. 2014, Jeschke et al. 2017, Kines et al. 2013, Swuste et al. 2012, Zalk et al. 2011). Given the changing and uncertain conditions in construction, Grote and colleagues point to the need to enable each member of the

organization to handle uncertainties locally, supported by planning through “lateral, task induced coordination” (Grote 2009:19). However, while local handling allows for discretion and independent judgment on behalf of individual workers, it also opens up the potential for individual misjudgment and unwanted incidents (that may then be blamed on the individual), even if the ability of individuals to judge and make discretionary decisions is what many construction companies applaud (Löwstedt 2015, Thiel 2007, Tutt et al. 2013). In construction, registration of misses and near- misses, or tight safety regulation aimed at a joint process of "learning from mistakes", seem to demotivate workers (Andersen et al. 2015, Sherratt et al. 2013, Oswald et al. 2018, Busby and Izzat-White 2016). The reason seems to be that safety rules and regulations foster accountability to the rules, instead of safety itself (Jia et al. 2017: 350). Thus, safety becomes decoupled from the daily meaningful handling of tasks and challenges (Gherardi et al. 1998, Gherardi and Nicolini 2002, Ozmec et al. 2015, Jia et al. 2017). This can seem paradoxical, as the involvement of workers in organizational learning processes is generally acknowledged as central when it comes to improving safety performance (Bell 2018, DeJoy 2005, Grill et al. 2017, Kines et al. 2013, Lund and Aarø 2004). However, Bell (2018) has found that even though the terms "worker involvement" and "worker engagement" are often used, it is unclear what these terms refer to; whether they aim to establish adherence to safety management procedures, or if they aim towards creating commitment to working safely onsite.

Across different international contexts, employers are tasked with introducing formal mechanisms for worker representation, which typically involve consulting with representatives from the workforce through some form of safety committee (Bell 2018,

HSE 2014; ISO 45001:2019). As already mentioned, legislation, or associated guidance, sometimes clarifies these duties, for example employers should involve workers in assessing risk (HSE 2014), and workers must notify employers of situations posing imminent and serious danger (Management of Health and Safety at Work Regulations 1999 (Statutory Instrument No.3242)). A range of mechanisms for involving workers in health and safety are advocated by the Health and Safety Executive (HSE), such as pre-task briefings (to discuss hazards and coordinate activities), joint risk assessments, and near miss and hazard-reporting systems (with sustained commitment to these schemes reliant on proactive management, such as acting and feeding back on suggestions and near miss reports). Within this context, the question remains as to whether involving workers in these formal safety management procedures amounts to engaging workers in establishing safer work practices at the workplace, or whether these practices are merely a maneuver aimed at persuading workers to adopt the right behavior and thereby fulfilling safety management tasks. In the background is a need to address the more complicated issues of how to bring about change in the management of risk and safety to make it relevant for safe working through probing into the experiences of the quality of cooperation and involvement, and the possibilities for engagement from different elements of the workforce (Oswald et al. 2018, Bell 2014, Edirisinghe and Lindgard 2016). The ways that safety cooperation is practiced, e.g. through safety committee meetings and safety audits, and in relation to the competing discourses of safety enforcement and safety engagement (Sherratt et al, 2013), are extremely pertinent to our research study. We aim to illuminate the two discursive practices of enforcement and engagement in the management of safety, focusing on how the practice of cooperation about safety is linked not only to safety culture but also to power (Antonsen 2009). As discursive practices are theoretical constructs, we focus on

the often inconsistent efforts of management to facilitate independence and involvement of workers whilst, often concurrently, tightening the grip and cracking down on rule-violations. Our theoretical framing of power as surveillance within this context will be further detailed in the next section.

Methodology: The practice of safety as surveillance

In order to unpack the empirical practices of cooperation around safety on construction sites, we draw on two different notions of safety. Gherardi and colleagues' have defined safety as an integrative and essentially collective practice (Gherardi et al. 1998). As such safety is not something in itself (i.e. privileged or standalone knowledge); it is rather a doing, an integrated attribute of everybody's practice on site. However, this perspective does not adequately address the professionalised safety-specific practice, in which safety in some senses *is* something in itself (Jia et al. 2017). Therefore, in order to be able to distinguish between the differences of opinion, with regard to how safety is achieved, we also draw on an understanding of safety as positioned and essentially powered (Hale and Borys 2013a, Antonsen 2009). This perspective considers safety knowledge as something dynamic, diverse and sometimes contested (Pottier et al. 2003), and as inherently improvisational (Baarts 2009), while at the same time challenging the organizational practice of standardizing safety (Tharaldsen and Haukelid 2009). To this end, Pink and colleagues (2010) draw attention to the importance of an understanding of safety as "local knowledge", or rather localized knowledge. This means that in order to understand what construction managers or construction workers know requires attention to the detail of their everyday practical activities, common beliefs, values and discourses in which this knowledge is manifested, as contextualised in specific institutional practices (Pink et al.

2010, p.651). Empirically, however, local knowledge can be difficult to pinpoint given that the concept of a locality is itself difficult to apply to the realities of construction sites. Studying safety practice in construction suggests an understanding of knowing as constituted through regular interactions with specific other people (other workers, managers), materialities (tools, equipment, materials), institutions (companies, agencies) and discourses (Nicolini and Monteiro 2017). It thus involves interacting in a recognizable environment that might be reconstituted in rather different configurations for different jobs, drawing on a situated and inherently hierarchical body of construction knowing, that is experienced and mobilized in practice.

