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Exploring craft in construction with short-term ethnography: reflections on a researcher's prior insight

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ABSTRACT

Ethnography offers a route to knowing about the everyday activities of construction workers, but its long duration is not always suited to the site environment or the researcher's resources and the workers themselves are constantly changing. Short-term ethnography is an alternative to the traditional format that permits a shorter length of fieldwork activity in return for intense engagement between the researcher and their participants. The rich points that make up an ethnographic account need to be actively sought in short-term ethnography. This can be achieved by utilizing the prior construction experiences of the researcher. The researcher enters the field with an emic insight that can be used to seek out events and allows the production of meaningful ethnography from a shorter, more intense fieldwork period, learning much from individual workers before they move on. Engagement extends beyond the onsite interactions through the use of video cameras to record everyday activities. Examples from two short-term ethnographies of two deliberately different sites explain how, in the search for craft traits among construction workers, the fieldworker is able to mobilize emic insight and craft theory to seek out rich points in everyday events which are typically serendipitous in nature. This account serves to provide a demonstration of how the very real tensions between the limitations of project context as a field site and the need for methodological rigour can be reconciled through careful attention to reflexive ethnographic practice.

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Introduction

Human skill and effort are the essential productive resource across much of construction. The performance of this "craft workforce" (Calvetti *et al*. 2020) in a low technology industry allows much scope for workers to make decisions as the key productive component (Coffey and Langford 1998). There is no catch-all term for this human resource with "trades", "manual workers" and "craftsmen" all in common usage among researchers, reflecting imprecision about what they actually do. To learn from the workers directly about what they do on an everyday basis, researchers must enter their world and learn from them. Ethnography is a common place solution to learn from other cultures, offering "an innovative, highly immersed approach to exploring lived experiences" (Shipton *et al*. 2014). Traditional ethnography involves long-term spells in the field, often many months or years. But the constituents of our culture – construction workers – are not ever-presently the same individuals because the contingent and dynamic nature of construction (Sykes 1969) means a continual entry and exit of actors. Workers may be present on any particular site for only a few days or weeks. These construction sites and the activities that constitute them are closed worlds. Access for researchers is hard won and once obtained, full advantage must be taken in the time available. Short-term ethnography is an alternative to the traditional format. It aims for intense, rather than long-term, data collection and could be well-suited to the site context of high labour turnover. Furthermore, the reduced timescales can make the fieldwork component of short-term ethnography more feasible for construction management researchers to undertake, constrained as we are by other demands on our time and the logistics of long spells in the field (Sugden *et al*. 2019).

Ethnography is typically undertaken from a single-point perspective (there are some examples of team

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ethnography) and it is not possible to claim complete coverage of a site or to have captured everything. One of the most important questions for the researcher is deciding where to focus attention from among all the things happening. The researcher must make choices about where to go and who to watch (Mäki and Kerosuo 2015). This combination of method and context requires intense researcher engagement with the observed actors to learn as much as possible before they (or the researcher) move on. It also requires physical closeness to the worker to capture what they are doing. With short-term ethnography the researcher needs to be active and engaged in seeking out the rich points that are the making of ethnographic accounts. The actions of the researcher on site therefore determine to a very great extent the way data collection and analysis unfold. Reflexivity on the role of the researcher is commonplace in ethnography generally but lacking in construction management studies (Klitgaard *et al*. 2021). In this article, we explore how prior knowledge of construction, theoretical preparedness and the uncontrollable happenstance of construction site operations interplay in the production of short-term ethnography. We do this through a consideration of insider and outsider perspectives pertaining to the researcher, and the way this shapes the investigation of craft traits among construction workers.

Our aim is to reflect on how the principal author was able to mobilize his prior knowledge to seek out rich points in a short intense fieldwork. This is a beneficial way of accessing construction worlds that uses prior experience as a strength to bring focus and efficiency to the fieldwork and empirical analysis. The authors present their methodological approach by explaining, through a predominantly reflexive piece, how they navigated prior knowledge, theoretical sensitization, fieldwork experiences (including the serendipitous occurrences one encounters) and subsequent analysis to produce new knowledge about the way construction researchers can undertake short-term ethnographies of site workers.

The first part of the article explains how studying the performance of construction workers lends itself to ethnography and the ways emic and etic perspectives have been mobilized in construction ethnographies. It finishes with a reflection on the circumstances of the principal author. The next two parts provide a definition of craft and the way in which craft, as a descriptor of construction workers, is used in UK housebuilding and building conservation. The research design and method details the participant observation data collection using fieldnotes and video cameras. The principal author undertook two spells of fieldwork to produce two short-term ethnographies (on a housebuilding site and a building conservation site) exploring the extent to which craft traits are present in the actions of the worker. Two short vignettes and a discussion present the empirical data and in doing so explain how momentary events in the life of the construction site become ethnographic knowledge through the conscious actions of the researcher.

Short-term ethnography for construction researchers

What builders do is what they are; more so than some other occupations where, for example, an office-worker could be doing any number of things with their computer. When you see a man with a trowel in his hand laying bricks you can be fairly sure what he does for a living. But is he a craftsman? In an ethnography of masons at work in Mali, Marchand characterizes "corporeal performance" (2007, p. 193) as a way of transferring knowledge from master to apprentice and shows how physical activity is as much, or more so, a form of communication as verbal conversation between workers. These public, overt forms of performance are instantiated by the goal of producing. The performance is actualized by physical movement that is not ad hoc or spontaneous but is, instead, always prompted by intention. While the master mason may act unconsciously, those actions have been honed and practiced and are for something. Marchand questions how those actions become knowledge shared with the apprentice and moreover, shared and understood by other master masons. Masons can pick up each other's work and swap roles seamlessly without verbal instruction.

To explore craft requires time spent in the environment where it is practiced. This is a place of "artefacts, place and architecture, paths and boundaries, timeframes and temporal rhythms; light, darkness and weather" (Marchand 2010a). In short, for us that environment is the construction site: a noisy, shifting, alive environment that is always in a state of becoming. This extends beyond the physical making of the building itself to creating a place where identities and communities are constructed (Sage 2013). Ethnography can "reveal social, experiential and often unspoken ways of knowing" (Tutt and Pink 2019) to connect research with the workers and the actualities of their practice through "thick description" (Tutt et al. 2013).

Undertaking this type of fieldwork within construction sites can build our knowledge of a work world in a way that is often overlooked. In construction management research, quantitative approaches have dominated (Chan and Räisänen 2009) and the complexities of social phenomena are under-appreciated (Koch and Schultz 2019).

Marchand argues that participant observation or ethnographic reasoning limit insights so goes further by undertaking apprenticeships within the field of study (Marchand 2007, 2015, 2010b). There is "an exchange of toil" for "ethnographic knowledge" as "fieldworkers are exposed viscerally to the learning environments and livelihoods of fellow worker and craftspeople". This requires a long time spent in the field and extensive involvement with participants (Phelps and Horman 2010). There are recent examples of construction ethnographies that have adopted the apprenticeship approach (Baarts 2009, Thiel 2012a, Löwstedt 2015) but we have held back from that. Instead, we utilize the construction experience of the principal author to seek out the rich points. Entering a familiar work world is common in construction management research, giving an advantageous emic perspective (Sherratt et al. 2013). Some of the most famous ethnographies of construction work (Riemer 1979, Applebaum 1981, Thiel 2012b) were written by authors fully implicated in the world they were writing about.

