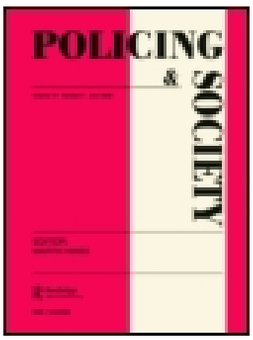

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Towards a socio-technical understanding of discretion: a case study of Taser and police use of force

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ABSTRACT

Using a case study of the 'less lethal' electric-shock weapon the Taser in English and Welsh policing, this article argues that the notion of discretion as an arena in which police officers are able to exercise free will can be overstated. Drawing on insights from Science and Technology Studies, it is argued that discretionary decisions may well be structured not only by the human agency but also by the presence and agency of nonhumans and the socio-technical networks within which they are embedded. Whilst existing work has recognised the human and societal influences impacting officer decision making, this article draws on Science and Technology Studies to argue there are merits to a distinctly socio-technical approach to discretion. Broader implications for discretion by police officers and other 'street level bureaucrats', for STS and criminology and for policies around Taser are also discussed.

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Taser; discretion; science and technology studies; policing; less-lethal weapons

Introduction

The concept of discretion is seen as central to our understanding of officials, and their exercise of power, in the criminal justice system and civil service. It is seen as key to understanding how Judges, Coroners, police officers and other 'street-level bureaucrats' (Lipsky 2010) operate and has been found at all levels of the criminal justice system and policing hierarchy in multiple countries worldwide (Beek *et al.* 2016, Barlow and Walklate 2018).

In many of these discussions, discretion tends to be conceptualised of as distinctly human in nature, as indistinguishable with human agency. Lipsky's foundational work is a powerful statement recognising the human agency of, and crucial role played by, individual officers in settings as varied as education, social work and prisons. It aims explicitly to 'search for the place of the individual in … street-level bureaucracies' (2010, p. xi). Davis' work on discretionary justice argued that a 'public officer has discretion whenever the effective limits on his power leave *him free to make a choice* among possible courses of action' (Davis 1969, emphasis added). Davis also highlighted concerns around the 'emotion of deciding officers' and 'the imperfections of human nature' in the exercise of discretion by public officials.

In the policing literature, too, authors have also defined discretion in terms of the 'power of choice' (Holmberg 2000, p. 181), the ability to 'exercise free choice' (Campbell 1999, p. 79) and as 'decisional freedom' (Bambauer in Joh 2016, p. 15). Law and legal guidelines are thus contrasted with the free choice of the officer, and the challenge has often been seen as identifying the situational, systemic and offender variables that may influence the choices an officer makes (Buvik 2016, this journal).

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In contrast, this article advances our understanding of discretion by considering it not just with regards to human agency, and the human and cultural influences that may impact it's exercise, but with reference to technologies – what Latour (1992) might term 'non-human actants' – and the distinctive contributions and interactions they can make. In short, it revisits Lipsky's search 'for the place of the individual' and suggests a complementary search – this time, one concerned with locating the place of the non-human in discretionary decisions. This is particularly timely given the many and diverse forms of technologies in use, from IT systems (Manning 2008, Willis *et al.* 2018) to Body Worn Cameras, from complex surveillance systems (Joh 2016) to less lethal weapons. It also reflects the police's engagement with the technological inventions of previous eras – including the introduction of the patrol car and police radio, and their precursors, the motor-carriage and telephone (Bain 2016) – and long standing academic interest in such topics (Manning 2008, Bain 2016).

In order to conduct this search I draw on Science and Technology Studies (STS) to develop a case study of the 'less lethal' electric-shock weapon the Taser in England and Wales. While it may seem unusual to blend criminology, policing and STS, the latter is concerned with questions about the role of, and distinctions between, 'technology' and 'society'. I posit that Taser technologies can interact with humans to pattern decision making in unexpected ways (Ariel *et al.* 2019) and, in turn, that our understanding of discretion may be enriched by a consideration of non-human agencies, and how these interact with, and shape, what is traditionally seen as 'human' decision making. In so doing this article makes an original contribution to the literature firstly by widening out notions of discretion to encompass the influence that non-human actors can exert on decision-making; secondly, by empirically testing the value of STS approaches in criminology and thirdly, by showing how Taser and the network around it, can impact police use of force. First, however, it is necessary to review the existing literature on discretion and technology in policing.