In order to understand the contested and essentially powered nature of the management of safety, and the potential conflict between worker engagement in safety and the enforcement of safety rules, we also draw on Foucault's (1977) theory of disciplinary power. This theory builds on a description of Bentham's eighteenth-century Panopticon, a prison design aiming at making it possible for the few to surveil the many. The theory of disciplinary power helps explain how surveillance in relation to safety management can lead to self-surveillance and self-monitoring. In theory, the practice of observation (the gaze) can, through the anticipation of the authoritative gaze, introduce self-regulating behaviour and self-surveillance of subjects. Foucault describes how the institutional gaze operates through "the meticulousness of the regulations, the fussiness of the inspections, the supervision of the smallest fragment of life and of the body" (Foucault 1977, p.140). In our case, for construction workers the recording of unsafe practices at construction sites can be seen to represent "meticulous observation of detail and at the same time a political awareness of these small things, for the control and use of men" (ibid, p. 141).

Yet, as we will discuss, this inspecting gaze does not necessarily end by "interiorization to the point that he is his own overseer" with each worker exercising this surveillance over, and against, him/herself and other workers (Foucault 1977, p.154). Workers can voice a resistance to attempts at internalising this practice as a norm, as construction work continuously calls for locally based judgement, the need for good relations and the construction of intentions (Busby and Izzat-White 2016). From the literature we know that observation, as a safety management system, can take different forms and can be used in different ways in terms of detection and monitoring activities. Wachter and Yorio (2014) differentiate between the different uses of observational methodologies in safety management systems, finding examples "where workers use a list of defined critical behaviors, observe workers for these behaviors, and provide feedback", within traditional behavior-based safety systems (ibid, p.117). They distinguish this approach from, what they see as, more advanced behaviour-based systems, such as antecedent-behavior-consequence systems, which can "uncover and correct organizational barriers (i.e., management system deficiencies) that inhibit safe acts (and therefore accidents) from occurring" (ibid, p. 117). Their findings link strongly with Foucault's ideas of (unequal) power relationships and surveillance. For, they state that "when a violation is observed, organizations can handle it in different ways" (Wachter and Yorio 2014, p. 122), and it is how the knowledge is wielded which determines the level of safety cooperation between management and the workforce. It can range from negative sanctions being enforced when workers deviate from a safety rule, through to the use of information and safety observation as a way to develop a participatory problem-solving process. So the differential use of these observational practices can be seen in relation to the dichotomy of

approaches (engagement/enforcement), as the lens is widened from the level of practice to that of system. Drawing on the understanding of safety as practice, built from interwoven patterns of different and positioned/powered forms of knowledges, and on the Foucauldian notion of surveillance, we attempt to empirically unpack the difference between disciplining unsafe behaviour and engaging with local knowledges regarding risk and safety.

Methods: how is cooperation about safety performed?

This study is based on a qualitative multi case study (Flyvbjerg 2006) of two large construction sites in Denmark. It is based on ethnographic fieldwork carried out over a period of eight months. The first and the third author spent 2 days a week for four months at each site. Both authors have previously carried out field studies at other construction sites, and our access was negotiated through our direct contact with the main contractors. Site 1 was first recruited through our participation in a health and safety meeting, where the third author had been invited to speak about the project. After learning about our project in the meeting, the main contractor of one of the projects volunteered to participate in the study. Research access to Site 2 was more speculative, in that we identified the site just by driving by, and then contacted the site manager explaining in an email what the project was about. He agreed to set up a meeting with the group of managers in which we presented the project. Site 1 was part of a larger hospital construction project organised as a turnkey contract, with several sub-contractors, and the third author had already carried out a different research project in earlier stages of the hospital construction project. At the time of our study, approximately 40 workers and 4-5 subcontracting firms were represented on site. Site 2 was organized as a turnkey contract as well, but was also a so

called public- private cooperation, where the contractor had responsibility for the maintenance of the building for 15 years after completion of the project. Around 30 workers from 4 different sub-contractors were at the site at the time of our study. The workers we refer to here were doing a range of work tasks and had different professional backgrounds, as; electricians, carpenters, plumbers, metal workers, crane operators and workers doing in-situ concrete and rebar work as well as mounting concrete elements. As fieldwork took place in the early phases of the projects, at both site 1 and 2, the majority of the workers were directly employed by the main contractor undertaking concrete work.

In order to illuminate the daily practices and the different local knowledges in play in the construction of site safety cooperation, we used ethnographic methods (Pink et al. 2012, Spradley 1980). In construction research these methods have been applied in different ways (Baarts 2009, Tutt et al. 2013, Löwstedt 2015, Thiel 2007, Grytnes 2018, Jia et al. 2019) but the common characteristic is that the researcher to some extent takes part in the research field studied, and does that from a certain position; a specific role offered him or her – often as apprentice or visitor but it could also be as a researcher unskilled in the work done. For this particular study, the first and the last author conducted the fieldwork, and were sometimes at site together, sometimes one at the time. At the outset of the study, we presented ourselves in the common canteen (Site 1) and in the workers huts (Site 2) where we briefly introduced the project and our interest in cooperation about safety. During these meetings the workers had many questions for us, and wanted to debate and explain their notion of safety. Due to our previous experience with construction research, we knew some of the workers in advance and this might have facilitated the open discussions and their willingness to participate. They also came forward with criticism of previous studies for