Short-term ethnography requires intensity if it is to stand comparison with its longer duration variants. One way of achieving this intensity is to shift away from more traditional recording techniques and make extensive use of video and audio recording. Unencumbered by the need to collect detailed field notes (the audio and video can do this), the researcher is more mobile and able to be more engaged with the participant. Visual ethnography techniques can be planned in advance, but the way the use of video unfolds during the fieldwork is unpredictable (Pink 2007, p. 47). Watching the recordings allows for "ongoing reengagement", whereby far the greater part of the ethnographic analysis takes place away from the field (Pink and Morgan 2013).

The way the researcher behaves during the fieldwork and the concurrent and subsequent analysis of the fieldwork, is informed by (and of course informs) theoretical positioning (in our case, theory about craft) and discussions with co-researchers through an iterative process. But the researcher does not only have a head full of theory. Where the researcher has prior construction expertise, they navigate the fieldwork and the subsequent analysis and write up with the unavoidable presence of insight borne of that previous experience. The researcher is occupying a dual role of insider (emic) and outsider (etic). In ethnographic theory emic and etic are used to explain how understanding can be derived from a culture in its own terms (emic) and explained in a universal framework (etic). The inter-relationship between emic and etic perspectives is critical in producing good ethnography (Fetterman 1989, p. 32). Given the oftentimes close relationship between the researcher and the work world, as is the case here, the researcher must ask, especially when undertaking ethnographic research, about the relationship between themselves and the participants (Bergman and Lindgren 2018), their status within that situation and the implications it has for the way data is collected and analysed.

The terms emic and etic take their origin from phonetics and phonemics in phonology, the branch of linguistics dealing with systems of sounds between and within languages. Re-interpreting this distinction for use in anthropology, Goodenough (1970) was aiming to establish a framework for understanding to make comparisons between cultures. His concern was the problems of description and comparison of a culture. For him, a culture is the sense of standards and expectations relating to social conduct, including "how a person does his work" (Goodenough 1970, p. 98). But, to describe one culture for an audience that is unfamiliar with it, ethnography must use "concepts that are not a part of the culture of the people under study" (Goodenough 1970, p. 104). However, the description must be capable of comparison and avoid the caricature. At the same time, the basic components of the units of study cannot be described in terms of themselves. This is avoided by the development of a meta-language: an independent, perceptual and conceptual frame (Goodenough 1970, p. 107).

The emic and the etic always work together when one human tries to make sense of a second human for the benefit of a third. They are not separate understandings but are part of the same understanding (Agar 2006). It is a continuum of styles with different ethnographers giving different emphasis to the emic and etic (Fetterman1989, p. 32). The concepts of emic and etic are "indispensable for understanding the problems of description and comparison, of the particular and the general" (Goodenough 1970). But there is "a fundamental tension" between the emic and etic (Bergman and Lindgren 2018). The problem for the researcher is "what kind of etic/emic framework would

allow ethnographers to describe and compare at the same time for all of society and culture" (Agar 2006).

This brings to the fore the need to reflect on the particular circumstances of the principal author of this article. His near 20-year working career has been split between two work worlds. The first half in the construction industry and the second half teaching and researching in higher education. During his construction career, the principal author worked "on the tools" in speculative new build housing, commercial building, refurbishment and building conservation projects. In this time, he undertook most of the essential building operations including bricklaying, carpentry, joinery, drylining, roofing and internal finishes. These 10 years could be viewed as one long and varied apprenticeship in building.

The implication for this research is that Marchand's apprenticeship approach, if adopted here, would be disingenuous. An apprenticeship suggests a role "devoid of construction baggage" (Löwstedt 2015) whereas the opposite is in fact that the case here. The principal author carries much in his "backpack" (Grosse 2019). Due to his personal back story, he has prior insight into the world he is entering giving him an emic understanding alongside the knowledge of craft theory constituting a universal etic framework.

Characteristics of craft

Marchand has researched construction craft in practice through fieldwork in a number of settings, both abroad and in the UK. His working definition of craft is that it is polythetic: a category of shared characteristics, none of which is essential (Marchand 2016, p. 3). Marchand concedes that its "flexible nature presents a conundrum" He answers that the way to study such a phenomenon is "as it is played out in the context of everyday social life" (Marchand 2016, p. 8). He provides an "inventory" of 22 "things, properties, and characteristics regularly attributed to the meaning of craft, craftwork and craftspeople" (Marchand 2016, p. 9–10).

Craft is inherently bound up in the absence or presence of technology. Ingold argues for an etymological distinction between skill and reason when interpreting the word "technology". Its first part derives from techne: "the art or skill we associate with craftsmanship;" and its second from logos: "a framework of principles derived from the application of reason" (Ingold 2000, p. 295). The presence of technology is evidenced by the use of machinery to shape, form, or aggregate materials into elements. Craft requires a subtler presence of technology (because technology mediates human action) that allows the performance of human skill to dominate. Human-scaled work is evidenced by the ability – or freedom – of the worker to adapt their work in response to the way it unfolds at the point of doing. And in the way the person is placed at the centre of the activity, "the craftsman represents the special human condition of being engaged" (Sennett 2008, p. 20).

Skill is an important consideration in craft brought to "wonderful matter-of-factness" (Adamson 2007, p. 71) by Pye's assertion that "what laymen call skill is mostly a matter of taking very great trouble" (Pye quoted in Adamson (2007, p. 71)). The introduction of technology rationalizes the inherent riskiness of craft that Pye distinguishes between the workmanship of risk and the workmanship of certainty. In the former, "the quality of the result is not pre-determined, but depends on the dexterity and care which the maker exercises as he works" (Pye 1995, p. 20). This is the meaning he ascribes to craftsmanship; the work is a negotiation with the material wherein the craftsman explores the limits of what can be done. The application of technology requires much less attention from the worker and leads to "workmanship of certainty" where "the quality of the result is exactly predetermined" (Pye 1995, p. 20).

The scale of human action and the scale of making are commensurate in craftwork and the sensory link between hand movements and traces is crucial to its understanding. The presence of technology, for example 3D printing, has been argued as craft (Stein 2011) but this digital capability allows a scaling-up beyond the human and breaks the intimate connection between the hand and the work and, although simulating craft (Balik and Allmer 2017), it cannot be craft because it is devoid of the human hand's limitless "capacities of movement and feeling" (Ingold 2013, p. 115).

Craftsman and worker are not equivalent terms to describe those who undertake manual construction work. What these men do and how they do it determines whether they are performing the role of craftsmen or not. While the craftsman is "immersed with the whole of his being", the worker's job is merely to "set in motion an exterior system of productive forces" (Ingold 2000, p. 295). Marchand's polythetic definition and the approaches of Ingold and Sennett cut across a particular type or application of craft. It is evidenced in action. Our choice of a housebuilding site and a building conservation site described below is deliberate. These are two sectors of the construction industry

with approximately equivalent methods that remain overtly manual and have a common root in traditional building skills. As such they provide the opportunity for the ethnographer to describe work practices from two settings in a comparative manner.

Craft in UK housebuilding and building conservation

Craft is widely used as a descriptor of workers undertaking the manual tasks of building without further elucidation of the meaning of "craft". Buser and Carlsson (2015) describe workers as "craftsmen in charge of the physical work". "Craftsmen" is used to mean a worker without management responsibility (Forman 2013). Or a job role that is not a professional occupation, nor "unskilled" but one that sits in between as "skilled craft" (Asad and Dainty 2005). "Craftworker" and "construction worker" are used interchangeably without distinction (Wang *et al.* 2008, Dai and Goodrum 2011), or "craftsperson" is used as a title for someone who has completed a training scheme but does not relate with what that person actually does (Daniel *et al*. 2019, 2020). At best, the usage provokes loose characterizations of this type of work: it is relatively autonomous (Applebaum 1981, Styhre 2011), skill is present to some degree (Behling and Harvey 2015), and it is overtly physical with its attendant requirement of "human strength" (Calvetti *et al*. 2020).