Discretion, agency and technology in policing

With the 'discovery' of discretion in the 1960s, authors tended to paint a distinction between legal and policy restrictions on the one hand, and free choice and human agency on the other. Goldstein's classic article (1960) portrays officers as using rational cost-benefit calculations to decide how to deal with informants. More recently Rowe (2007, p. 298) noted that officers weigh up the importance of various factors – including the possibility of getting into 'trouble' and the risk of the perpetrator offending again–when handling domestic violence incidents. Although the concept of discretion has been criticised, such critiques have often been focused on insufficient recognition of the human agency of others that might impact on decisions making (see Pepinsky 1984, p. 266, see also Campbell 1999). As such, many critiques remain firmly within an anthropocentric frame. The issue of how seemingly 'individual' choices may be framed by technologies, materiality and socio-technical context remains underexplored, both in the literature on police discretion in general *and* in the use of force literature in particular.

In terms of the former, influences on discretion are often grouped into three categories (Gaines and Kappeler in Buvik 2016). The first is *situational variables*, particularly the seriousness of the offense. The second is the *characteristics of the criminal justice system* including the resource constraints faced by the police force and the subculture(s) operating within it. The third is *offender variables*, with a range of literature pointing towards the importance of socio-economic characteristics and demeanour. Buvik's (2016) research into policing in Norway has subsequently suggested a fourth category: *officer level* variables, including their age, experience, norms and attitudes.

The literature on discretion in police use of force has also identified similar categories. Terrill and Mastrofski's (2002) classic study differentiates between two approaches to police use of force: a psychological approach which focuses on the characteristics, experiences and views of police officers and a 'sociological perspective' that focuses on the characteristics and behaviours of those subjected to force. Despite their differences, both approaches focus on human characteristics in use of force outcomes, be it at the level of the officer, the civilian, or both. Later work by Paoline

and Terrill (2007) differentiates between situational variables (including the number of officers and bystanders at the scene), offender level variables (including socio-demographic characteristics and their level of resistance) and officer level variables (including education and length of service) that impact use of force decisions. Bolger's (2015) meta-analysis similarly differentiates between 'encounter' or situational characteristics (including subject resistance and location), subject characteristics, officer characteristics and community and neighbourhood characteristics.

While these categories – officer level variables, situational variables, offender variables and criminal justice variables – appear distinct, I argue that they nevertheless have something in common: a focus on the phenomenon that are seemingly human in nature. The focus is on officer and offender characteristics, norms and values and behaviours. Previous authors have often been concerned with demonstrating that the choices officers make are 'as much as product of social control' and as 'fully *influenced by people*' as outcomes governed by formal rules (Pepinsky 1984, p. 266, emphasis added). Less attention is paid to the role of technology and other non-human influences. Moreover, this focus on human actants is somewhat limited. The literature is focused on isolating and quantifying the effect of individual variables on use of force decisions (Sierra-Arévalo 2019, p. 424) and is less well placed to capture the impact of technologies, and the networks surrounding them.

If the literature on discretion is not explicitly concerned with the role of technology, similarly the literature on technology is less concerned with its impact on discretion and how decisions might be impacted by the 'dance of agency' (Pickering 2005, p. 2) between humans and non-humans. Willis *et al.* (2018, this journal) argue that the literature on technology in policing tends to fall into a number of distinct camps. The first approach, similar to what Latour (1994, p. 42) might call a materialist approach, views technology as having significant effects and impacts on individuals and organisations, many of which are rational and predetermined, and reflect the technology's innate features. In such accounts, there is a circumscribed role for police discretion and agency, with the technology (pre)determining decisions and outcomes.

Such an approach is exemplified by the recent statement by the Chief Executive of Axon that 'killing is a technology problem and … technology (can) completely erase it' (Smith 2019, p. 13). White's rich, complex application of the 'diffusion paradigm' to Taser may also partially fall into this category, as it stresses that Taser's effectiveness has enabled it to overcome the 'traditional inflexibility' of the police (2014, p. 293), and sees its adoption as a 'rational' response to these innate characteristics. In such accounts, knowledge of the technology is sufficient to anticipate its (largely fixed) effects and less attention is paid to how humans and non-humans, technologies and officers, may interact.

The other approaches, as outlined by Willis, see technology as having little or no impact, simply reinforcing existing structures and power dynamics inside and outside of police forces. In such 'sociologist' or 'humanist' (Latour 1994, p. 42) approaches, if technologies have any role to play, it is as a passive tool, an intermediary of pre-existing human will. For example, Oriola *et al.* (2012, p. 66) argue that Taser is used to assist the police in their repressive mandate, arguing that 'Taser is being used essentially to terrorize the downtrodden within a neo-liberal ethos'. What is important in these accounts is less the technology and more human intentionality. If the first account sees a reduced role for the discretion of the police officer, this approach sees an enhanced role for discretion, with the human agency being the decisive factor. The first approach emphasises the role of technology, the second the role of officer, but in neither approach is there an emphasis on the interactions between the two. Perhaps what is needed is an approach capable of taking seriously the 'missing masses' (Latour 1992) of technology and understanding the unpredictable outcomes associated with them.

