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Design Things in Ethnographic Police Research

Introduction

This article makes the case for design research methods, and more specifically the use of what I will refer to as 'design Things' in conjunction with ethnographic police research. The article draws on empirical research that used design Things and ethnography, in this instance to understand police use of body-worn cameras (BWCs). Considering this somewhat unusual disciplinary intersection, the article begins by giving a brief introduction to design research by establishing what exactly design Things are and by examining how both relate to ethnography. This is followed by a short methods section which outlines some of the practicalities of the research. The bulk of the article is then dedicated to three exemplar case studies. In each, the initial idea or inspiration behind each design Thing, the design process, its application and empirical data are discussed. The article concludes with a discussion of the possibilities, potential pitfalls, and by considering some of the implications of this methodology for policing researchers with specific attention paid to how it might inspire future research.

This research discusses the use of design Things produced specifically to examine police use of BWCs. As the article will show, however, this methodology has implications that extend beyond BWCs and has potential for other areas and objects of research. BWCs are a connection point between the disciplinary areas reflected in this article, both a successful piece of product design and devices that play an important role in contemporary policing. As a designer I was intrigued with the discourse surrounding BWCs, especially during their introduction. I wondered what would make this particular camera different from the countless others pointed at police on a daily basis. Despite assurances that BWCs were not panaceas for issues facing policing (Brunt, 2014), there seemed to be a sense (perhaps hope) in the news media that they might be, even if only in part. As readers of this journal will likely be aware, use of BWCs by police around the world has risen dramatically over the last decade. Proponents claim a host of positive effects, such as improvements in public trust, reductions in use-of-force and the number of public complaints, improved evidence quality, and the potential for training (White and Malm, 2020). BWCs are also discussed as contributing to improved efficiency, and more broadly greater levels of transparency and accountability (Dominiczak, 2013).[1] Despite various studies which examine the effects of BWCs (Ariel, Farrar and Sutherland, 2015; Henstock and Ariel, 2015; Ariel et al., 2016, 2017, 2018; Yokum, Ravishankar and Coppock, 2017), very little has been done to shed light on the social or ethical implications of BWC.[2] As a designer I was frustrated with the overly simplistic and instrumental way in which the technology was being discussed, and the lack of attention seemingly being paid to the various *other* ways in which this design might affect policing practices. These frustrations and questions consequently inspired the research that this article draws on.

Design Things and Social Research

Christopher Frayling, in a paper titled *Research in Art and Design* (1993), separates art and design research into three distinct areas: research *of* art and design, research *through* art and design, and research *for* art and design. This article is principally concerned with research through design, described by Gaver as follows:

> …design practice is brought to bear on situations chosen for their topical and theoretical potential, the resulting designs are seen as embodying designers' judgments about valid ways to address the possibilities and problems implicit in such situations, and reflection on these results allow a range of topical, procedural, pragmatic and conceptual insights to be articulated (2012, p. 937).

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[1] Various studies have been completed which examine the effects of BWCs see for example, (Ariel, Farrar and Sutherland, 2015; Henstock and Ariel, 2015; Ariel *et al.*, 2016, 2017, 2018; Yokum, Ravishankar and Coppock, 2017).
[2] A number of scholars are contributing to a growing body of work that critically engages with BWCs, see for instance, (Brucato, 2015b, 2015a; Newell, 2021).

Gaver highlights that the outcomes of design research predominantly take the form of 'artefacts and systems' often with accompanying explanations as to how these were used in field tests, but that it also 'includes a variety of methods, conceptual frameworks and theories presented separately from accounts of practice' (2012, p. 937). This article builds on the notion that design practice can be applied to chosen situations and used to generate insights which can take both material, but also critically here, theoretical and conceptual forms.

Rather than attempting to provide a definitive description of 'design practice' – a task beyond the scope of this article – I will instead emphasise some of its generalisable characteristics. Design has been described as the process of 'devising a course of action aimed at changing existing situations into preferred ones' (Simon, 1998, p. 111). Resultingly, design is often concerned with 'wicked problems' (Rittel and Webber, 1973) ones 'complex enough that no correct solutions exist a priori and for which formulating the situation is integral to addressing it' (Gaver, 2012, p. 940). Design practice then necessarily involves considering a heterogeneity of factors and materials in the production of its outcomes. Consequently, design has unique epistemic qualities. There are 'designerly ways of knowing' (Cross, 2006), and perhaps more significantly in this instance it has been said to be 'a mode of enquiry into the very conditions of the contemporary' (DiSalvo, 2018, p. 72). The applicability and relevance of design as a way of *doing* research has been noted by other disciplines. Deborah Lupton highlights the growing interest within the social sciences regarding the use of design methods and processes (2018). Making the case for a 'design sociology' Lupton also notes how 'design researchers have begun to include sociocultural perspectives in their work' (2018, p. 3), notably ethnography. This attentiveness to the *sociotechnical* and *sociocultural* dimensions of both design practice and design outcomes, and a recognition of the role that non-humans play in the social world brings us now to 'design Things'.