not having delivered the ‘safety’ that they had hoped for when they agreed to participate. Our methods and questions were influenced by these initial discussions as well as by our theoretical understanding of cooperation about safety as being part of relational and hierarchical practices linked to practical tasks at work. We took up the opportunities to take part in formal safety and production meetings as well as in site walks with the safety managers (with in- house managers as well as consulting safety managers). We also walked around the site by ourselves, talking to and observing what was going on in the different work groups. Our role was that of the visitor and observer and only in very few instances did we engage in the work directly (for comparison of other roles see Löwstedt 2019, Baarts 2009, Thiel 2007). However, being present on a frequent basis over a longer period of time meant that our presence was not something unusual, and most often went unnoticed by the workers. Occasionally it was commented on in a joking manner, and we were welcomed as ‘the guest of the week’. We regularly talked with the foremen and the site managers through informal talks as we arrived at site, during site safety walks and in meetings. Alternating between workers and management was important in order to be able to study the empirical examples of how safety was practiced; in conducting the actual work tasks safely or unsafely and in conducting specific identification of safety breaches. Undoubtedly, this method meant that we were not seen as ‘natives’ or ‘one of the workers’. Evidently, due to a specific instance onsite, we became seen as the ‘managers extended arm’, which highlights how safety – and our fieldwork investigating it – is inherently a part of a powered practice, as we will explore further below.

In order to be allowed to walk around the sites, we sat in on obligatory safety induction at Site 1, while at Site 2 only safety equipment such as helmets and jackets were given to us.

Otherwise no particular instructions were given. Consent from sub- contractors was obtained directly with them, and we were given permission to access all workers and lower management (foremen, gang leaders) of all sub-contractors. Semi-structured interviews were conducted with workers from the main contractor as well as sub- contractors, with foremen, site managers, site safety managers, and sub-contractors, builders and consulting engineers; comprising a total of 34 interviews (see Table 1).

Table 1: Overview of interviews

	Main- Contractors/ in-house	**Sub- Contractors**
Site 1	Workers: - Rebar/ in-situ concrete: 4 Foremen: 3 Site managers/ site safety managers: 2 Project managers: 1	Workers: - In-situ concrete/ rebar: 2 - Electricians: group - Carpenters: 2 - Earth and sewage: group H&S consultant: 2 H&S director: 1
In all Site 1	4 + 6	4, 2 groups + 3
Site 2	Workers: - In-situ concrete/rebar: group, 3 Foremen: 2 Site managers/site safety managers: 3 Project managers: 1	Workers: - Earth and sewage: group - Ventilation/plumbing: 1 Builder: 1 Consulting engineers: 2
In all Site 2	1 group, 3 + 6	1 group, 1 + 3

Interviews with different managers were arranged directly with them, and interviews with workers, sub-contractors management and builders were either arranged directly by us, or arranged with the help of site managers.

The ethnographic fieldwork conducted can be characterized as an abductive practice of staying open to what happens whilst keeping attentive towards ones focus of interest. The analysis of data was an ongoing pragmatic process to 'puzzle out' what was special, important and surprising in what we observed and learned during fieldwork (Figure 1). In this process we aimed at constructing knowledge of the issues at stake, rather than discovering objective truths (Löwstedt 2015, Pink et al. 2010). For example, for the interviews we prepared a semi structured guide covering the topics that we wanted to investigate, i.e. we asked the participants to give examples of situations where they cooperated around safety, or where they did not. As we proceeded with the study, new issues arose, and we often pursued new abductive possibilities, as we followed up about situations we had observed on site or in meetings, or we discussed, reasoned and tested our own interpretations of what we had observed.

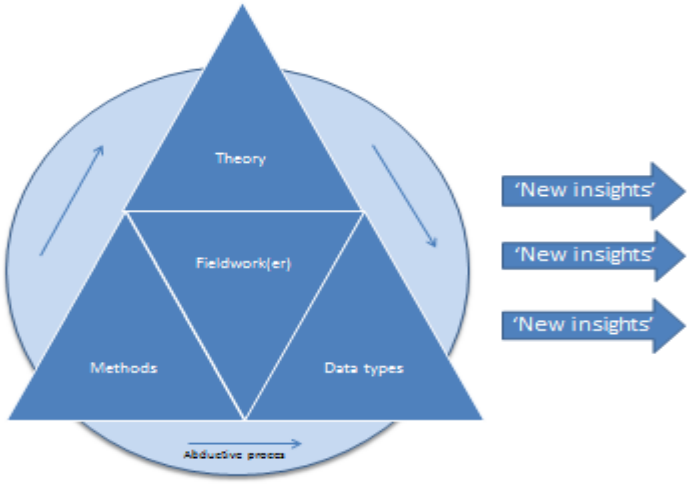

Figure 1: The reflexive proces of analysing fieldwork.
Figure inspired by Wadel 1991, Timmermans and Tavory, 2012.

Datatypes (field notes from observations and transcriptions of the recorded interviews) were analysed with the aim of producing knowledge about the context of the work at the sites and the specific situations in which different safety perceptions and cooperation practices involving safety developed. Initial analysis started during fieldwork, and then after fieldwork all the transcribed interviews along with our field notes were read through closely. We made a list of coding themes and concepts derived from our previous theoretical understandings as well as from the ideas and thoughts that the initial analysis generated during field work. These themes were: collaboration, cooperation, double safety standards, risk, safety and control, sense of security, planning, rules and procedures, safety as negotiation, technic and things, trust, causes of accidents/ incidents, and methodological issues. The data material was coded according to these themes and discussed among the authors. During the coding process new themes emerged, especially the issue of safety as

control and surveillance. Through discussions among the authors, Foucault's theories about the Panopticon were identified as a highly relevant lens through which to re-read and think through the data set. As such, this process of analysing the material opened up possible avenues to understanding the problem of how safety cooperation is established vertically and horizontally at the construction site, and why safety cooperation is often a source of conflict between different groups. We coded and categorized the data material with the help of the software program NVivo 11.