The workforce encountered will almost certainly be male as the number of females in many trades is "so low as to be unmeasurable" (The Smith Institute 2016). In construction, it is also site-based because the activity takes place where the completed building emerges (Goh and Loosemore 2017). Missing from all such accounts is a consideration of craft that asks what craft is, what it means to do craft, and how craft is distinct from work. Views on the performance of construction workers are variable. For some, the reliance on an overtly manual mode of production is troublesome and contributes to the malaise that forms part of the ongoing narrative of shifting production away from a site-based, craft-based process (Roy *et al.* 2003) and towards "Modern Methods of Construction", as is particularly prominent in UK housebuilding (Farmer 2016). However, there is also a sector of the construction industry that remains committed to manual labour and that is building conservation, where "craftsmanship" is central to achieving project ambitions (Forster 2010).

Critics of UK housebuilding (of which there are many) claim it is locked into a "craft-based" construction process with methods that are "costly, inflexible and inefficient" and characterized by "variable quality" (Lovell and Smith 2010). Shifting away from an industry "based on craftsmanship" and towards industrialized production (i.e. offsite fabrication) has been hypothesized to lower defects (Johnsson and Meiling 2009). But despite this, site-based manual labour continues to dominate UK construction even in the face of ever-louder calls for a transformation in building methods (Fleming *et al*. 2019).

Building conservation also relies on traditional manual trades to repair, protect, and improve historic buildings. Conservation projects are tendered on a commercial basis, but profit is secondary to conserving the national stock of historic buildings to ensure their continued survival as bearers of collective memory, historical value and age value (Lamprakos 2014). The values of craft are themselves "very important aspects of heritage" (Torre 2014) and traditional craft knowledge should be saved (Dvornik Perhavec *et al*. 2015). UNESCO recognizes traditional craftsmanship as a form of intangible heritage (Ahmad 2006). One of the reasons to preserve a building is the "works of craftsmanship or art incorporated into it" (British Standards Institute 1998). The inevitable need for maintenance and repair of historic buildings is undertaken within the dominant building conservation narrative of like-for-like repair (SPAB 2021). This emphasizes "authenticity" and craftsmanship is one of the key providers of that authenticity (Karakul 2015).

The "highly skilled craftsman" is given equal billing in the field of conservation practitioners (Mansfield 2008) in a way that is not so evident in mainstream construction where the managers of projects are distinguished as "professionals" and the craft workers are just that – "workers" (Asad and Dainty 2005). In building conservation, the craft workers are accorded professional status because they are recognized as having expertise (Orbaşli 2017) and these traditional building skills are "highly valued" (Yarrow and Jones 2014). The "craft tradition" (Matero 2006) is a combination of knowledge and experience whereby the end result (the product) and the means (the process) are founded upon a conservation philosophy.

Building conservation allows "pursuing good work for its own sake" (Yarrow and Jones 2014), whereas commonplace failures in construction are often attributed to "poor craftsmanship" (Love *et al*. 1999). This finding is paradoxical as craftsmanship cannot, by definition, produce poor work. While craftsmanship is not

perfection, it is the production of work to a universally high standard (Martin 2016) or "… an enduring, basic human impulse, the desire to do a job well for its own sake" (Sennett 2008, p. 9). More likely, it is the case that using the word craft to describe manual work is a misnomer. In the performance of the workers – the hammering in of a nail or the laying of a brick – there potentially lies an explanation of the difference in the manual work of housebuilding and conservation. A priori, that difference is a lesser presence of craft in the former and a greater presence in the latter.

Our polythetic understanding of craft with its emphasis on productive performance (Marchand 2007), the feeling of engagement (Sennett 2008, p. 20), and correspondence (Ingold 2013, p. 69) needs to be understood in the context of the UK construction industry. We are not aligning ourselves with the broad resurgence in craft where it has been associated with "alternative approaches to work and organization in contemporary society" (Kroezen *et al*. 2021). This outlook has gathered momentum across a number of industries, a notable example of which is brewing (Thurnell-Read 2014). Building conservation and housebuilding, despite their differences, are part of the construction industry and share its legal realities, commercial pressures and cost sensitivities. There is no expectation of romanticism or nostalgia for craft in these settings. If there are traits of craft in the sectors of the construction industry we study, they are not there as an alternative "to modernist organisation of production and consumption based on rationalisation and scientific, technological progress" (Bell *et al*. 2021). Rather, any craft traits that are in evidence in housebuilding or conservation, are part of the status quo mode of production. They are not in opposition to established methods; they are the established method. In the case of housebuilding especially, this manual way of working is now challenged by alternative approaches. This is how we understand craft: as a human-centred way of working with characteristics that may be evidenced through the actions of workers. The following explains how the principal author sought out those moments of action.

Methodology

Our theoretical knowledge is informed by craft theory, borrowed from outside the construction management domain (Ingold 2000, Sennett 2008). There is an ongoing dialogue between theory and analysis that is concurrent to the undertaking of the fieldwork. How the ethnography unfolds is shaped by decisions about where the principal author locates himself on site, what work activities he looks for and how he enquires of the participants about the work they are undertaking. Subsequently, away from the field, there is further analysis of video footage and field notes and a further engagement with theory which spills out into the ethnographic vignettes in this article as our "means of representation" (Van Maanen 2011, p. 7). It is only through these written accounts that ethnographers make their contribution. The dual role of theory testing and theory generation is typical of ethnography (Atkinson and Hammersley 2007, p. 200). The ethnographic place that is constructed through the process of participant observation, analysis and theorization (Pink and Morgan 2013) is an entanglement of experiences and feelings from: the ethnographer's spells in the field; digital and paper data; conversations among the authors; and the writing and analysis of the ethnography. The co-authors of this article provided critical and theoretically informed commentary on the insights emerging from the fieldwork and reflection of the principal author, thereby facilitating the reflexive process that underpins this contribution. The site context, the framing of the combined experiences and analytical capabilities of the authors, the empirical evidence in fieldnotes and video footage, and the mobilized craft theory are in dialogue (Bajc 2012) bringing focus "to what actually happens on construction sites themselves" (Pink *et al*. 2010).

The fieldwork sites

The principal author embedded as a participant observer in a speculative housebuilding site for ten days during Winter 2019, armed with a notebook and pen and two GoPro video cameras. He visited the second site, a building conservation project, for six days the following Spring. That site is owned by a charity of UK importance which, alongside its remit to conserve and protect historic buildings and landscapes, also generates significant revenue from visitors to its properties (Glendinning 2013, p. 356).