Heidegger's use of "thing" (ding), the ancient word for an assembly in early pre-Christian, Germanic and Nordic societies, is often referenced in discussion about 'design Things' (Binder *et al.*, 2011; Ehn, 2008; Bjögvinsson, Ehn and Hillgren, 2012). In these early societies *things* were both social and material; the places where politics were conducted and disputes solved (Ehn, 2008). Latour points out that *things* were (and are) crucially also the issue that bring people to gather in the first place, saying, 'we don't assemble because we agree […] but because we are brought by divisive matters of concern' (2005, p. 23). This conceptualisation of *things* as both material and social, but also where people come together around 'matters of concern' can be productive when thinking about design both as a practice, and as an outcome. Design outcomes, for instance, are not only tools or devices that provide users with access to novel functions but also importantly *things* in that they modify the space of interactions 'ready for unexpected use, [and] new ways of thinking and behaving' (Ehn, 2008, p. 93). Design practice on the other hand, as highlighted above, involves considering and contending with a heterogeneous array of human and non-human factors, concepts, and materials to first address a given situation, and then decide on an outcome. It is a process whereby a designer, or designers, materialise thought (Ward, 2015) and in doing so making society 'durable' (Latour, 1990). Considering that design is about what is yet to be; 'preferred situations' following Simon (1998), it could be argued that design practice is one of *speculative thinging*, in that it is about constructing the political, socio-material infrastructure of the future. When making the case for design Things to be used in conjunction with ethnography I am therefore advocating for the use of material artefacts during ethnographic study which can act as 'material-semiotic devices' (Nold, 2018, p. 105). These artefacts will modify the site, introduce the politics of their making, and, acting as stimuli, become loci for assemblies where varying perspectives can be voiced with research participants.

Pressing questions nonetheless remain. Namely, *why* might one use design Things in policing research and what specific benefits and opportunities do they pose in this context? Both criminology and police research have been criticised for their inability to fully attend to the social and ethical complexities and implications of technologies (Neyroud and Disley, 2008; Dymond, 2014; Savoie, Dufresne and Robert, 2017). Dymond notes a number of 'omissions' in existing literature which addresses police technology. These include, a lack of attention to the physical object and its technical capabilities; a view of

technologies as being 'black-boxed' and seen as single entities (I will return to this specifically in the following section); and their diffusion being 'taken for granted' without the questions of *how* and *why* certain technologies came to be (2014). Savoie *et al.* similarly argue that criminology 'did not fully take the 'material turn' (2017, p. 79), despite the fact that 'crime control practices necessarily involve the use of devices' (2015, p. 2). Whereas Brown says that in instances where objects are considered, criminology has been criticised for a tendency towards a binary and hierarchical division between humans and nonhumans (2006). While there is certainly a wealth of policing research that focuses on the *effectiveness* of policing technologies, a need for more research that seeks to shed light on both the complex social realities and the ethical implications of technologies has been noted (Deflem, 2002; Dymond, 2014). There is a clear need for research which can engage with, and attend to, the materiality of policing practices and to the various social and ethical implications of technologies within policing contexts. As the case studies below evidence, this article suggests that design Things can provide policing ethnographers novel ways of addressing some of the previously highlighted gaps and shortcomings in policing and criminological research.

We come now to the question of how design Things might relate to ethnography, and consequently how their use in conjunction with ethnography might shed light on the social and ethical implications of technologies, and in this instance BWCs. As readers will no doubt be aware ethnographies are seen as a way of getting a relatively unfiltered view into policing (Reiner, 2000) and for this reason they are common in policing research (Holdaway, 1983; Punch, 1989; Westmarland, 2001; Marks, 2004; Van Maanen, 2011; Fassin, 2017; Souhami, 2019).[3] Hammersley (2018) notes that while there are various definitions of ethnography, features such as participant engagement, an emphasis on finding the meanings that people give objects and themselves, and a commitment to recording events as they naturally occur, are seen as characteristic. Considering this recognition that material artefacts play a role in how the social is performed there are intriguing points of connection between ethnography, design practice, and design Things; explaining why designers have employed ethnographic approaches in their research. As noted above, BWC use by police has grown significantly in recent years. The technology is suggested to have a host of potential (generally positive) effects and plays a role in a host of quotidian policing practices. The introduction of design Things during ethnographic fieldwork offers researchers ways to heighten sensitivities of both researcher and research participants to material artefacts such as BWCs. Moreover, as will be shown, by stimulating and framing particular discussions design Things can shed light on materially rich policing contexts.