Locating the 'missing masses': towards a socio-technical approach

In developing this approach, some notions from STS may prove useful. STS and allied approaches, such as Actor Network Theory (ANT), are a rich and complex body of work, and there is not space to provide an exhaustive account of the field. Instead, I examine some key concepts that resonate

with my work, while appreciating concerns (e.g. Fine 2005) about tearing ideas out of these approaches. First, there is an emphasis on what Law (1992) calls 'heterogeneity': a recognition of the incredible diversity of actants that are deserving of the attention of sociologists and other social scientists. There is an emphasis here on materiality; that attention should be paid not just to humans, but to 'non-human actants', from bicycles (Bijker 2010) to guns (Latour 1994), and the parts that help constitute them. For example, in the case of policing, the approach would stress that attention needs to be paid to the materiality of the different technologies involved (their presence or absence, as well as the technical characteristics and qualities that come to be associated with them) and what shifting responsibilities and competencies to and from 'human' to 'non-human' might do, conceal or make possible.

Latour's notion of delegation captures the process via which competencies, work and effort can be shifted from humans to non-humans. Latour (1992, p. 155) advises us that 'every time you want to know what a nonhuman does, simply imagine what other humans or other nonhumans would have to do were this character not present'. Relatedly, the concept of 'prescription' (Akrich in Latour 1992, p. 157) also focuses attention on the ways in which non-humans can influence or impose certain behaviours on their human counterparts. Latour gives the example of the seat belt that is automatically fastened when the car door is closed, preventing the driver from accepting the dangerous consequences of driving without being secured. In both delegation and prescription, then, there is a sense that non-human actants can be more than mere 'tools', can make distinct contributions and interact with humans in surprising ways.

Second, in looking closely at the 'missing masses' of technology, STS highlights the need to be symmetrical in our considerations of the claims made about them, instead of assuming that certain technologies are successful simply because of their innate characteristics (Bloor 1999). In this case, claims made about Taser's effectiveness and its benefits for officer safety need to be treated not as an explanans, but as an explanadum, as constructed and negotiated claims that need to be explored and interrogated further. Third, the emphasis is not on looking at technologies in isolation, but on looking at the broader networks or assemblages in which they are embedded and entangled. The term network is defined in a broad sense to include 'not only … people, but also … machines, animals, texts, money' (Law 1992, p. 381). In the case of Taser, relevant actants could include humans (police officers and members of the public), machines (various components of the weapon, such as the red dot laser sight, as well as the Taser 'itself'), commercial interests, the legal and policy framework and the structural decisions made around the weapon. The focus is not just on the technology, but on the *socio-technical network* in which it is enmeshed. If the first approach sees a limited role for human discretion, and the second approach sees human agency as playing a deciding role, I argue that STS, when applied to policing, can add value by encouraging us to see discretionary decisions – so often understood as the result of human agency – as resulting from complex and unpredictable interactions between human and non-human actors, and highlighting the distinct contributions that technologies can make.

STS inspired approaches are increasingly common in policing (Innes *et al.* 2005, Anais 2009, Aas 2015, Moreau de Bellaing 2015, see also Manning 2008, Rowe *et al.* 2018, who touch on similar themes). But can such approaches help us understand discretion? In order to answer this question, after discussing the case study and research methods, the article re-examines the four categories – officer, offender,[1] situational and system variables – used by previous authors to characterise influences on police discretion in order to demonstrate how technology and materiality can impact each category in turn.

The case study and research methods

The Taser weapon

Taser is a 'less lethal' electric shock weapon, in use in over 100 countries worldwide. A noted feature of the weapon is its capacity to incapacitate individuals at a distance of several metres via the

application of electricity administered via tethered probes. The weapon is generally seen as being highly effective (White 2014) and is often believed to enhance officer safety, as well as the safety of those on whom it is used (Kaminski *et al.* 2013, Neuscheler and Freidlin 2015). Following an initial pilot of the weapon, Taser was rolled out to forces in England and Wales in 2004 (Home Office 2013), initially to firearms officers. Following a trial with specially trained non-firearms officers who had volunteered to carry the weapon (sometimes referred to as 'specially trained officers', or STOs), it was made available more broadly in 2008. As a result, all firearms officers must be equipped with the weapon (National Police Chief's Council 2017, point 2.27) and it can also be carried by specially trained non-firearms officers. There is standardised national guidance (Authorised Professional Practice) for the use of the weapon, as well as a standardised training package. The number and percentage of firearms officers and STOs varies between forces and it is estimated that around 11% of officers are armed with the weapon (Laville 2013).