On the housebuilding site, a team of carpenters were observed assembling a trussed roof. Roofers were observed covering the roof with slates and bricklayers were observed building boundary walls and gables to the houses (see Figure 1). On the conservation site, roofers were observed stripping the old roof. Carpenters were observed repairing a large rotunda and inserting some new timber sections as required (see Figures 2 and 3). Plumbers were

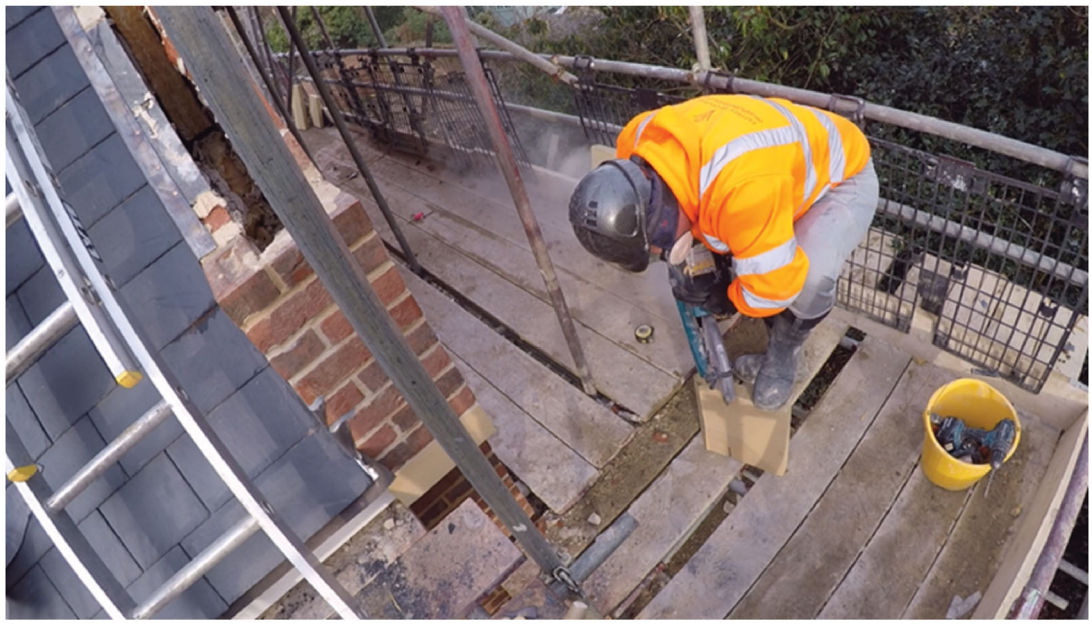

Figure 1. The bricklayer cuts the coping stone with the petrol disc cutter. This is a still from video footage taken by the principal author using a handheld camera.

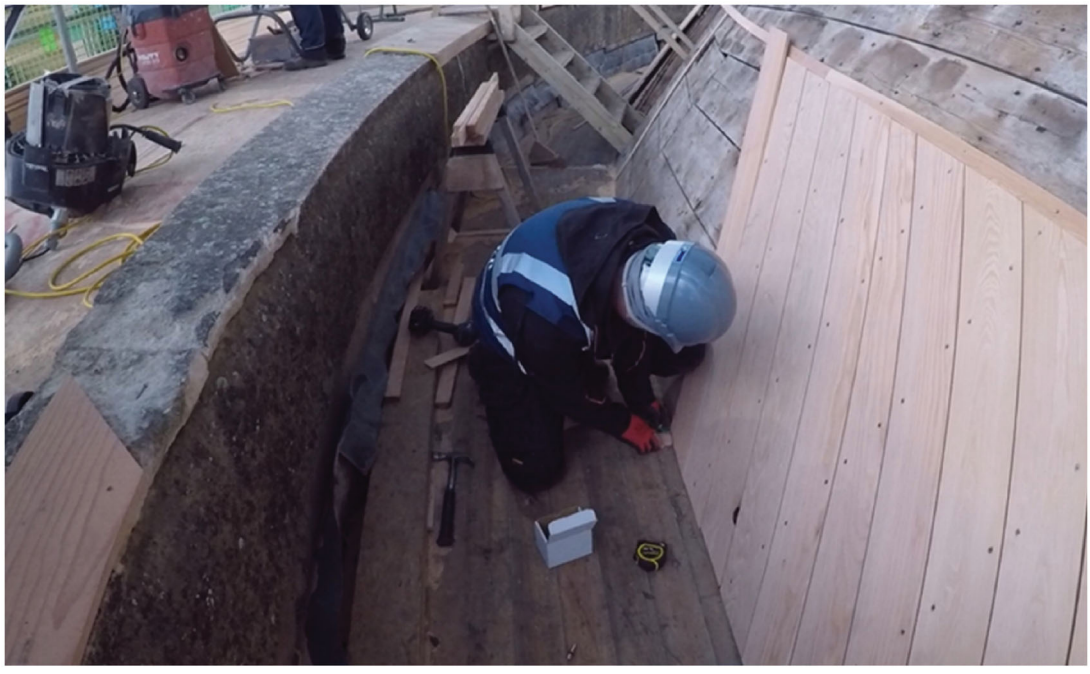

Figure 2. The carpenters scribe the cladding before cutting the bevel.

observed covering the flat roofs of the building with lead sheets.

The focus was on what the workers were doing in their daily activities. All the contact between the researcher and the participants occurred while they were engaged in their work. There was no extension of the study outside of the workplace as, for example, Thiel (2012b) did. The researcher was given free rein to go anywhere on the site and talk to anyone, with the site managers providing a useful introduction in each instance to reassure the workers of why the researcher was there. Informed consent was secured

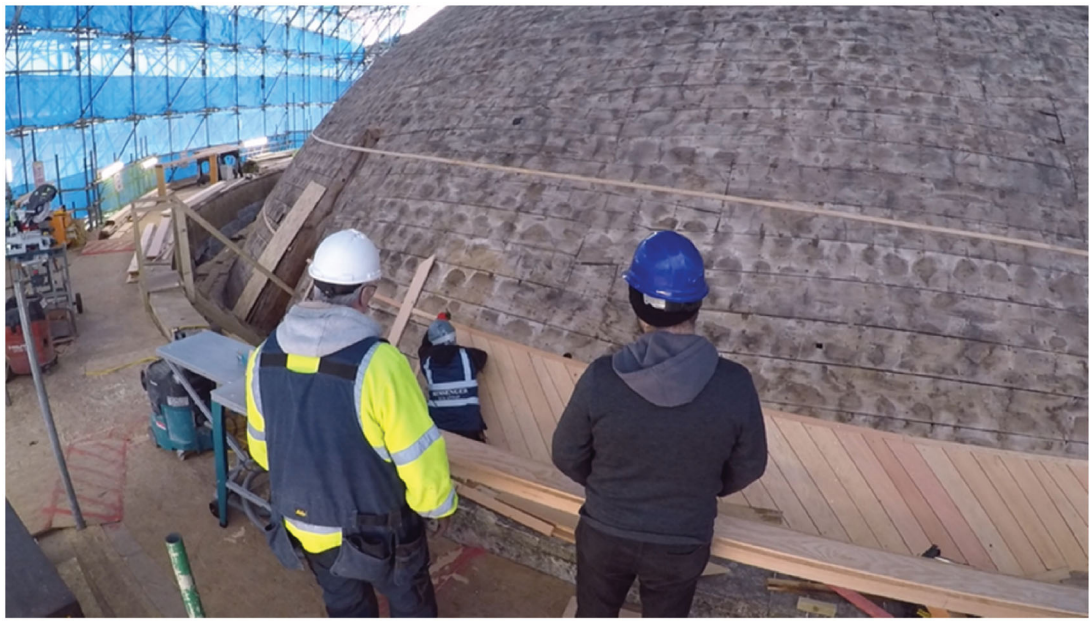

Figure 3. The carpenters explain the cladding to the author (on right). Note the scale of the rotunda.

from workers using participant information sheets and signed consent forms. Although workers were generous with their time and open about their work, for which the authors are very grateful, the need to interrupt their productivity to sign a consent form was an awkward formalization in an environment that thrives on informality.

Data collection and analysis

In total the researcher spent 16 days across the two sites. The fieldwork at the conservation site was curtailed by COVID-19 when the authors' university instructed all face-to-face data collection to be halted. When it could resume, many months later, the project was finished. Each day on site followed a similar protocol. It would start with a conversation with the site manager to see what was happening that day, and then the researcher would choose, from among the site activities underway, where to go and who to watch. With scaffolding on both sites there were lots of locations to fix the cameras. Often a second camera was held by the researcher for a close up view of the tasks. To start interaction, participants were asked questions about what they were doing, but after that the dialogue was spontaneous and largely dictated by the particular action being undertaken.