Methods

The research that this article draws on took place during the autumn of 2019 in a medium-sized seaside town in the United Kingdom.[4] It involved approximately 110 hours of observation; much of this time was spent with a group of around ten response officers (first responders attending crimes in progress and situations requiring urgent attention). Observations took place across a varied shift pattern (both day and night shifts) with shifts typically lasting around 9 hours. Research data was collected in the form of fieldnotes which were written up at the end of each shift.[5] All of the participants names and identifiable details were anonymised or not recorded in the first instance. Prior to the fieldwork visits and in conjunction with their organisation various design Things were produced. This production took place alongside more orthodox research into the area of police BWCs and police visibility. As will be

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[3] It is also worth noting that ethnographies are also common in study of technologies (Suchman *et al.*, 2002), and is widely adopted by designers too (Anderson, 1994; Ackerman, 2000; Button, 2000; Nova, 2014; Ward, 2015)

[4] For reasons pertaining to research access, it has not been possible to disclose the exact name and location of the force in which the research was conducted in this instance. It is also worth highlighting the difficulties with respect to gaining research access when from disciplines who do not conventionally conduct policing research and where there is no established research relationship.

[5] As the subject of this research is BWCs it might seem odd that a camera wasn't used during fieldwork. Having said that, if we accept that technologies influence situations then the addition of a researcher's camera would constitute a significant and unwanted complication. For this reason, I decided to try to record data in the most low-impact way possible.

shown, the facilities and materials required for the production of the design Things in this article were minimal and relatively inexpensive with much of the production taking place in my university office. During fieldwork visits the various design Things were introduced informally, often when subjects relating to them came up in conversation.

Design Things: The Book, The Bomb, & The Button

This section introduces three examples where design Things were used alongside ethnography to understand police use of BWCs. For each, the initial idea that led to its production; the making process and importantly the ideas that this generated, its application and the empirical data that was generated are discussed.6 Before doing so, it is useful to discuss briefly some of the commonalities that led to the production of the various design Things and to reflect generally on how they were applied during the study. As will be noted below, the production of the various design Things in this study was inspired by various stimuli: dissatisfaction, a question posed by a colleague, and ideas generated through making. Generally, however, they are all connected by a common assumption, that engaging with concepts through making and by materialising thought (Ward, 2015) will develop new insights, understandings, and questions. This kind of approach requires a degree of openness from the researcher, and a willingness to take risks. Doing so can be rewarding. Hard to resolve questions, particularly salient quotes or images, and theories can all become material to work and make with.

In terms of application, the design Things were often intended to introduce a specific question. That said, because of their thinginess and following Ehn (2008) the hope and expectation was that the design Things would modify the space of interactions and that participants and the research setting would introduce new meanings and questions to them. In both production and application, these design Things should be approached with both openness and creativity. This article serves not as a prescriptive guide but as an invitation to develop and adapt the methodology.

The Book: Introduction & Description

Fig.1 – 'The Book' A visual history of the police in England and Wales (1829 to 2019)

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6 It should be noted that the order in which the various design Things are presented does not represent the order that they were produced which instead took place concurrently.

The first design Thing discussed here is a small, neon-yellow book. The book (see Fig.1), measuring approximately 15cm by 10cm, was designed to be carried and used during fieldwork and had several specific aims: to place the BWC in relation to a history of police visibility and technological change; to explain the significance of design within policing's history; and to introduce several specific issues and questions. This book documents, through images, the history of the police in England and Wales from their formal conception in 1829 to the year 2019. It archives both the changing nature of police visibility and the related technological developments in the 190-year period.

The Book: Inspiration & Design Process

The initial inspiration for the book began however, not with the above aims, but rather with dissatisfaction. While researching the history of police visibility the lack of images was striking. In a body of literature expressly about how the police are seen, they were hidden. To illustrate various things in the literature I began to search for images online. These images added context, helped make sense of the literature and provided a unique way of understanding various developments within a broader historical timeframe. I dragged them to the desktop of my laptop returning to them and allowing them to inform both my thinking and questions I wanted to ask in relation to the BWC. With a laptop desktop now scattered with images I selected them, and right clicked with my mouse: 'Move to Bin' or 'New Folder with Selection (72 items)'? I couldn't 'Move to Bin', the images were now an intrinsic part of the research. I recalled Howard Becker, who talks of visual sociology and highlights that photographs can provide exciting ways of 'telling about society' (1995). Becker refers to the work of Douglas Harper, saying Harper uses photographs 'not as illustrations [...] but as elements integral to the sociological investigation' (2007, p. 199). Harper elaborates on this idea noting the difference between seeing and reading (2012), a difference that means that visual sociology 'leads to new understandings and insights because it connects to *different* realities than do conventional empirical research methods' (2012, p. 4 emphasis added). I created a new folder and continued to add to it. The image archive sparked other questions: could an image be found for every year since 1829? What would the officers I was due to be observing during my fieldwork make of the collection? Were there particular images that might ask or frame specific questions, or that were important to show? This presented a design problem: how best to show nearly two-hundred images while following police officers in and out of vehicles and police buildings while conducting my ethnography? Initially I considered creating a digital slideshow that could be shown on a smartphone or tablet. But this didn't seem to capture the significance of the images as a collection. After some thought I decided to produce a small book which could be easily stored and shown when the opportunity arose. To keep the focus on the images I chose to include only a single line of text on the inside of the front cover, 'A visual history of the police in England and Wales (1829 to 2019)' and my email address on the reverse of the book. I decided to make it neon yellow in reference to the high-visibility jackets worn by the police, but also so that it would stand out from their police notebook. My hope was that the book would act as a locus for conversation amongst small groups of officers and its small size presented an issue in this respect. To overcome this, I had multiple copies of the book printed. This would allow for groups of officers to engage with the images and had the benefit that connections could be made between images on different pages.