By employing a case study design, we sought to engage with local knowledge at the work sites, and aimed to collect rich qualitative data to illuminate how safety cooperation is acted out through everyday practice at the construction site. This research does not therefore aim to display facts about safety collaboration (Sherratt et al. 2013), but rather to understand how safety practice unfolds and is understood by its practitioners through extended researcher- engagement (Pink et al. 2010, Pink et al. 2017). In the following section, three themes will be analysed. Namely, safety cooperation within the formal structure (meetings), 'being stabbed' as a form of safety cooperation, and safety cooperation as the negotiation of solutions These emergent themes are evident throughout the material and the analysis draws on the full dataset collected across the two construction sites. The analysis will be illustrated through examples from the field notes and transcribed interviews.

Analysis

Safety meetings: safety collaboration within the formal structure

Safety meetings are obligatory under law and are intended to involve both workers and management on site. At the two sites, these safety meetings were held every fortnight and provided the formal structuring of safety cooperation between representatives from main contractor management and (representatives of) workers and sub- contractor management and representatives of trade contractor workers. At both sites the main contractor safety managers (who were also site managers) ran the meetings, following a relatively fixed schedule. They would always start with the safety manager going through the minutes from the previous meeting, after which a range of practical, and some almost trivial, issues would be discussed, which included: current staffing, changes in the coming week, start-up of new workers, status and progress of the work from each contractor and implications of this for safety, safety measures taken since last meeting, accidents and near-misses, notices or charges from the Working Environment Authority, and so forth. The issues discussed in the meetings were mostly retrospective in character, passing on information about agreements already reached at the work site or in other meetings. Yet, the safety managers did attempt to involve workers representatives from both main contractor and sub-contractors in decisions about current problems by asking them to bring in their knowledge and experience on specific matters, as the following extract from the field notes illustrates:

Towards the end of the meeting, the safety manager takes up issues that he encountered during this week's site safety walks: 'It still looks very nice', he says looking around the table, 'there is a staircase that is missing cover, but we have arranged for it to be taken care of'. He goes on to praise one of the sub-contractors for purchasing an electric-powered truck to drive inside the building. Then he turns to the problem caused by the weather conditions: 'we have water on the floors, what do we do?' he says. He seeks to engage the participants, and some of them suggest they lay out sand, to absorb the water. (Field notes from Site 1).

The example illustrates the type of issues brought up in site safety meetings; mostly practical, trivial matters related to potential safety issues concerning daily operations on site. It also illustrates how the site safety manager attempted to engage participants; he sets the agenda, but asks around the table inviting the sub-contractors and his or her own people to find solutions to current on site problems that might pose a risk to the health and safety of the workers. However, as an involving practice, it generates little 'engagement in safety' from the meeting participants. The site safety manager's acknowledgment of the sub-contractor, for purchasing the electric-powered truck, is translated into an act of improving safety, as it lowers emissions and improves air quality in the building – even if the motivation for the sub-contractor may have been quite different. As a practice, the institutional logic of the meeting is to involve representatives of workers and managers (from both main-and sub-contractors). Safety, in these meetings, is closely linked to production and to the hierarchical structures. As such, it illustrates the often banal, albeit selective, focus on safety as linked to, but also separated from, safety as practiced. Risks

(of water on the floor) are pointed out and can be seen as an educational endeavor on behalf of the safety manager in guiding the representatives' vision.

In the series of meetings that we participated in, the foremen or managers' talk was often informative and directive in the sense that they reminded people of what they should do, for example the *"injunction to use helmets at all times"*. At Site 2 the foreman from the main contractor followed up on this, noting that *"this means that every gang or sub-contractor must enforce this with their own people. And we will take care of our own"*, and he continued *"at some point we'll be 100 people here and if we don't enforce this with our own, it will be a full- time job to keep an eye on this"*. He continued, by looking towards the sub- contractors and saying, *"the crane is in operation at all times, which means that even if you work inside most of the time, when you go out of the building, there is a risk"*. The injunction to wear helmets at all times is delivered as information, but it is followed up with an obligation on behalf of low level management and safety representatives to police their own group. In the site safety meetings, safety was broadly codified as 'risks' that the representatives of the workers and managers present were either invited to contribute solutions to solve, or were instructed to remedy in specific ways. With reference to the issue with the helmets, safety was also closely related to 'responsibility' and surveillance as ways to deal with, or even solve, the risks at stake. As such, cooperating about safety is mostly about solving problems and not about engaging with the workers knowledge about the site, the work, and different ways of doing safety.

Morning break meetings

In addition to the safety meetings, and as part of a company strategy for the safety management of their building sites, the main contractor at Site 1 ran weekly morning break meetings. These meetings took place during the morning break at 9 o'clock with all workers from different sub-contractors present. According to the health and safety director, the aim of these meetings was to involve all the workers from different sub-contractors more directly and to facilitate dialogue between the workers. Prior to these meetings, the site safety manager walked the site and rated different target points related to health and safety using an online rating system available on an IPad. At times during the site walk, he approached the workers directly if something, which he found risky, caught his attention. However, at other times he just registered the issue for the next meeting, where he used the pictures he had taken to illustrate safety breaches or issues where improvements were needed in order to meet rules or standards. He also complimented the workers if safety standards were met, e.g. in relation to clearing the access roads on the site.