Data comprised fieldnotes and approximately 50 hours of video footage. The cameras were hardly mentioned by the participants, but, as other researchers have noted (Klitgaard *et al*. 2021), writing the field notes in situ felt more obtrusive. The videos were transcribed using the NVivo software package and, along with the fieldnotes, coded and developed into descriptive narratives.

It is frequently the case with ethnography that the initial research intentions are diverted by the experience of undertaking the fieldwork (Atkinson and Hammersley 2007, p. 206). At first, initial data analysis focussed on the embodied actions of the workers, seen through the lens of craft theory. But along that analytical journey, the need to be reflexive in practice (Le Trividic Harrache 2017) spurred a re-analysis of the data and the process by which it was collected. The driver for this was the acute awareness by the authors that the researcher conducting the fieldwork had prior knowledge of the work world he entered.

The new analytical focus was a move away from the initial questions around craft and towards the way this particular researcher engaged in the field setting. Two of the richest moments of the ethnographic account that had already been written up were revisited to analyse how their production was shaped by three phenomena: the researcher's prior knowledge, his theoretical sensitization, and his reactions "on the spot" to the events that took place on site. The result is presented below in the form of two ethnographic vignettes.

Results

We include two ethnographic vignettes that will form part of a much larger body of ethnographic work.

They are examples from each site showing how events and the fieldworker's insight and theoretical stance collide during the research process. They explain the way the experiences of the researcher on site inform the production of ethnographic knowledge about craft and the workers in these settings. The reflexive challenge is to enunciate the practical (emic) and theoretical (etic) insights and how they interplay in the production of the ethnography. This happens prior to, during and after events.

Vignette 1: the housebuilding site

The houses have large gable ends that are to be capped with coping stones. These coping stones are not made to measure for the length of the gable. This means the stones need to be cut by the bricklayers. In this instance the cutting is done by the boss of the bricklaying gang. He stands the unstable coping on its end, steadying it with his left foot and then, slightly wobbling himself on his remaining standing right leg, uses a petrol disc cutter to cut the coping. Amid a cloud of dust, the cutting disc passes within a couple of inches of his toes. Immediately coming to my mind observing this is the overwhelming odds against the stone being cut as accurately as the bricklayer would really wish. Having finished the cut he comments to me that the need to cut materials on site should be "engineered out", but "it's the same on every site". As the event unfolds, I stand a few feet away and watch the cutting. We share the experience of the noise and the dust. The bricklayer wears a dust mask and I do not, but he is kind enough to direct the dust away from me. I have some experience of the tool he is using. It is heavy and awkward, but I appreciate that he handles it better than I would. I know the quality of the cut (how neatly it fits into its position on the wall) will be determined by the skill of the bricklayer and the behaviour of the material. The labourer expresses his approval of the cut when the stone is offered up, "that's awesome", he says to his boss. A little while later the site manager walks past and makes only one remark: "It's a shame about that little cut at the top. I would have done it differently".

Reflection from the principal author

When I heard the copings needed to be cut, I visualized how I would do it; I cannot avoid thinking in this practical way. I took on an emic appreciation, imagining myself having to do the job. I knew I needed to see this event. I chose to be there, and I made sure my camera was correctly positioned to capture the event. And what did I think I knew about these bricklayers? I knew they would desist from doing unnecessary work, and this includes a reluctance to change the shape of materials. They will use them whole as far as possible because to cut something is to break the sequence of productivity. I knew this from my time spent doing similar jobs. And I also knew they would cut them in the quickest and easiest (in terms of physical effort) method. The last thing I knew, which recurred to me at the time in the vignette above, is that the shaping of materials can go wrong, i.e. the cut can be in the wrong place.

I wanted to see materials being shaped and tools being used. A petrol disc-cutter is a particularly jarring tool, and it acts as a beautiful counterpoint to the theory of craft. This does of course beg a "what-if scenario". How might I have reacted if the bricklayer had produced a set of masonry chisels and a hammer and started to work the coping stone? My conception of manual work on house building sites would have been completely turned on its head. My theoretical conceptualization would absorb the change but my emic understanding, or what I supposed to understand, would have been disrupted because the practices of the bricklayers, although identifiable by me, would not have been understood by me. As it was, their actions, which I observed, were a rich point for analysis.

My theoretical craft framework, developed before entering the field, brought attention to the role of tools, problem solving and negotiation with materials. The theory I mobilized led me to seek out episodes where I might find evidence of these phenomena. When I learnt the coping stones needed to be cut, the ideas of "tools", "problems" and "materials" flashed like lightbulbs in my mind. I had cognisance that theory and practice were about to meet in a way that would contribute, one way or another, to my search for craft. I could see, at that very moment, how I could deploy theory to explain aspects of this event to others.

Vignette 2: the conservation site

The dominant feature of the conservation site is the 38m high rotunda. Re-roofing it with 7000 Westmoreland slates is the principal task of the conservation project. It is curved in multiple dimensions forming an imperfect half sphere. Before the slates can be fixed, the carpenters are tasked with cladding it with two layers of Douglas Fir sarking boards – a total of 30,000 linear metres. At the beginning there are only

two carpenters fixing the sarking. The contracts manager says their task is "daunting". Every third or fourth sarking board needs to be reshaped and tapered to fit the curve. Every single board is measured and cut at least four times, often more. The work is painstakingly slow.

From my previous knowledge of building and chats with the site team I am aware this sarking will be covered up by further layers of sarking and roofing. The work these two carpenters are doing is highly visible now but will shortly be buried within the structure of the roof, not to be seen for generations. I then see them making adjustments to bevel cuts of a few millimetres or even less. My practical knowledge tells me this extra work is having no bearing on the successful performance of the roof. It sparks a line of enquiry. I have to ask the carpenters why they are making the extra cuts: Me: "Why have you done that?"; Carpenter: "It's better isn't it. It's the difference between a Mercedes and a Ford Fiesta". I ask what the tolerance is. They reply there is no measurement and even though "it is purely there for the structural side of it", they want it to look "nice".

Reflection from the principal author

The fieldwork on the conservation site was undertaken because there might be more examples of craft-type work than the housebuilding site. When the fieldwork was arranged the cladding was not on the programme as the condition of the roof was unknown at that time. It turned out to be one of the main tasks undertaken during the fieldwork.

The size of the rotunda and the scale of the carpenters' task was immediately obvious to me. Again, I could not help but put myself in their shoes as I was there at the start when the first few metres of sarking were fixed, and thousands remained to be done. My first thoughts were to wonder how much time pressure they were under to get such a large job completed given the method they were using. Witnessing the bevel cut to the bottom of the board prompted me to ask a question of "why". My insight borne from prior experience was immediately mobilized when I saw this. I knew instantly that I had to question not what they were doing, but why they were doing it because it was likely to reveal an insight into the presence of absence of traits of craft. I wanted to know why they were evidently taking so much care over each individual board given the nature and scale of the overall task.

The comments about quality from the carpenters were a gift in the search for evidence of craft. I had no intuition of what they were going to say when I asked them about why they were being so precise. They might have said any number of responses about it being on the drawings, or keeping the architect happy, or because the site manager had instructed them to. But the answer they gave, that they were doing it because they wanted to, was a communication of a craft trait. Crucially, this was their explanation of why, not my interpretation of why.