Research design

Research was conducted between 2013 and 2017 as part of an ESRC funded project and focused on two anonymised forces in England and Wales (Force A and Force B). Forces were selected following a presentation at the Association of Chief Police Officer's National Conference on the use of Taser, where I outlined the planned research and asked for interested forces to volunteer. Force A covered a mainly rural area while Force B covered some rural areas as well as a major city. Taser was available both to firearms officers, and to a small number of STOs in both forces. Officers were also equipped with other force options, including irritant spray and batons.

A range of research activities were conducted, including the observation of Taser initial and refresher training, officer safety training and the observation of Taser trained officers on patrol. The research also benefitted from unique access to the College of Policing's three day Lead Instructor's Training which had previously been closed to academic observers. In total nearly 275 h of observations were conducted. Participant observation was chosen not only because it helped to facilitate the use of other research methods – encouraging officers to take part in interviews and encouraging them to open up once in an interview situation–but also because it helped to improve the quality of information gathered (Marks 2004).

However, while gaining high-level access and support to conduct observations was necessary, it was not sufficient. Access needed to be continually negotiated to guarantee a wide range of police interviewees (see also Marks 2004), and participants were recruited through a variety of methods. Prior to the start of the trainings, an information and consent form was circulated to trainers and course participants with a request for volunteers. I also reiterated this call for interviewees in person at the start of the training courses. Email requests for interviews were also circulated by police trainers to Taser trained officers as well as those who had been trained but were no longer certified to carry the weapon. In addition to the observations I had conducted and the support of trainers and senior managers, my position as an 'outsider-outsider' (Brown in Horn 1997) and as a relatively inexperienced, female researcher also seemed to facilitate interviews and access. While I did not go quite as far as Warren in using an 'incompetent strategy' (in Horn 1997, p. 300), many participants seemed to regard me as 'harmless' and stressing that I was conducting the research for my university PhD course seemed to be well received.

In Force A, 21 individuals were interviewed, 2 of whom were Taser trainers and/or Single Points of Contacts and 3 of whom were officer safety trainers. 3 interviewees had oversight of Taser trained officers (typically at the rank of Sergeant or higher) and 13 of who were Taser trained officers (8 males and 5 females, typically lower ranked). In Force B, 10 individuals were interviewed, comprising 2 Taser trainers and/or Single Points of Contact, 1 individual with oversight of Taser trained officers and 7 Taser trained officers (four males and three females). Taser trainers in 3 other forces (all participants on the College of Policing Lead Instructor Training) were also interviewed. Officers were asked a range of questions during semi-structured interviews that ranged from 20 min to over an hour. Semi-

structured interviews were chosen as they allowed me to cover topics of interest, pick up on points raised through other research methods and retain space to explore additional topics raised by participants (Stephens 2007, p. 206). As Leech (2002, p. 668) has noted, such a style of interviewing is particularly suitable with highly knowledgeable respondents as it 'gives them the chance to be the experts'. Officers were asked about their most recent experience with the weapon and how they decide when it is appropriate to use it; their views on the weapon and the training, guidance and reporting requirements surrounding it; changes to their role since carrying the weapons and their motivation for volunteering to carry it, amongst other questions. They were also given opportunities to raise topics of their own. Participants were given the opportunity to see a transcript of their interview, to clarify any comments and to withdraw from the research prior to publication. In order to preserve participant anonymity, when quoting from interviews with police officers, I detail only the force (Force A or Force B) in which they were located. When quoting Taser trainers I do not detail their home force, as they are more easily identifiable.

Notes were taken by hand and typed up as soon as possible, and interviews were personally transcribed by the author. The evidence generated by these methods was coded and categorised into different themes. These categories were identified according to their frequency and prominence, as well as with regard to any contradictions within and between interviews, interviewees and different research methods. Themes included: officer's views of the weapon as 'nicer' than other forms of force, the impact of the weapon on officer confidence and deployment, the threshold for use and issues associated with decision making. This process was, however, less linear than this account might suggest. I found, in keeping with Silverman (2013, p. 50), that my project and the focus of my attention altered and emerged out of my engagement with the research, as exciting new avenues and directions presented themselves. As such, it is important to note that the themes presented here were developed throughout the research process, via a process of working reflexively and iteratively with key themes within the academic literature and with other research (specifically quantitative research and interviews with NGOs, lawyers and individuals subjected to Taser) that was simultaneously being conducted by the author and which provided valuable background. They should not be considered a definitive or exhaustive account, as it was not possible to discuss all of the themes in the present piece.

Findings

Evidence from this case study suggests that Taser impacts the four influences on the discretion that Buvik (2016) identifies, specifically officer level variables, offender level variables, situational variables and criminal justice system variables.

Officer level variables: the importance of symmetry and delegation

The traditional literature on officer level variables and police discretion tends to stress officer characteristics such as gender, length of service and education levels as impacting on decision making (Paoline and Terrill 2007, Bolger 2015). This case study complements this analysis by advancing two ways in which the presence of Taser may also affect officer level variables.