The Book: Application & Data

The book was designed to place the BWC in relation to a history of police visibility and technological change (themes directly connecting to BWCs), but also to explain the significance of design within this history, and to introduce specific issues and questions. The images contained in the book had become intrinsic parts of my research and provided unique insights, and questions. I hoped that the officers would interpret and engage with them in a similar way. Over the course of the fieldwork, using the book as a stimulus, I held numerous informal discussions with different groups of officers. Various themes were discussed, for instance the significance of equipment and the various roles this plays aside from its specific function (the police whistle for instance was mentioned as a memento); whether

policing was still a 'job for life'; the growing role of women in policing and the design of women's uniform and kit, to name a few. Due to space limitations, I will focus on two key themes here.

One evening I showed the book to two officers (both male and in their mid-30s), let them interpret the book how they wanted, and waited for their response. The first thing they mentioned were the changes in uniform. Looking at a page from the mid-1950s, they compared the formal uniforms worn at the time, to their own. The officers joked about having to wear a tie. I asked them to talk me through the ones they were wearing, noting that the different forces in England and Wales each have subtly different uniforms. The design Thing was functioning as a tool for making sense of the environment. The officers began by talking about the practicality of the black, synthetic t-shirts they wore. These, they said, made wearing a stab vest more comfortable and made washing and drying them more convenient. One of the officers joked that the colour of their t-shirts also meant that stains were easily hidden. Comparing the uniforms from the 1950s to their own, we discussed this shift in aesthetic and its implications for their visibility. One of the officers recalled a conversation with a member of the public who had said that the modern uniform made them look like the army, an interesting comment considering how inform had historically been an important point of differentiation. In relation to this comment I asked whether they thought that their uniforms affected their approachability. Their response was that this was much more to do with body-language and eye contact and that, in many respects, they believed looking tough was advantageous. Referencing an incident involving someone acting aggressively, which I had been witness to, they noted how looking tough was a reminder of their authority. Bearing in mind that policing has been said to be 'a fiercely masculine domain' where '[m]etaphors of warfare predominate' (Young, 1992, p. 266) the potential role of uniform in emphasising and supporting the *force* rather than *service* elements of police work is significant and is certainly worth further research and attention, especially from a materially inspired perspective. Over the course of the fieldwork the subject of uniform and other pieces of wearable kit came up on multiple occasions. It was clear that both were fetishized and played a central role in the officer's conceptualisation of themselves and their role.

The second conversation involved group of officers (around eight and made up of men and women). As the officers flicked through the book, one commented on an image from the early 1970s showing a Ford Consul GT police car. He and another officer (whom I knew to also be a car enthusiast) began to discuss some of their favourite police cars over the years. The conversation about cars offered a way to focus the group's attention and to raise the topic of unit-beat policing, something I had wanted to talk about in relation to BWCs. I turned to a double page spread showing an officer holding a radio standing next to a Ford Cortina, an image I had inserted to discuss this topic. I briefly described how the car and the radio made a new kind of policing possible and some of the knock-on implications that this had for police visibility. We discussed how response policing today lends from this model, and officers commented that they couldn't even imagine policing without their radios. I posed a question: if two technologies, radios and cars, could combine to create a new model of policing, then might a BWC prompt a similar change? One officer pointed out they had never known a time before BWCs (this was true for many of them). Another pointed out that in some instances, BWCs were a prerequisite, giving the example of stop-and-search. Another described the BWC as being like an octopus, explaining that the technology was "one of those pieces of kit which, although not necessarily being 'front and centre', played a role in pretty much everything we do".[7] Others agreed with this characterization, and noted how, in the days I had been shadowing them, "there wasn't one specific time that BWCs are used", but rather, that they're used "all the time".

The conversations that the book inspired helped shed light on issues relating to police visibility and technology. Conversations about uniform and other wearable police kit helped shed light on the role that these play in making police visible but also how officers conceptualise aspects of their work. In doing so they help build a picture about the context in which BWCs are used. The rather poetic

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[7] At other points during the fieldwork, the use of BWCs as a way to preventing "grief" and false complaints against them when conducting stop-and-searches was discussed.

conceptualisation of BWCs being "like an octopus" was instrumental in my understanding of the multiple ways the technology was used by officers during my visit, and my conceptualisation of the technology more broadly. Other comments and conversations, for instance, those concerning how long each of the officers had been serving, highlighted that for lots of the officers BWCs are not a 'new' piece of police technology, nor have BWCs 'changed' how they go about their day-to-day duties. Instead, a BWC, for them, is something that has always been central to their work and integral to how they understand their role.