Discussion

The two vignettes included here have been chosen because common to both is the way they came about through a combination of chance and the researcher's insight. This might sound like a contrivance, where inevitably the researcher finds what he is looking for. Instead, from the fieldwork it can be seen how the ethnographer has to react to and make sense of whatever comes his way. From the coping stones vignette, the reflection above shows emic and etic drawing together around a mundane event. This happened because the researcher knew something of the way the work was likely to be done and had the theoretical framework to hand through which to view it. The interest in the disc cutter is not because the researcher had used one, but because having used one before the researcher knew the nature of the machine. Theory flags up the way machines, with their rotary action, break the intimate connection between hand and material, reducing human agency (Ingold 2010, Ingold 2011, p. 300). The brutal non-discretion of the disc cutter makes it a significant mediator of the bricklayer's actions, but the bricklayers naturally seek out the easiest way to complete work and save themselves from unnecessary physical toil (Rose 1937, p. 5).

The prior knowledge of the researcher and the theoretical baggage point the way towards these events of interest. In trying to explain the data there needs to be a "perceptual insight" that is a precondition for an abductive inference (Bajc 2012). That conceptual leap from data to analysis is "embedded in observations and informed by ambient ideas" (Klag and Langley 2013). Those observations come about as the researcher knowingly navigates the field setting.

In short-term ethnography time is tight. Marchand's long immersion as an apprentice (2007, 2010b, 2015) is not a practically appropriate model here. He leans on Mearleau-Ponty's concept of the inner and outer reality that places us "firmly in the world" where "knowledge is not fixed but an ever-present process

of becoming … producing, and being produced in, physical, social and cultural contexts that necessarily include other actors" (Marchand 2007, p. 183). Our vignettes describe how that process of becoming happens when a researcher undertakes short-term ethnography on construction sites. The researcher's own form of "apprenticeship" enables him to sense the potential significance of the cutting of the coping stones for what they might reveal. Likewise, the bevel cut of the timbers provoked a question from the researcher that brought forth a telling response from the carpenters. Prior insight and theoretical preparedness were the instigators in asking about that operation. The researcher did not ask what they were doing – he already understood that – but why they were doing it. Of course, there is always the possibility that a priori assumptions are "off-target" (Fetterman 1989, p. 30). In short-term ethnography on a busy and ever-changing building site the researcher has to be proactive and fully engaged with the workers. A more passive approach would not reveal so many rich insights in such a short space of time.

The sarking event worked both as an action and a verbal communication. The action of the cut provokes the researcher to ask a question. It is the patience and willingness to cut and cut again until it is right that piques the researcher's interest. It presents craft traits: the craftsman must "dwell temporarily in mess" and to get it right one must "desire to dwell in error" (Sennett 2008, p. 161). This is told through the action. Being there and seeing the cuts brings that particular, momentary, practice to light. The dialogue from the carpenters resonates of both the autonomy and the standards of craft (Marchand 2016, p. 9–10). It is beyond the scope of this article to take this further, but, as the analysis of the fieldwork builds up across multiple actors and events, it is possible to return to Marchand's polythetic categorization of craft (Marchand 2016, p. 9–10) and analyse the actions of the workers against those traits to reach conclusions about the absence or presence of craft.

As with almost all ethnographies, the researcher enters the realm of the other. Permission to access the sites is entirely in the gift of the site management team. The workers are going about their mundane daily business without awareness or care of the arrival of the researcher. What they do is what the researcher sees. The worker, the activity and the insight of the researcher and the concomitant production of knowledge has a serendipitous dimension which invokes the memories of the researcher in this production (Kohn 2010, p. 193). Before attending site, the researcher does not know what activities will be taking place and has no influence over what does happen at the site level (the behaviour of individual participants may, of course, be affected by the researcher's presence). But when the event occurs it is not viewed in isolation but brings to mind memories. As the researcher watches the disc cutter episode at the time and subsequently on video, he cannot detach himself from the experience of the machine, and hence the analysis of the bricklayer's control of the disc cutter stirs memories. But the implication of memory is not just backward, it is also forward. Within that short event there was much to take away to inform the research into craft. Its richness continues to have a presence, extending into writing this article. If serendipity is "the unique and contingent mix of insight coupled with chance" (Fine and Deegan 1996), then the insight is borne from memory of an experience once had. The fact that they were cutting the stones there and then was chance. The ethnographic place, the realm inhabited by the researcher, cannot preclude the life experiences of that researcher. After all, it is those experiences that have led, through an unfolding life, to this fieldwork. And it is the "personal knowledge" (Polanyi 1958, p. vii) gained that leads to the researcher sensing that, of all the activities happening, the cutting of the coping stones was the one to watch.

The use of the video cameras reinforces, in the most unsubtle of ways, the conviction of the researcher in the events he describes and explains. The bricklayer really did cut the stone with the disc cutter, and his toes really were a few inches from the blade. The video footage confirms this (see Figures 1–3). The re-telling through the ethnographic account is rooted in empirical evidence. The video can (and has been) watched over and over to triangulate the initial analysis and fieldnotes, but also to provide opportunity for further or different analysis as the research project moves forward, sharing with co-authors "to boost accuracy and validity" (LeBaron *et al*. 2018).

As the fieldwork finishes, analysis shifts away from the site which the researcher will never visit the again, but the video files provide the ability to instantly reconnect with the place, people and activities that were observed. Conversations can be listened to again. The footage, and especially the background noise, is evocative when reviewed, underlining it as "the medium which most wholly conjures a multisensual facsimile of experience" (Garrett 2010). The very detailed footage of repetitive acts can be viewed over

again to corroborate or contrast with field notes because of the simple utility offered by the rewind button (Hindmarsh and Tutt 2013). The links between the ethnographic fieldwork and the ethnographic analysis are not consecutive but concurrent. The ethnographic place is not the building site but the "entanglements through which ethnographic knowing emerges" which is not location specific, but where researcher, data and analysis takes place (Pink and Morgan 2013).

The video cameras are not infallible. They flatten and crop real-world events into a pixelated representation. In watching the footage back, many questions are raised: why? how? They cannot be answered by the video. Sometimes footage shows something happening that might be of interest, but it is not clear enough, close enough or remaining in shot long enough to be explored sufficiently. The field of evidence is also narrowed. When the cameras, the field notes and the researcher's memory agree, there is confidence. But the opposite also happens quite frequently. If the video footage did not capture the interesting event the researcher remembers, did it really happen? The video camera can become the arbiter of what did and did not happen simply through what is found on the SD card.

The time on site was a visceral experience. When it was cold the researcher could not hold his pen in the same way the bricklayers struggled with their trowels. The dirty and uncomfortable site conditions were the same for all. But so was the ubiquitous banter that flies around building sites. That shared experience risks over-inflating the researcher's claims as an insider. Here, the video performs another useful function. Figure 3 shows the researcher on site talking with the carpenters. Amongst the video footage there are many clips of the researcher standing still on the scaffold holding a notebook. Nobody else on site behaves in this way. The researcher looks like a researcher. This serves to burst any burgeoning emic fallacy and remind the researcher of their role in the events, which is that of an outsider.

Conclusion

Our aim was to reflect on how the principal author mobilized his prior knowledge to seek out rich points in a short, intense fieldwork of a temporary workforce. The vignettes show the significance of the implication of the researcher in the field and the discussion foregrounds the sensory vividness of short-term ethnographic fieldwork. The commitment of the researcher to actively seek out events, combined with the video recordings, produces intense engagement both in the moment and in later analysis away from site. Our reflection on the past experiences of the principal researcher shows how the possession of prior insight into the world being studied can be consciously deployed. The researcher recognizes, from all those activities taking place on a construction site, those with the potential to become rich points. A route for further research is to consider how far that prior insight helps to develop a fruitful rapport with participants.