Officer confidence

Firstly, several of the officers interviewed said that they felt more 'confident' when they had Taser on them, and indicated that this confidence led them to approach situations differently, and make different discretionary decisions, than they would have done in the absence of the weapon. Officers noted that:

> It'll give me the confidence to be a bit more proactive where I think … people would be far less confident. (Taser Officer in Force A)

> It does make you feel a bit safer … If I was on my own and a large man was to kick up, it's something else that I can think about. (Taser officer in Force B)

Thus the presence of a particular technology is interacting with officers to change their decision making processes and outcomes. These quotes indicate that officers armed with the weapon feel able to handle incidents they may have not engaged with in the past, or to engage with such incidents in different ways. As such, rather than having pre-determined, predictable impacts, or no impact whatsoever, the presence of a non-human actor (in this case, Taser) may interact with officer's beliefs and perceptions, and in turn impact on their exercise of discretion, making them more likely to intervene in certain incidents.

In other cases where officers are *already* involved in a given incident, the presence of the weapon may influence them to make different tactical decisions. Officers noted that:

> People with a knife, how would you have approached them before? You would have had to wait for armed support or you tackle them with the knife itself … A lot of the time, if you draw your Taser and point it at them … generally they stop. (Officer in Force A)

> Some people think because they've got a Taser, they're immune, they're superhuman … You might go into the house a bit too quickly and get disarmed, say, if you breach the door too quickly. (Officer in Force A)

In such cases, far from being a mere tool, the presence of a material object can impact upon the psychological perceptions of officers, the way in which they interpret events and their perceptions of threat and risk. Taser also impacts officer decision making in more concrete, readily observable ways, as officers may be tempted to get within Taser range of particular individuals so that they have the option to use it, should they need to. One trainer noted that 'Conventional tactics with vulnerable people is to give them space … but you have to be at a relatively close distance for it (Taser) to be effective. If I'm 7–15 feet from you and you are in an agitated state that might not be great … If you go into Taser range you could up the ante with the subject' (Taser trainer, Force omitted).

Thus the understanding that Taser is most effective within certain ranges encourages officers to get close enough to use the weapon if necessary. However, being at close range may, paradoxically, enhance the likelihood that officers have to use Taser, and may also put them at more risk should the weapon prove ineffective – especially with new models of weapon, such as the T7, which operate at even shorter distances than the models currently in use in England and Wales (Axon n.d.). For me, such examples also highlight the utility of Bloor's notion of symmetry, which asks us to critically assess the attributes commonly associated with particular technologies. Instead of treating the effectiveness of the weapon as a given, and as a basis for explaining its popularity, Taser's effectiveness is more usefully seen as contingent and constructed out of the interplay between technology, officers and members of the public. The weapon is only (potentially) effective in enhancing officer safety when used within a certain range and in certain circumstances, while beliefs in Taser's effectiveness can actually make officers more vulnerable, by giving them the confidence to engage in more dangerous behaviours in violent incidents. More broadly, then, decisions seemingly made solely by officers are impacted by the material presence of a non-human actor and the beliefs around it.

Trigger happy?

The presence of Taser may be associated with other effects, too. The broader literature has long noted the potential for officers to be 'trigger-happy' (Adams and Jennison 2007, p. 456, see also Sierra-Arévalo 2019, p. 246). Police trainers in England and Wales also noted the risk of over-use of Taser, one trainer commenting that 'it's amazing how I give you this yellow bit of kit and you forget to use your mouth'. Another trainer noted that 'the big problem I've got, is that some of the ones who are not firearms officers … are jumping far too quickly to … thinking about Tasering'. Such statements may well have been exaggerated for effect, and need to be considered in the context of relatively low rates of Taser use in England and Wales (Dymond 2018, Ariel *et al.*

2019). Nevertheless, they do speak to the potential for the presence of the weapon to impact officer behaviour in unpredictable ways, encouraging instead of minimising the use of force. Indeed, while Taser is often described as an alternative to firearms, studies in England and Wales found that over half of cases of Taser firings involved use on unarmed individuals (Dymond 2018), a much lower threshold for use.

Latour's notion of delegation, and his challenge for us to imagine 'what other humans or other nonhumans would have to do were this character not present' (1992, p. 229) is useful in understanding why this might occur. As Collin's (2012) micro-situational theory of violence demonstrates, in order to use force and to enter the 'tunnel of violence', individuals must be able to overcome the confrontational tension and fear that they experience and which acts as a powerful barrier. Violence, even when legitimate and necessary, is 'emotionally difficult to carry out' and this acts as a constraint on its use. Yet I argue that, with the introduction of the Taser, the work of tackling these barriers has been 'delegated' from emotional human beings to an emotionless, inhuman weapon, thus reducing their salience.