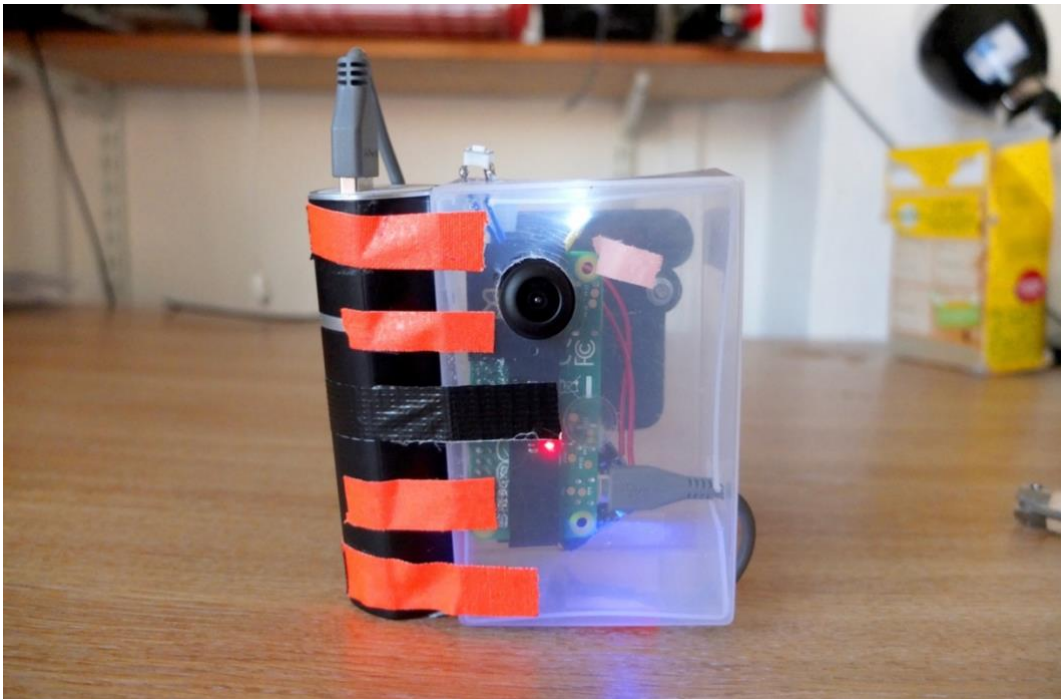*The Bomb: Introduction & Description*

Fig. 2 – 'Homemade' BWC

The next design Thing introduced in this article is a 'homemade BWC' (see Fig. 2), which, when used in the field, was mistakenly perceived as a bomb. Constructed from inexpensive components purchased online together with various materials gathered from my university office, this homemade BWC serves as an example of how design concepts don't always function as expected. Initially, such design Things might appear to be failures, failing to generate the intended discussions or questions. However, this section argues that rather than viewing them as failures, they could be considered as 'differential successes' (Michael, 2012b) due to their ability to uncover misconceptions or overlooked aspects concerning research participants and/or research environments. The homemade BWC was assembled using an opaque business card holder, a portable battery pack, coloured wires, a 'Raspberry Pi', a fisheye lens, and other items acquired online or repurposed from my office.[8] It measured approximately 12cm x 8cm x 5cm, could be worn by a user and, similar to a police issued BWC, featured internal data storage.

The Bomb: Inspiration & Design Process

I had been asked *again,* "are you making a new BWC?" I usually responded by saying that I was more interested in knowing more about the ones we already have. This time, however, enough was enough. I had been reading about black-boxed technologies. Which Latour describes as:

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[8] A Raspberry Pi is a small low-cost single-board computer commonly used in prototyping and DIY electronics projects. The Raspberry Pi used in this project was purchased for £4.65.

> … the way scientific and technical work is made invisible by its own success. When a machine runs efficiently, when a matter of fact is settled, one need focus only on its inputs and outputs and not on its internal complexity. (1999, p. 304).