The use of video cameras is highly recommended to those carrying out short-term ethnography. They enable a form of saturation through repeated viewing of the same event, rather than saturation from repeated viewing of similar events as is the case with longer forms of ethnography. The video data provides intensity through the sensory richness of the data collected rather than in the duration of data. The movement and sound of the video conveys the site experience for the researcher to revisit and re-analyse, while rooting that analysis in the evidence of what the workers are doing.

The authors are not unusual within our research community in having vocational experience of construction sites. There are many who have moved from industry to academia. The combination of prior experience and digital technology enables researchers to yield high-quality ethnographic material from relatively short but impactful spells in the field. The dynamic nature of construction sites suits the intense and targeted approach of short-term ethnography.

We can make important suggestions based on learning from our own practice in construction site settings. A researcher who is familiar with, and knowledgeable of, the fieldwork setting can react quickly to unfolding and serendipitous events on construction sites to make sure they are in the right place at the right time to capture moments of significance around which ethnographies can be constructed. The constraints of short-term ethnography require this active rather than passive approach if it is to produce the rich data from which thick description flows. The time spent on the sites in this research is not commensurate with the famous construction ethnographies. There is less time for thoughts to evolve and the theoretical frame of the short-term ethnographer inevitably holds a tighter grip. But the motive for the research was also different. This was to get up close to workers as they went about their everyday activities and learn about their embodied actions. For that

clearly defined purpose, short-term ethnography was well-suited. We propose the apprenticeship-style approach often chosen by construction ethnographers is not a pre-requisite for achieving access to the world of the site worker. In our fieldwork, the principal author was never anything other than a researcher and an outsider. Instead of spending much time developing a contrived insider role, prior knowledge was used as the way to gain access to key moments.

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References

Adamson, G., 2007. *Thinking through craft*. London: Bloomsbury.

Ahmad, Y., 2006. The scope and definitions of heritage: from tangible to intangible. *International journal of heritage studies*, 12 (3), 292–300.

Agar, M., 2006. An ethnography by any other name. *Forum: qualitative social research*, 7 (4),

Applebaum, H. A., 1981. *Royal blue: the culture of construction workers*. New York, NY: Holt, Rinehart & Winston.

Asad, S. and Dainty, A.R.J., 2005. Job motivational factors for disparate occupational groups within the UK construction sector: a comparative analysis. *Journal of construction research*, 6 (2), 223–236.

Atkinson, P. and Hammersley, M., 2007. *Ethnography: principles in practice*. 3rd ed. Abingdon: Routledge.

Baarts, C., 2009. Collective individualism: the informal and emergent dynamics of practising safety in a high-risk work environment. *Construction management and economics*, 27 (10), 949–957.

Bajc, V., 2012. Abductive ethnography of practice in highly uncertain conditions. *The annals of the American academy of political and social science*, 642 (1), 72–85.

Balik, D. and Allmer, A., 2017. Simulating craftwork in contemporary architecture. *The journal of modern craft*, 10 (1), 37–57.

Behling, F. and Harvey, M., 2015. The evolution of false self-employment in the British construction industry: a neo-Polanyian account of labour market formation. *Work*, 29 (6), 969–988.

Bell, E., Dacin, M.T., and Toraldo, M.L., 2021. Craft imaginaries – past, present and future. *Organization theory*, 2 (1), 18.

Bergman, Å. and Lindgren, M., 2018. Navigating between an emic and an etic approach in ethnographic research. Crucial aspects and strategies when communicating critical results to participants. *Ethnography and education*, 13 (4), 477–489.

British Standards Institute, 1998. BS 7913:1998 *guide to the principles of the conservation of historic buildings*. London: British Standards Institute.

Buser, M. and Carlsson, V., 2015. Renewing renovation: looking at renovation of owners occupied houses with socio-materiality lenses. In*:* A.B. Raidén, and E. Aboagye-Nimo, eds. *Procs 31st annual ARCOM conference*, 7–9 September 2015. Lincoln: Association of Researchers in Construction Management, 1083–1092.

Calvetti, D., *et al*., 2020. Worker 4.0: the future of sensored construction sites. *Buildings*, 10 (10), 1–22.

Chan, P.W. and Räisänen, C., 2009. Editorial: informality and emergence in construction. *Construction management and economics*, 27 (10), 907–912.

Coffey, M. and Langford, D., 1998. The propensity for employee participation by electrical and mechanical trades in the construction industry. *Construction management and economics*, 16 (5), 543–552.

Dai, J. and Goodrum, P.M., 2011. Differences in perspectives regarding labor productivity between Spanish- and English-speaking craft workers. *Journal of construction engineering and management*, 137 (9), 689–697.

Daniel, E.I., *et al*., 2019. Apprenticeship for craftspeople in the construction industry: a state-of-the-art review. *Education training*, 62 (2), 159–183.

Daniel, E.I., *et al*., 2020. Strategies for improving construction craftspeople apprenticeship training programme: evidence from the UK. *Journal of cleaner production*, 266, 122–135.

Dvornik Perhavec, D., Rebolj, D., and Šuman, N., 2015. Systematic approach for sustainable conservation. *Journal of cultural heritage*, 16 (1), 81–87.

Farmer, M., 2016. *The farmer review of the UK construction labour model*. London: Construction Skills Council.

Fetterman, D. M., 1989. *Ethnography: step by step*. London: Sage.

Fine, G.A. and Deegan, J.G., 1996. Three principles of Serendip: insight, chance, and discovery in qualitative research. *International journal of qualitative studies in ducation*, 9 (4), 434–447.

Fleming, E., Callaghan, N., and Craig, N., 2019. Robotics and automation as a solution to bridging the UK housing gap. *In:* C. Gorse, and C. J. Neilson, eds. *Proceedings of the 35th annual ARCOM conference*. London: Association of Researchers in Construction Management, 557–566.

Forman, M., 2013. Inertia and change: lean construction and health and safety work on construction sites. *Construction management and economics*, 31 (6), 647–660.

Forster, A.M., 2010. Building conservation philosophy for masonry repair: part 1 - "principles. *Structural survey*, 28 (3), 165–188.

Garrett, L., 2010. Videographic ethnographies: using digital video for geographic research. *Progress in human geography*, 35 (4), 521–541.

Glendinning, M., 2013. *The conservation movement: a history of architectural preservation antiquity to modernity*. Abingdon: Routledge.

Goh, E., and Loosemore, M., 2017. The impacts of industrialization on construction subcontractors: a resource based view. *Construction management and economics*, 35 (5), 288–304.

Goodenough, W. H., 1970. *Description & comparison in cultural anthropology*. Piscataway, NJ: AldineTransaction.

Grosse, H., 2019. An insider's point of view: autoethnography in the construction industry. *Construction management and economics*, 37 (9), 481–498.

Hindmarsh, J. and Tutt, D., 2013. Video in analytic practice. *In:* S. Pink, ed. *Advances in visual methodology*. London: Sage, 57–73.