This delegation happens in at least three ways. First, proximity to the individual is an important barrier to violence. While, as we saw earlier, Taser must be used at a relatively close range, it nevertheless allows the officer to use force at a longer distance than that afforded by empty hand techniques, baton or pepper spray. As such, it lessens an important psychological hurdle involved with the use of violence – especially as using force at a distance can also offer protective benefits for officers.

Second, using Taser outsources the need to physically make contact with the human body *from* the police officer *to* the weapon. Were Taser not available, officers would have to strike individuals with their hands, fists, feet and batons, or discharge pepper spray into their face. With Taser present, however, officers simply have to squeeze a trigger, transforming a 'major effort' – the work of physically inflicting blows on the human body – into a 'tiny effort' (Latour 1992, p. 154); that of moving a finger. As Sierra-Arévalo notes, 'TASERs are simply quicker and easier than a knock-down, drag-out fight' (2019, p. 433). Officers themselves note the comfort that this can afford them, stating that:

> The baton, it's … a big wooden stick and it's not a natural thing for girls to do. I don't like hitting people and its short term. To incapacitate someone is a lot nicer than breaking someone's bones, … There's less blood, less bone breakage, its indirect control. If I can control someone by not hurting them, I'm happy … It's less physical, less caveman. (Officer in Force A)

> I tend to use Taser because its … it's the best option all round and it's the least intrusive. (Officer in Force A)

> CS, it doesn't sit well with me, hitting people with a baton it's a bit crude. Taser I tend to use more than anything else, just because that is my decision to go to that first. (Officer in Force B)

Thus 'delegating' violence to a weapon, and being able to use force by squeezing a trigger, or pressing a button, as opposed to having to physically strike someone, allows officers to conceptualise their use of force as 'nicer' than alternative options and to hide the violence involved not only from others but, significantly, from themselves. This is particularly pertinent as the effects of Taser and the pain it causes are often less visible than injuries caused by canines or batons (Anais 2009), so may be easier for officers to dismiss (see also Scarry 1985, p. 56).

Third, many of the decisions about how much force to inflict – how hard to strike someone, how many blows to land – are delegated to the weapon, which exerts an amount of electrical charge over which the officer has no control, and (in certain models) does so for a pre-determined length of time. Decisions around knowing how much force to use, and assessing how much violence to apply – a process that, as Collins notes, is exceptionally difficult to do competently – are again taken *away* from the officer and given *to* the weapon. Thus, to the Taser weapon is delegated not just the 'having to do' (devoir faire) but also the 'being able to do' (pouvoir faire) as well as the 'knowing how to do' (Griemas, in Hostaker 2005, p. 15).

Situational variables and heterogenous networks

As I have shown so far, decisions around the use of force are not solely the preserve of human choice but are also affected by interactions between a non-human actor (in this case, Taser) and police officers. But Taser does not just influence officer behaviour; there is also evidence to suggest that its' presence also alters the nature of the situations with which officers are faced in two ways. First, officers felt that, once equipped with Taser, they were sent to riskier incidents than had previously been the case. Officers noted:

> The biggest issue … is with spontaneous incidents … (with) bladed weapons … I get sent to jobs with 'presence in public with knives' … (We) get deployed as Taser now. That would have been a firearms job … If that Taser fails they become a victim. (Officer in Force A)

> The jobs with weapons, you start hearing 'any Taser officers on duty', whereas before it was always 'we will see if we can get you a firearms unit' … We definitely get called a lot more to jobs for violence. (Officer in Force B)

Second, in around a quarter of interviews, participants noted that Taser officers were more likely to be single crewed. Trainers and officers noted that:

> Our recommendation is that there is a double Taser crew … (but) if you've got three staff, one Taser trained, the Taser trained officer will be single-crewed. (Taser trainer, Force details omitted)

> If you have a Taser, you volunteer (to be single crewed), to up the numbers … (But) single crewing is never safe in any front line situation, Taser or not. (Officer in Force A)

These quotes illustrate that the situational variables long theorised to have an impact on the exercise of police discretion – including whether an officer is single or double crewed, or the type of incident he or she is called to attend – are themselves impacted by the presence or absence of technologies and non-human actors such as Taser. Instead of seeing these as purely human decisions, they are influenced by what Pickering (2005) might call the 'dance of agency' between human and non-human actants.

As such it is not sufficient to treat Taser as a technological fix or a tool, one that provides officers with an additional way of solving pre-existing problems and implementing the decisions made in a pre-existing 'social' context. Instead, it is necessary to examine not just the weapon but the legal, policy and operational framework within the police, the broader financial constraints within which they are operating – in short, the broader 'heterogenous network' – and examine how these are co-evolving. While the introduction of the weapon is purported to solve a set of problem(s) – for example, officer safety – the socio-technical network around the weapon operates in a different way, potentially creating *more* problems and causing more complexities for officer safety.