The morning break meetings provoked different reactions from the workers from the sub-contractors. Some felt that the meetings strengthened relations across different contractors, but the practice of showing pictures of situations, where some sort of breach of rules had taken place or risk was at stake, was largely seen as counterproductive in relation to safety. One of the workers asked us, *"how can showing the pictures at meetings two days later, improve safety? Instead of embarrassing me at the meeting, he should get to me on the spot, so I could've corrected it"*. Seen from the perspective of this worker, taking pictures and showing them later amounts to a form of embarrassment, and does nothing to collaborate about safety, or to improve safety onsite. It illustrates that understandings of

safety, as well as what it takes to cooperate about safety to reduce risk, are multiple and contested. It poses the question of whether safety is about dealing with problems and solutions when encountered in the course of one's work, or about correcting behaviour through a disciplinary management (power of surveillance). Are such practices creating a culture of self-surveillance or encouraging workers to evade the lens of the camera?

The negative reactions to having photos shown at the morning break meetings illustrates how the power of management (to use a disciplining gaze and to punish through embarrassment) is dependent on the safety knowledge which classifies poor behaviour. This knowledge takes on its authority because of the uneven power relationships with the workers (Foucault 1980). What is disputed here, though, is not the taking of pictures, but the fact that the risk is isolated from real time and its immediate context, only to be put into another time frame, namely the safety meeting. For the worker this represents an entirely different context which, to a certain extent, renders the issue of safety irrelevant. It appears that part of the disciplinary apparatus is the morning break meeting, through which the knowledge about the risk (in the picture) is legitimized by experts/authorities/the company, in the way the identified safety breaches have been withheld and then revealed to the workers in a new context.

In safety management and legal terms, safety meetings are meant to stage cooperation and collaboration about safety across contractors and hierarchical levels at the construction site. In the example above, the safety manager failed in his safety duty by photographing an unsafe act/ situation without engaging with the worker(s) at the time to either comment upon the situation and / or correct it if needed. The discussion later in this section indicates

that the worker 'shamed' at the morning meeting did raise a similar point. Even though the safety meetings are communicated in a discourse of engagement (Sherratt et al. 2013), we have seen in the previous examples that, from the point of view of the workers from the sub-contractor, actual risks are not managed or remedied but rather transferred to a meeting where a perpetrator is identified. Through choosing not to engage with the individual/s at the sight/site of hazards and poor safety practice, the manager can be seen as making the workers "an object of observation but never a subject of communication" (Foucault 1977, p.200). In the example, the worker does not have the opportunity to react towards the hazard being pointed out – so that he could correct or manage the risk in real time. That risk is not dealt with in its original context, but rather identified in a meeting in which the worker feels it is associated with him as an individual problem. Through talking to the safety manager, we learned that this understanding of the meeting and the consequences of taking photographs, were very far from his own intentions, which were to construct a space for dialogue about general problems and safety issues and to foster organizational learning.

Stabbed to the management: balancing without the safety line

In our conversations with personnel on site, we regularly discussed what feeling safe at work means to them. These conversations were often initiated by our inquiries about why they had chosen a certain procedure over another for a certain job, and what it potentially could mean for safety. For a period of two weeks we followed workers at Site 2 who mounted concrete floors and walls three floors up the building. Two of them worked in close pairs together with the crane operator and they described trust in colleagues and knowledge of their partners' work tasks and whereabouts as essential for their sense of security in what they did. As the floors were installed, they followed a certain procedure

for installing edge protection as part of finalizing the floor. This was something that the site manager had also pointed out as being important, since it would take some time before the walls were in place. While completing this procedure, the workers used safety lines, a so called “yo-yo”, but at some point we noticed that one of the workers was installing the edge protection without using safety lines. The safety manager happened to walk past and immediately called the worker over to ask where his protection was. The incident resulted in an immediate disciplinary talk with the two colleagues. We did not take part in this talk, but the site manager, and later the foreman, expressed ‘frustration’ and ‘disappointment’ with the workers. They felt that they had no choice but to enforce the rules and discipline them for not behaving safely, even though, as the foreman said, he was certain that the workers did not feel unsafe when working as they did.

Later, when we discussed the incident with the workers, one of them sarcastically said that he would not talk to us because we had *“stabbed him”* to the management. While he said this in a joking manner, he mentioned it again and again. We explained that we had not said anything about how they worked to management, but his distrust highlighted how our own “inspecting gaze” had (unwittingly) been linked with the system of safety surveillance (and discipline) present onsite. As we were visitors and observers at site, we became associated with the inspection of safety. But as we hung around the site, the two workers told us that they had previously asked for the safety lines and, when these did not arrive, they reasoned that the decision was made because the company wanted to save money. They said that it felt like a joke when the foreman said that they should ‘just ask’ if they needed something. They did not think there was much of a conversation to be had with the management, describing how *“it was more like being stopped by the police for speeding”*.

When we talked to the foreman about this incident, he felt the workers accusation was unjust, and stressed that the workers knew his prioritization of safety. He claimed to have heard nothing about the missing yo-yo's. When asked why he thought the safety line was not being used, the foreman said that, in his mind, it was because, *"they don't feel it's risky without it"*.

One of the other workers mounting concrete elements explained how he, in fact, felt at greater risk *with* safety lines. When he was mounting without a safety railing, he claimed that he was very attentive and took great care. He felt that it was important to be able to react and move his body fast if one of the elements caught a gust of wind and suddenly moved in an unexpected direction. Therefore, if he needed to jump to one side or the other he was concerned that the safety line would lock him and impair his mobility. While many health and safety practitioners would argue the very opposite, the worker felt that the safety line could be the very thing that made him feel insecure.