What might I learn from trying to interfere with the inside of the black-box? There was something about the question "are you making a BWC?" that intrigued me: what would a BWC for research look like? I decided I would give making one a go. Even with my limited experience with physical computing, I was confident that I could make a basic camera and that I could certainly make some kind of casing for it to go in. I began to search for the components I would need, and to think about where I could find open-source code to make these components into a camera. Already I felt like I was getting a glimpse inside the black box of the BWC, and I felt that I understood it more intimately. Instead of a 'fixed' device the BWC (both the one I was making and the one I was researching) now felt somehow more malleable and open to possibility. As I waited for the various pieces of hardware to arrive, I tried to make sense of the software. I soon realised that this would be harder than I anticipated. Nonetheless, after a while I was relatively confident that what I had pieced together from chunks of code posted on GitHub would, at the very least, be able to take a photo.[9] Once I was happy with the code, I mounted it onto a microSD memory card. The following day a box arrived, and in it, the components for the BWC. As I soldered the components together, I began to think of ideas and questions, things like: how would live facial recognition work here? This would be in the code. Could a BWC be turned on by a keyword, "TASER" perhaps, or maybe when voices were raised, and audio levels reached a certain point. There was already a microphone on the BWC, so this again was likely a software thing. Maybe sirens, or flashing lights could prompt the recording? Could a BWC respond to stress? What in terms of wearable device *is* 'stress', heart rate? I knew from previous research visits that many of the officers wore smartwatches and fitness tracking wristbands. Perhaps a similar heart rate monitor could be used to prompt a recording. What other sensors could you add? I wondered what suggestions the officers would have. These speculative ideas wouldn't fit with the current guidance for BWC use, but they were questions that might spark interesting areas of conversation. I noted them down and planned to bring them up when I was next with officers. With the idea of the black box in my mind, and still this question of what a BWC for research might look like, I tried to work out a casing for the camera. I knew that copying the knurled, black casing that you find on a 'police BWC' wasn't right. There was something important about seeing this mess of wires and the blinking of LEDs. They reflected a kind of mutability to the technology. Questions I had when I soldered the camera regarding whether BWCs might be programmed differently still seemed tangible and relevant. I searched around my office and managed to find an empty, and crucially, transparent, business card holder which would just about fit the camera inside.

The Bomb: Application & Data

In the back of the police response car, I opened my backpack and found the small cardboard box containing my homemade BWC. I straightened some of the cables and turned it on. Taking one look at this bundle of wires and flashing LEDs the officers turned to each other with wide eyes. It had never occurred to me that my homemade BWC might look like a bomb. We had just left the communications room (the central hub where 999 calls are taken) which officers were keen to show me, and which they had needed to get special authorisation for us to visit. The building also housed the offices of various senior police officers. The officers expressed their relief that I hadn't shown the device inside, suggesting the building might have been put into lockdown. This *really* wasn't what I'd hoped for. Back in my office at the university the device had so clearly been a BWC, albeit a slightly different one. My colleagues at the university who had seen the components, had even joked that I was *finally* making the camera. Here, a stone's throw away from one of the most important buildings belonging to the force, it took on a completely different appearance and was understood by the officers in a very different way. At that moment I thought the homemade BWC was a failure. Michael discusses research interviews

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[9] GitHub is an online repository for sharing and developing software.

that were 'disastrous' (2004) and instances when participants 'misbehave' (2012c). Often, he says, in accounts of research events 'there is a tacit process of sanitization' (2012c, p. 529), with a typical method of sanitisation simply being to ignore these disasters or misbehaviours. Should this response to the homemade BWC be ignored, should it be seen as a failure? Michael argues not, suggesting that we think about such instances not in terms of 'failure', but instead saying that they can be 'read in terms of 'differential success'' (2012a, p. 30). Michael's argument is as follows: if we conceive of research events as made up of a heterogeneous array of human and non-human actors then they are always, even when they 'fail', a successful enactment of *something*, and this 'something' can be studied empirically.

What can be studied empirically here, and how might the homemade BWC be viewed as a 'differential success'? There are several aspects to the officer's response to the homemade BWC. The first, more methodological point, is that there was a difference in how the officers 'read' the device to how I, the researcher, anticipated. Through conversation it seemed that because the device was hard to understand and resultingly suspicious, it was seen as a potential threat. The second aspect relates to context. This suspicious, potentially threatening device in this location provoked a specific response, further highlighting the significance of the building and its occupants. Due to the comparative success of the other design Things I had made – and because many of the questions I hoped the homemade BWC would prompt were being addressed by the button which I will discuss in the following section – I tended not to show or use the homemade BWC for the remainder of my visits. It's inclusion here is used to highlight two things. Firstly, design Things will always prompt something and this can and should be considered. Secondly, a key aspect of design Things is their ability to inspire lines of questioning and thinking in advance of fieldwork. This example also highlights how design Things can function as a package or collection and how the production of one design Thing can inspire the production of another.

The Button: Introduction & Description

Fig. 3 – Three-dimensional render of alternative BWC with additional button

When describing the process of making the homemade BWC in the previous section I noted a question that had arisen: what would a BWC for research look like? I also highlighted how the production of one design Thing inspired the production of others. The final design Thing discussed in this article describes how design Things were used with an aim to prompt participatory speculation (Ward, 2015),

producing fascinating insights about officers' hopes and expectations about the future of BWC technology. The design Thing discussed next consisted of a three-dimensional render of a slightly modified BWC that differs in one way – it has an additional, undefined button on the side of the camera (see Fig. 3). The decision to show this design Thing as an image, rather than a physical model for instance, was a conscious reference to promotional renders of new or future BWCs that the officers would be familiar with.[10]