Offender level variables: the importance of prescription

It has long been argued that offender characteristics and demeanour can affect the discretionary decisions that officers make (see Gau *et al.* 2010 for a recent discussion involving Taser) and recent research highlights the extent to which the demeanour of members of the public may be affected by non-human factors too. In short, the presence of Taser may affect not only the officers armed with the weapon, and the types of incidents to which they respond, but the people with whom they are interacting. Using Akrich's terminology, we might say that the weapon 'prescribes' or primes individuals to act in certain ways. For example, one possibility is that the presence and drawing of the weapon reduces the likelihood that individuals will engage in violent behaviour, with several studies underscoring the deterrent effect of the weapon (see, for example, Sierra-Arévalo 2019), in particular the value of pointing the red-dot laser sight.

A second possibility is that the presence of the weapon encourages violence towards officers. The 'weapons effect' literature has found a link between the presence of a weapon and human aggression, and that the presence of the former can lead to increased aggression in the latter. In turn, Ariel

et al.'s study (2019, p. 280) presented evidence of a 'less-lethal weapons effect', in which the presence of a TASER leads to increased aggression from subjects. The study design compared shifts when certain geographical areas were patrolled by TASER-equipped officers to control shifts, when there were no Taser equipped officers on patrol. The study found that officers are significantly more likely to apply force when a TASER is present and are also more likely to be assaulted. The authors explain this with reference to an interaction whereby 'the presence of a TASER precipitates a pattern where suspects become more aggressive toward officers, who in turn retort with more forceful responses' (Ariel *et al.* 2019, p. 17).[2] Hence technologies can effect or 'prescribe' the behaviour of members of the public in ways which can be both positive and negative, and may not always be foreseen. Hence even the 'offender level variables' that impact upon officer discretion are, themselves, affected by interaction with non-human actants.

System variables

We turn, finally, to system variables: features of the criminal justice system – such as the system's ability to process offenders and issues around capacity and resourcing (Buvik 2016) – that may impact an officers' exercise of discretion. At first glance, Taser would seem to have little impact on this variable. However, we saw above how Taser may be intimately related to decisions about resourcing and deployment of officers. Moreover, recent improvements to the accountability features of the Taser weapon are worthy of note here. These include the ability to record when the weapon was drawn, armed and fired and to trigger compatible body worn cameras to automatically record under certain conditions. Such features may well alter the ways in which officers perceive and engage with the broader criminal justice system, including by facilitating the collection of evidence.

Discussion

This case study has demonstrated that the presence or absence of Taser may impact decisions around whether to use force, and the type of force to us. This both advances the literature on discretion – by broadening out its focus to include the non-human – and advances the literature on technologies in policing, by showing how STS can contribute to a third way between materialist and humanist approaches. Far from being a neutral tool, or from having pre-determined, 'rational' effects – as some previous accounts of technologies in policing would lead us to predict (Willis *et al.* 2018) – the presence of a non-human actor, in this case Taser, may influence officers' exercise of discretion around the use of force. Instead of fore-grounding the inevitable results of technology, and thus downplaying the need for a focus on discretion (as materialist approaches would suggest), or foregrounding discretion by emphasising the human agency and the subcultural factors that impact upon it (as humanist approaches would suggest), I suggest that interactions between humans and technologies, and the impact these have for discretion, need to be attended to. In particular, interactions between Taser (a non-human actant) and human actants (officers, those subjected to force, bystanders) can impact each of the four influences on discretion (offender, officer, situational and system variables) and, in turn, impact the decisions made by officers. This has practical and theoretical implications, which are now discussed in turn.

Practical implications

The findings reinforce the need for police training on the weapon to hedge against the risks of overuse and over-confidence by officers, and also highlight the importance of guidance (Bishopp *et al.* 2014). The guidance for use of the weapon in England and Wales has been criticised by the UN Committee Against Torture (2013) for its' low threshold around the use of the weapon. There is a clear gap between the standard set out by the Committee – which provide that Taser should be used 'exclusively in extreme and limited situations where there is a real and immediate threat to life or risk of

serious injury, as a substitute for lethal weapons' – and the current national standard in England and Wales that the weapon may be used as in situations where there is 'conflict or the potential for conflict' (College of Policing 2014). There is thus an urgent need for review of guidance around less lethal weapons, including but not limited to Taser. Relatedly, the findings have highlighted areas of risk to Taser carrying officers. Attention should be paid to resourcing levels, deployment patterns, and other measures that may be taken to help ensure that officers equipped with Taser are not placed at unnecessary risk.