These examples illustrate how dealing with risk, and choosing work procedures to avoid risk, is anchored in different discourses or notions of what safety is and how it can be achieved. It seems that, for the workers, whether they used the yo-yo or not did make a big difference, albeit in a different way than that anticipated from the safety management. The use of it made the worker feel unsafe; and the non-use of it brought about a penalty to the worker. As Sherratt et al. (2013) have noted in their study, the breach of safety rules was not "associated (with) danger or the potential for any real incident or injury" by the workers (ibid, p.631). In our example, the workers anchored their sense of safety at work in trusting colleagues' competent handling of their tasks. Safety, therefore, is established in

a relational practice of trust, contingent on seeing and communicating with each other. Therefore, from the perspective of some workers, a focus only on the safety line and its use diverts the talk about safety to essentially irrelevant things distanced from the everyday concerns of the workers. Instead, safety becomes a question of management's judgement on their way of handling the task; a decision from the health and safety professional function, made from a position of disciplinary power.

Safety cooperation as the negotiation of rules

Rule-violations were common place at the two sites, both in the sense that safety managers would routinely identify and log violations, and in the sense that violations were normalized as part of the daily practice (Sherratt et al. 2013, Vaughan 2005). Whether rules were followed, or not followed, was negotiated in practice, as is illustrated in the following quote where we asked the manager of the gangers about the safety precautions under crane operation:

Interviewer: When you assemble concrete elements using the crane, at other sites I have noticed that it is forbidden for other workers to enter the area.
Ganger: That's forbidden here too.
Interviewer: But you enter anyway, don't you?
Ganger: Yeah, but we probably shouldn't. If it's right, there should've been a chain around, I think. There should be a chain around the pallets too, where the elements stand, where they pull up the elements, which is where there should have been a chain around.
Interviewer: Yes, is that the rule?

Ganger: I think so.

Interviewer: Okay, but you don't put it here?

Ganger: No, no.

(Interview with manager of the gangers)

In his position as a lower level manager, his primary job is to organize the work on a daily basis and ensure that the gangers have materials and tools. He is not a representative in the formal safety meetings and from the quote it is apparent that his vision is not specifically guided towards safety. Rather, he has divided safety into two different realms; one comprising the theoretical knowledge of rules and what is forbidden, and another based on what they actually do. In the beginning he confirms the formal understanding of safety, *("it is forbidden here too"*). When the interviewer "guides" his vision towards the fact that there are no safety chains, the manager confirms this, and even brings the interviewer's attention to an additional issue, where another chain is not in place. During fieldwork and observations, we often heard the phrase, *"(R)ightly, there should have been…"*, indicating that rule- violation was common practice onsite.

At other times, rule- violation, or attempts to divert the management's attention away from rule- violation, was elaborate and articulate. A group of cast concrete gangers from the sub- contractor told us that before the safety walks they would *"leave some garbage and left over materials in the access way for the safety manager to have something to register*"'. This, they said, would make the safety manager less attentive to other violations, such as a lack of sufficient railing, which they preferred that he did not see. In this case, neither the left over materials nor the other violations were understood as a real threat to

safety; it was rather a risk that could be dealt with easily in the course of their work. This understanding can be compared to what Dekker (2014) has described as a general experience of "we'll probably be fine" (Dekker 2014, p.15). Safety in the form of pointing out risks and faults is seen as decoupled from actions that relate meaningfully to establishing a sense of security in the course of work. Despite this sense of disconnection, workers own actions actually furthers this separation; they leave out something for the manager to register whereby 'he can do the task he has been assigned', as they formulated it. This example also seems to represent a tactic: to outwit management. It acts as a counter to the management attempts to rarefy safety (e.g. logging safety violations and revealing them later to admonish workers). Instead, this action of 'leaving something for them to register' suggests the workers consider themselves as having a better understanding of working safely and of the real motivations of safety managers, namely, that management does not appropriately understand hazards and the management of risk. On the other hand, the site safety manager told us that he was perfectly aware of these differences in understanding, and that he even took part in the negotiations about how to do the work safely on site. In his experience, it was difficult to balance 'independence and grip' with the workers. He exemplified this by telling us that, even when things had not been cleared up on site and represented a risk when left lying around (including cut iron, remnants of equipment to put the moulds or formwork together, and waste), he sometimes took the view that *"it is necessary <u>not</u> to point out everything, because 'they should be allowed to work"*. Thus, the manager sometimes withholds the findings of his surveillance, or chose not to reveal all the details of his observations, in order for the work to be undertaken.