The Button Inspiration & Design Process

What would a BWC for research look like? The homemade BWC I had made was one, but were there others? When making the homemade BWC I decided that the knurled black casing found on police BWCs didn't feel suitable for my own camera. I opted for a clear case, but how else might a BWC look? These ideas promoted the further production of a series of 'alternative' BWCs each with subtle changes to the design. One of these alternative BWCs featured an additional and importantly, undefined, button. Due to constraints on space, I will focus here on this one as it prompted by far the most interesting responses. I found the idea of the button intriguing: what would or could exist that didn't before? I wondered if an additional, undefined button could offer a way into a speculative space, and once there, what the officers would want to happen. Rachel Plotnick, in a book all about buttons says:

> [P]ush buttons loom large in our cultural imaginary [...] push a button and something magical begins. A sound erupts that seems never to have existed before. A bomb explodes. A vote registers. A machine animates, whirling and processing. A trivial touch of a single finger sets these forces in motion. The user is all powerful (2018, p. xiii)

How would the officers, in Plotnick's words 'the all-powerful users', respond?

The Button: Application & Data

I showed three officers the alternative BWC, when travelling in the back of a carrier (a police minibus for transporting officers). Prior to doing so, we discussed the design of the existing cameras (the ones they were wearing), I asked if there was anything that they thought could be improved. I had found this to be a good way to introduce and frame the alternative BWCs, and to get some of the more obvious responses, such as improved battery life or tougher screens out of the way.[11] I then showed the image with the extra button, and said: "so there's this extra button – what would you do with it?" The first officer responded saying that it would be useful to be able to take photos during a recording, something, he said, that would make collecting evidence easier and would speed up the completion of paperwork. Others agreed with his suggestion, and there was a brief discussion as to whether the cameras could even be programmed to do this already.[12] Another suggestion was put also forward, one officer suggesting that the button might allow footage to be streamed back to the police station so that a superior could see what was happening.[13] The other officers seemed to also think this was a good idea. This was an intriguing suggestion and one I had not anticipated. A lively discussion followed in which some more of the implications of this speculative innovation were thrashed out collectively.

Kelly Gates notes, in relation to BWCs, that the ability for superiors to check up on subordinates remotely raises privacy issues, and potentially opens the door to peer-to-peer surveillance (2016). Aware of this I raised it with the officers, asking them if they would see this as an issue. One officer interjected, joking that having the camera come on while you were on the toilet wouldn't be ideal

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[10] In previous research visits officers often referred to new versions of BWC technology they had seen in promotional material, or on the company's websites.

[11] This is not to say that these are not significant insights, just that these points came up frequently in conversation.

[12] One of the things that many conversations about the BWCs highlighted was how little the officers knew about the existing functionality the cameras.

[13] It is worth noting that the West Midlands Police have announced that they will begin live streaming BWC footage, making it first police force in the UK to do so (Mackie, 2022).

(something also noted by Gates). In response, the officer who had made the suggestion noted that their idea was for the camera to "beam the footage" only if the officer pressed the button, but that being said, they wouldn't be against superiors being able to "request" to view what you were doing: "if it sounded like it was kicking off, if you were dead in a ditch at least they'd be able to see what was going on". It was then agreed amongst the officers that the addition of GPS would make it easier to locate someone if something were to happen, and one of the officers pointed out that some of the newer cameras on the market already have some of these features. Another idea, building on the ability to live-stream or "beam footage", was the suggestion that it would be good to be able to receive advice from superiors or from experts in certain situations, a mental health incident we had attended in the previous days was given as an example. This proposition involved the expert being able to access the BWC footage live and offer support and guidance via the officer's radio.[14]

What issues are at stake in the officer's responses to the button? What do the speculative propositions tell us about the BWC, or about police visibility? The primary focus of the officer's suggestion was that the button might be able to provide additional safety and security. The conversation that followed then touched upon other issues and concerns, namely, the matter of privacy and the ability to access live, expert knowledge. The officer who gave the suggestion reported that they would willingly exchange privacy (potentially opening themselves up to surveillance from superiors) in exchange for more safety. This tells us something about this officer's concerns about their work (that they see it as being potentially dangerous) but also, interestingly, that this concern for him, ranks higher than privacy. The suggestion is also indicative that perhaps the officer in question perceives their BWC as a device that is there for them and their safety, rather than a device that they wear for the protection of others.[15] The second element of the proposition, that the BWC might be used to provide access to expert advice, also relates to this idea of safety. A high proportion of the incidents I attended during the research were connected in some way to mental health, and it has been noted that 'responding to incidents with a mental health factor represents the largest category of incidents' (McDaniel, 2019, p. 74). Mental health related incidents, the officers suggested, were unpredictable, more dangerous, and harder to police. Moreover, the officers were also aware that they were dealing with vulnerable people in moments of crisis, people that needed help, and who, as such, did not fit easily into the officers' conceptions of their role as protectors of good from bad, something noted by Holdaway (1983). The officer's suggestion about the introduction of GPS (something which, if not a feature of these officers' cameras, is certainly a feature of newer cameras) is intriguing, reflecting, perhaps, an acknowledgment of the camera, and themselves by association, as a 'data node' (Wilson, 2019a, p. 69) within a broader policing infrastructure. In a similar vein, the suggestion for expertise and knowledge to be provided remotely, and in real-time, echoes Wilson's discussion of platform policing and police bodies being 'target of intensive surveillance, allowing for precision management' (Wilson, 2019a, p. 69). In terms of visibility, both suggestions centre around the BWC being able to extend the visibility of the BWCs wearer beyond their specific locale, however, interestingly, only to a limited and specific audience.