Ingold, T., 2000. *The perception of the environment*. Abingdon: Routledge.
Ingold, T., 2010. The textility of making. *Cambridge journal of economics*, 34 (1), 91–102.
Ingold, T., 2011. *The perception of the environment: essays on livelihood, dwelling and skill*. London: Routledge.
Ingold, T., 2013. *Making: anthropology, archaeology, art and architecture*. London: Routledge.
Johnsson, H. and Meiling, J.H., 2009. Defects in offsite construction: timber module prefabrication. *Construction management and economics*, 27 (7), 667–681.
Karakul, O., 2015. An integrated methodology for the conservation of traditional craftmanship in historic buildings. *International journal of intangible heritage*, 10, 135–144.
Klag, M. and Langley, A., 2013. Approaching the conceptual leap in qualitative research. *International journal of management reviews*, 15 (2), 149–166.
Klitgaard, A., Gottlieb, S.C., and Svidt, K., 2021. The researcher as audience and storyteller: challenges and opportunities of impression management in ethnographic studies. *Construction management and economics*, 39 (5), 383–397.
Koch, C. and Schultz, C.S., 2019. The production of defects in construction–an agency dissonance. *Construction management and economics*, 37 (9), 499–512.
Kohn, T., 2010. The role of serendipity and memory in experiencing fields. *In:* P. Collins and A. Gallinat, eds. *The ethnographic self as resource: writing memory and experience into ethnography*, 185–199. New York, NY: Berghahn Books.
Kroezen, J., *et al.*, 2021. Configurations of craft: alternative models for organizing work. *Academy of management annals*, 15 (2), 502–536.
Lamprakos, M., 2014. Riegl's "modern cult of monuments" and the problem of value. *Change over time*, 4 (2), 418–435.
LeBaron, C., *et al.*, 2018. An introduction to video methods in organizational research. *Organizational research methods*, 21 (2), 239–260.
Le Trividic Harrache, L., 2017. How did I become an abductive ethnographer? Reflections on a research journey. *Journal of organizational ethnography*, 6 (2), 129–143.
Love, P.E.D., Mandal, P., and Li, H., 1999. Determining the causal structure of rework influences in construction. *Construction management and economics*, 17, 505–517.
Lovell, H. and Smith, S.J., 2010. Agencement in housing markets: the case of the UK construction industry. *Geoforum*, 41 (3), 457–468.
Löwstedt, M., 2015. "Taking off my glasses in order to see": exploring practice on a building site using self-reflexive ethnography. *Construction management and economics*, 33 (5–6), 404–414.
Mäki, T. and Kerosuo, H., 2015. Site managers' daily work and the uses of building information modelling in construction site management. *Construction management and economics*, 33 (3), 163–175.
Mansfield, J.R., 2008. The ethics of conservation: some dilemmas in cultural built heritage projects in England. *Engineering, construction and architectural management*, 15 (3), 270–281.
Marchand, T. H. J., 2007. 'Crafting knowledge: the role of "parsing and production" in the communication of skill-based knowledge among Masons. In: M. Harris, ed. *Ways of knowing: new approaches in the anthropology of knowledge and learning*. New York, NY: Berghahn Books.
Marchand, T.H.J., 2010a. Making knowledge: explorations of the indissoluble relation between minds, bodies, and environment. *Journal of the Royal anthropological institute*, 16, S1–S21.
Marchand, T.H.J., 2010b. Embodied cognition and communication: studies with British fine woodworkers. *Journal of the Royal anthropological institute*, 16, S100–S120.
Marchand, T.H.J., 2015. A diary of filmmaking with djenné masons: from "studies of" toward "studies with. *Visual anthropology*, 28 (4), 308–323.
Marchand, T. H. J., 2016. Introduction: craftwork as problem solving. *In:* T. Marchand, ed. *Craftwork as problem solving: ethnographic studies of design and making*, 1–29. London: Routledge.
Martin, M., 2016. The problem of the unknown craftsman. *In:* T. Marchand, ed. *Craftwork as problem solving*, 197–214. London: Routledge.
Matero, F., 2006. Loss, compensation and authenticity in architectural conservation. *Journal of architectural conservation*, 12 (1), 71–90.
Orbaşli, A., 2017. Conservation theory in the twenty-first century: slow evolution or a paradigm shift? *Journal of architectural conservation*, 23 (3), 157–170.
Phelps, A.F. and Horman, M.J., 2010. Ethnographic theory-building research in construction. *Journal of construction engineering and management*, 136 (1), 58–65.
Pink, S., 2007. *Doing visual ethnography: images, media and representation in research*. London: SAGE.
Pink, S., *et al.*, 2010. Ethnographic methodologies for construction research: knowing, practice and interventions. *Building research & information*, 38 (6), 647–659.
Pink, S. and Morgan, J., 2013. Short-term ethnography: intense routes to knowing. *Symbolic interaction*, 36 (3), 351–3611.
Polanyi, M., 1958. *Personal knowledge*. London: Routledge and Kegan Paul.
Pye, D., 1995. *The nature and art of workmanship*. London: A & C Black.
Riemer, J. W., 1979. *Hard hats: the work world of construction workers*. Beverly Hills, CA: Sage Publications.
Rose, W., 1937. *The village carpenter*. Fresno, CA: Linden Publishing.
Roy, R., Brown, J., and Gaze, C., 2003. Re-engineering the construction process in the speculative house-building sector. *Construction management and economics*, 21 (2), 137–146.
Sage, D., 2013. 'Danger building site – keep out!': a critical agenda for geographical engagement with contemporary construction industries. *Social & cultural geography*, 14 (2), 168–191. doi.org/10.1080/14649365.2012.737009
Sennett, R., 2008. *The craftsman*. London: Penguin.
Sherratt, F., Farrell, P., and Noble, R., 2013. UK construction site safety: discourses of enforcement and engagement. *Construction management and economics*, 31 (6), 623–635.
Shipton, C., Hughes, W., and Tutt, D., 2014. Change management in practice: an ethnographic study of changes to contract requirements on a hospital project. *Construction management and economics*, 32 (7-8), 787–803.

SPAB. 2021. *The SPAB approach* [online]. Available from: https://www.spab.org.uk/campaigning/spab-approach [Accessed October 2021].

Stein, J.G., 2011. Speculative artisanry: the expanding scale of craft within architecture. *The journal of modern craft*, 4 (1), 49–63.

Styhre, A., 2011. The 'overworked site manager: gendered ideologies in the construction industry. *Construction management and economics*, 29 (9), 943–955.

Sugden, J., *et al*., 2019. Exploring sport and intergroup relations in Fiji: guidance for researchers undertaking short-term ethnography. *Sociology of sport journal*, 36 (4), 277–288.

Sykes, A.J.M., 1969. Navvies: their work attitudes. *Sociology*, 3 (1), 21–35.

The Smith Institute. 2016. *#notjustforboys- Women in construction*. [Online] Available from: https://www.smith-institute.org.uk/book/notjustforboys-women-construction/ [Accessed 29 October 2020].

Thiel, D., 2012a. Builders, bodies and bifurcations: how London construction workers "learn to labour. *Ethnography*, 14 (4), 412–430.

Thiel, D., 2012b. *Builders: class, gender and ethnicity in the construction industry*. Abingdon: Routledge.

Thurnell-Read, T., 2014. Craft, tangibility and affect at work in the microbrewery. *Emotion, space and society*, 13, 46–54.

Torre, M.D., 2014. Values in heritage conservation: a project of the Getty institute. *Association for preservation technology international*, 45 (2–3), 19–24.

Tutt, D., *et al*., 2013. Building networks to work: an ethnographic study of informal routes into the UK construction industry and pathways for migrant up-skilling. *Construction management and economics*, 31 (10), 1025–1037.

Tutt, D. and Pink, S., 2019. Refiguring global construction challenges through ethnography. *Construction management and economics*, 37 (9), 475–480.

Van Maanen, J., 2011. *Tales of the field: on writing ethnography*. 2nd ed. Chicago, IL: The University of Chicago Press.

Wang, Y., *et al*., 2008. Craft training issues in American industrial and vommercial construction. *Journal of construction engineering and management*, 134 (10), 795–803.

Yarrow, T. and Jones, S., 2014. Stone is stone": engagement and detachment in the craft of conservation masonry. *Journal of the Royal anthropological institute*, 20 (2), 256–275.