The main contractor at Site 1 had a reputation for being quite fierce on policing the use of safety equipment; and most hotly debated and challenged was the introduction of mandatory personal protection gear onsite such as safety goggles and work gloves. Their focus on this was a part of a larger change in the company's approach to safety management and accident prevention which was first implemented some years ago. Yet, at the time of our fieldwork there were still workers and sub-contractor managers that were opposed to this approach, and thus the safety manager confronted workers for not using the equipment. However, one of the sub-contractors felt that these precautions were actually negotiable, as the following quote illustrates:

Sub-contractor: …they introduced safety goggles as obligatory safety equipment. There was no discussion, and that's fine. But, I opened the discussion and asked them what if it is damp? … I know, you can get some safety goggles... but if you do a certain job, you have to look carefully. It just gives a different view with goggles. 'Well, then you will have to take them off', they said to me.
Interviewer: Ok, you actually negotiated a dispensation, you can say?
Sub-contractor: Yes.
Interviewer: And how does this work for your people, with that dispensation?
Sub-contractor: Well, honestly they are probably quick to see the moisture, to put it frankly. They are quick to take off the goggles. (Foreman sub- contractor Site 1)

For the foreman, the safety goggles hinder a clear view, and this is what he brings forward to the main contractor safety manager. The personal protective gear is not sanctioned by law, and therefore the company is required to explain the reasons behind their particular

PPE requirements. However, for the main contractor this also became very difficult to administer, and at several times the safety manager was frustrated and irritated at the workers' behaviour. From his perspective they were undermining their own safety as well as his authority, which required these measures to be used. The different notions of the 'safety' of safety goggles illustrates well how attempts to engage with workers views and the granting of dispensation from safety standards created a sense of insecurity for the manager, whereas the very use of the goggles created an insecurity felt by the workers.

Discussion: Between facilitating independence or tightening the grip

Our research has attempted to empirically unpack the phenomenon of disciplining unsafe behaviour and of engaging with local safety knowledge and how it unfolds as construction workers and management cooperate around safety. The analysis can provide a point of departure from existing ways of thinking about safety cooperation and enactment of rules in three different ways, which we will now unpack.

Firstly, the analysis confirms the importance of understanding the difference between safety as safer work practices for front line workers and safety as adherence to, and knowledge of, comprehensive safety rules. This has consistently been pointed out in the literature, but our study reveals the implications of confusing the two during different attempts to achieve and engage in 'safety cooperation'. The findings suggest that current management practices, as they were observed, commonly 'dress up' enforcement as engagement and that this breeds a degree of resentment and distrust among the workforce.

Secondly, the analysis points to the relevance of drawing on local knowledge when attempting to delineate engagement from enforcement in safety cooperation. We have described how construction involves interacting in a recognizable environment that might be reconstituted in rather different configurations for different jobs, drawing on a situated and inherently hierarchical body of construction knowing, experienced and mobilized in practice. This body of knowing includes trust in colleagues as an inherent part of practicing safe work on site. Safety is being constructed by the different safety management and safety culture programmes through the language of involvement and engagement, but the issue of trust, as a part of safety, may be overlooked. However, there is still the retention of management control, as opposed to an active engagement with local knowledge, for the management of safety and prevention of accidents. Where engagement and participation are sought, there is still frequently more of a monologue rather than a dialogue over safety and this challenges the finely balanced relations of trust at a worksite.

Thirdly, the analysis points to safety as a privileged and powered practice, which explains the persistence of enforcement practices and the skepticism towards worker engagement around safety. We concur with Antonsen (2009), who argues that issues of power in safety management are under- communicated, and occasionally disguised as 'prioritisation'. Provan and colleagues point to the prioritizing of professional safety work being 'based on the wants and needs of management, not the current risk faced by the front- line workforce' (Provan et al. 2019:285). Cooperation about safety thus becomes centered around formal safety management: i.e. a safety audit of an operational business unit, the purpose of this can be predominantly about demonstrating the appropriate performance of the safety team, through reporting the inadequate performance of operations (ibid, p.280).

Cooperation about safety is intended to involve all construction parties and is sanctioned by regulations, but achieving this poses a significant challenge with regards to accounting for the competing types of safety knowledge at work; some (locally developed) notions of safety and risk are considered to be safer than other formal, safety management systems and policy, which means that cooperation becomes an exercise of some workers adjusting their knowledge, views and experiences to fit other understandings and priorities. Viewing safety as a practice, therefore, points to the importance of considering all participants views, and it also points to the fact that these competing views are contextually negotiated and developed in practice.

Within the formal structure of cooperation, we did, perhaps unsurprisingly, find resistance towards management views and knowledge. In a group interview with workers from one of the subcontractors at Site 1, we were told about how they had been asked to take photographs of things that were deemed unsafe or wrong according to a safety induction they had just participated in. In the beginning, workers assumed that they should identify an instance where one of the other craftsmen had made a mistake and take a photo of it; an activity which they felt uncomfortable doing. Later on, they learned that they should think about their own practice, and even take pictures of good ideas or safe solutions. Yet, such initiatives for encouraging reflexivity and engagement in safety were met with suspicion. Within the context of safety onsite, the taking of photos was already a problematic activity and charged with distrust courtesy of the 'picture showing' practice already discussed in the example of the morning break meetings. In this situation, the workers felt that they were also indoctrinated into this way of identifying faults and risks (and even good ideas) as a way of demonstrating their 'right' understanding of safety. This points to how safety

knowledge is wielded onsite. In this way safety breaches are catalogued (identified, concealed and then revealed) not only by management, but also by colleagues in order to demonstrate their understanding of company views. This represents a means of rarefying safety and utilizing it as a management function; a (privileged) way of seeing and a knowledgebase used to admonish. From the safety management's perspective, pointing out mishaps and errors onsite is understood as a general practice, intended to foster dialogue, engagement and even independent discretion among the workers and not something directed at individuals.