The extra button functioned as a way of inviting the officers to speculate, to think like designers, and in doing so, to consider the futures of a technology they use all the time. It acted as a way of prompting inventive problem making (Michael, 2012b) by way of participatory speculation (Ward, 2015). Unlike the questions about how the camera might be improved, which tended to result in pragmatic answers based on the existing qualities of the device, and based around current usage, the extra button offered a way into a speculative space where other possibilities could be imagined. Instead of focusing on the material qualities of the BWC, static and devoid of context, the button forced consideration of how the technology might relate to a heterogeneous array of actors.

Discussion: Design Things, Pitfalls & Possibilities

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[14] Throughout the research, the idea that there would be much more integration between technologies was common.
[15] Interestingly, the BWC in this proposition is not as a deterrent to violence towards the officer.

This article has made a case for design Things, a design research methodology, to be used alongside ethnography to understand use of BWCs by police. Policing and criminological scholarship has been criticised for its inability, perhaps unwillingness, to fully attend to both materiality and the social and ethical complexities and implications of technological devices. Considering the significant role that technological devices play in the policing context this presents a concerning knowledge gap. Despite the focus on BWCs the methodology has potential beyond this particular object of study and can applied to any number of other subjects or objects, offering researchers ways of attending to the 'Thinginess' of the social world and to bridge the socio-material divide. The article can and should be read therefore as an invitation to policing scholars and those from cognate fields to both make, and take with them, design Things as they conduct their research, and to adapt this methodology for their needs.

Before discussing the implications and possibilities of design Things for both future research and policing more broadly, it is worth briefly highlighting two of the potential pitfalls those seeking to employ this methodology might need to overcome. The first issue, or rather barrier, might be a misconception from those without a design background, that they lack the relevant skills to produce design Things. Or that those they do produce won't be of a high enough quality. As the above has shown, the value of design Things lies less in their aesthetic polish and more in the epistemic potential of their production, and consequently their ability to invite or stimulate discussion and insights from participants.[16] Indeed, as has been highlighted, the practicalities and even difficulties of their production offer an opportunity to 'slow down' (Stengers, 2018) and to attend to what is both messy and complex. Time spent with the images contained in the book allowed a unique understanding of BWCs position in a timeline of policing technology and visibility for instance. Whereas the questions raised in the process of assembling the homemade BWC introduced questions of mutability to BWCs, and allowed for a way of engaging with and considering BWCs technical capabilities. Far from a single fixed entity the BWC (both mine and in turn the one being studied) became open to possibility; turned though this activity it from a matter of fact to a matter of concern (Latour, 2004). A second potential criticism is that use of design Things is not in keeping with the aims of proper ethnographic research; that design Things change or affect the conditions of the research site and research participants. This can be overcome by highlighting a relatively widespread view in the social sciences that '[s]ociety is not given but done' (Marres, Guggenheim and Wilkie, 2018, p. 19). In other words, 'social life is not something that simply exists out there but is *made*' (2018, p. 19 emphasis in original).[17] Following this recognition that research is performed, and is always already an intervention, we might no longer think of research methods as a way to 'discover and depict realities', but instead think about them and the things we use to discover them, as part of the 'enactment of those realities' (Law, 2004, p. 45).

Having discussed the potential pitfalls, I will now reflect on some of the generalisable features of design Things paying attention to how these might be relevant for other researchers. The production of each of the design Things in this article offered a unique way to engage, interpret and respond to research material, theory, or concepts in this instance pertaining to police use of BWCs. The book was inspired by research on police visibility; the homemade BWC, the concept of 'black-boxing', the button, and questions of BWC development and diffusion. Design Things offer researchers a unique way to engage with their research object and materialise their thinking. When used during ethnographic fieldwork design Things are effective in both stimulating and framing conversation about specific themes or issues and for making sense of the research environment. Design Things, because they augment and change research encounters, can also reveal the unexpected; their 'failure' can reveal significant insights and can consequently be seen as being a 'differential success' (Michael, 2012a). Design Things also evidence how material artefacts play a role in how the social world, and consequently crime and its

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[16] This is not to say that aesthetics is not important. Rather, that a highly polished aesthetics does not necessarily equate to a design Thing being more effectible in generating data.

[17] These notions about society and sociality have implications for those seeking to research it. Not least, that a researcher and their research can influence the very thing being reported on (Marres, Guggenheim and Wilkie, 2018).

control, are performed. In doing so they help to highlight the complex socio-political and ethical implications of technologies.

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