Again, in relation to Foucault, this can be seen as an attempt to engage individual workers in self-surveillance and self-discipline. Workers described these actions as “informing on colleagues” and “pointing out an error”. In this way, a culture of monitoring and reporting of unsafe actions, poor workmanship, corner-cutting and indiscretions, may represent a proactive safety culture. Even in articulating their displeasure and unease with this approach, the workers acknowledge that it is “finding faults”. Yet, it is also an example of power being normalised through everyday practice which Foucault (1978), in relation to the managing of a population, terms "biopower". This might take the form of a system of ‘normalization’ where hazards caused by fellow workers are identified in a self-regulatory manner, and then formally logged and measured. This is a move, in relation to hazard report card systems, which Tutt et al. (2011, p.8) warn risks confusing the "don’t walk by" ethos of safety cooperation. Yet in our empirical research these practices do not seem to represent 'docile bodies' enacting a change in safety culture. Rather, there is resistance to this being accepted as good safety practice, but a resignation that "it's how it is" to work construction.

Such forms of horizontal monitoring may be premised on enhancing worker engagement and empowerment. Yet Sewell's work (1998, 2012) details how such disciplinary apparatus can operate to reward high performers and expose others and shows that workers are very conscious of conflicts in managerial discourse. Rather than a democratic practice, it can become a process "whereby peer- pressure enforces management-inspired group norms on an individual basis" (Zureik 2003, p. 44).

In this analysis we have questioned the notion of establishing what is 'right' with regards to safety practice. Rather than one right way of achieving safety, we have pointed to different, local, notions of what safe work is about, and the efforts brought into managing the processes that should create or support these practices. Tightening the grip on safety compliance could represent a way of achieving that, but our analysis points to the risk of contra productive practices, i.e. in relation to the safety line, where the workers felt policed rather than safe by how the management reacted. Facilitating independence, with regard to cooperation about creating safer work practices, seems to be possible through engaging with local knowledge. At the two sites, the site safety managers explicitly expressed a willingness to engage with workers, but when faced with 'rule breaking' practices, they went back to enforcing rather than engaging with their reasoning and sense of order (Busby and Iszatt-White 2016). The existence of multiple opinions and conflicting views could support the managers' intent to engage and serve as a form of requisite variety that will enable the legitimization of safety work directed towards the safety of workers and not towards safety work (Antonsen 2009). On a further note, striking the balance between enforcement and engagement can even be seen as an impossible task. Rather, the real

challenge is to accept the decoupling between the two in order to be able to work with the inconsistencies that they produce in practice. Holt and colleagues have, based on fieldwork in a different context, pointed to the importance of nurturing 'soft power' skills in managers, such as problem solving skills, coordinating skills, flexibility, deep knowledge of the system they operate in, and willingness to undertake emotional labour associated with relational working (Holt et al. 2018). Attempts to engage the workers, through safety committee meetings or morning break meetings, became translated into the one-way provision of information and praising or addressing of how things were done. Therefore a new form of engagement with the local conceptions of safe working, that opens up and allows for differences of opinion, could possibly facilitate independence.

Conclusions

This study feeds into the discussion of how to bring about change in construction safety and of whether safety in construction is achieved through engagement or enforcement, or rather how these two perspectives unfold empirically. Through a perspective of safety as a local practice we have pointed out how safety tends to be legitimized as a privileged risk-oriented vision, used to admonish workers. The paradox inherent in this is that managers attempt to engage the workers through participating in meetings and taking photos of mistakes, while workers see these practices as a punitive way of criticising their work at a distance. They, in turn, feel such practices run counter to establishing collaborative safety practices on site. Identifying mistakes and faults through an inspecting gaze is something that workers are resigned to accepting onsite, and yet they effectively reject it as meaningfully contributing to safe practice. Rather than interiorizing this understanding of safety, workers voice a resistance to internalising this practice as a norm.

The findings suggest that current safety management practices, as they were observed, 'dress up' enforcement as engagement and that breeds a degree of resentment and distrust among the workforce. This can be viewed as being poor management practices premised on a lack of understanding of how safety is understood by front line workers among the management ranks. However, rather than a lack of understanding, site managers are not well equipped to manage the apparent inconsistencies between safety as managed procedures and safety as handled through tacit professionalised knowledge.

Through this analysis, based on ethnographic data, we have empirically unpacked the difference between disciplining unsafe behavior, where behaviour is judged on the basis of standardized norms of risk (fragmentation), and engaging with dynamic and local knowledge integrated in personal, material and organizational practices. Applying the Foucauldian notion of discipline allows for an examination of the hierarchy of safety understandings in the context of a construction company, and at the same time it sheds light on the 'rule-breaking' practice, as workers do not always see the behavior sanctioned by the management as producing better health and safety onsite. Even if facilitating independence and engaged cooperation among workers was an aim for the main contractors at the two sites, these efforts were countered by a sense of being watched or blamed by some of the workers. These judgments (of poor safety practice) were made from the (privileged) position of safety management and in a process where safety knowledge was unreachable and unknowable to workers outside the confines of the safety meetings. This study shows how engaging workers in safer ways of working should acknowledge the integrated nature of safety practice and the value placed on independence and trust when

cooperating about safety. We have used Foucault's concept of surveillance to highlight aspects of enforcement that produce resentment rather than engagement in workers. We point to the importance of employing 'soft power' skills such as problem solving skills and willingness to undertake emotional labour associated with relational working in managers, as a way to open up for the co-functioning of engagement and enforcement in construction. In a Danish context of strong labour union cooperation and involvement of workers, this seems especially pertinent. Bearing in mind how the attempts to engage the workers, in safety committee meetings or morning break meetings, seemingly turned out to be more about the simple giving of information, and praising or addressing how things were done, a new form of engagement with the local, contextualised ways of perceiving safe working, that allows for differences of opinion, could possibly facilitate greater independence.

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