Locating the 'missing masses' in discretionary decisions

Turning to theoretical findings, I wish to highlight three of interest. This case study has highlighted the possibility that police discretion – often thought of as a distinctly human phenomena – may have considerable 'heterogeneity' in its construction and may be shaped by interactions with technologies and 'non-human' actants. While this article has focused on the use of force, these insights have relevance for other discretionary policing decisions. Following Koch's distinction between three forms of power held by the police (in Holmberg 2000) these may include, for example, decisions around how to *define* a situation, how to *proceed* in handling it, as well as how to handle any resistance encountered. Further research could usefully look at discretionary decisions in these areas, as well as examine how different types of less lethal weapons (amongst them Taser, irritant spray and batons), might affect the micro-situational patterns of violence identified by Collins, and in particular affect the reticence of officers to enter the 'tunnel of violence'. More research is also needed into the 'less lethal weapons effect' associated with Taser (Ariel *et al.* 2019) and understanding whether, how and under what conditions the weapon may interact with human agency to produce positive or negative results, and to help increase or decrease levels of violence.

While this article has focused on the police, discretion is a defining characteristic of street level bureaucrats more generally (Lipsky 2010). Future research on discretion may wish to ask whether, and under what conditions, non-human actants may influence decisions made by other public service agents. Might decisions made by actors as disparate as prison officers, social workers and benefit advisors be shaped by the technologies with which they interact, be they body worn cameras or computerised forms and systems? As government policy moves towards the provision of online courts and tribunals, might the shift away from traditional court rooms impact how civil and criminal cases are heard, the process that is followed and the outcomes achieved? This is particularly important because the findings presented here are based on a single case study and there may be important differences between discretionary decisions around the use of force, and discretionary decisions in other arenas. Although this article has argued that technological innovation *can* influence decision making, that does not mean that it necessarily will. Rather than simply assuming that findings here are relevant more broadly, the image of a 'search' seems more relevant than ever.

Locating the benefits of STS

Second, this piece highlights the continued relevance and utility of STS. The finding that Taser impacted upon the psychological perceptions of officers to increase confidence levels and facilitate changes in behaviour underscored the importance of attending to the materiality, absence and presence of nonhuman actors. Latour's notion of delegation helped capture the ways in which Taser might facilitate officers' entry into the 'tunnel of violence' (Collins 2012). Bloor's notion of symmetry, and the concept of socio-technical networks, have also helped challenge the conventional wisdom around Taser. Such conventional wisdom states that the technical features of the weapon – for example, its ability to be used at a distance, its ability to produce incapacitation – may well make officers safer. Yet, once we question taken for granted assumptions around the safety record of the weapon, and look at Taser in the context of the broader socio-technical networks, a slightly different picture emerges. By interacting with officers in ways which can heighten their confidence,

interacting with civilians in ways which can make them more aggressive, and interacting with patrol patterns in ways that mean officers with Taser are more likely to be single crewed and to be sent to more dangerous incidents, this broader socio-technical network may operate to put officers at more risk. It is thus necessary to go beyond the technical features of the weapon to look at how it is used and understood in practice (Sierra-Arévalo 2019).

More broadly, too, paying close attention to the STS literature and its emphasis on the role of the non-human has helped pose a series of interesting questions around the extent to which police discretion could, or should, be seen solely as an issue of human agency and of free will. On my reading, it helpfully suggests that Lipsky's search for the 'place of the individual' in discretionary decision making in public services could be complemented by a search for the 'place of technology'. As such, this article has demonstrated that such approaches can be a useful way of sensitising us to certain issues, as a way of 'asking questions' and 'turning issues inside out' (Mol 2010, p. 261).

While this article has focused on how STS can complement existing approaches to technology in criminology, this may have implications beyond the discipline. Criminology is not alone in its reliance on accounts that see technologies either as a passive intermediary of human will or as having predetermined, almost inevitable, consequences. Similar accounts have been found in other fields, such as international relations, that are concerned with weapons innovation (Bourne 2012), as well as in education (Waltz 2006) and housing (Cowan *et al.* 2009). Looking at the interplay between the human and the non-human and attending to 'other than human' factors that can influence discretionary decisions may be of interest to those working in various fields of social science and international studies, including sociologists, political analysts and international relations theorists more broadly.

Locating the limits of STS

Third, STS also presents certain difficulties and limitations that should not be understated. While many STS authors have conducted empirical research (Walby 2001), many texts are light on methodology and provide little practical guidance on conducting STS inspired research (Gad and Jenson 2010, p. 73). Latour's examples often work because they are highly abstract and presume the analyst has the ability to accurately discern the intent of another and measure how this changes over time. However, this is seldom straightforward when conducting empirical research.

One might initially imagine that it is not too difficult to ascertain the pre-existing motives of police officers, and then to measure the extent to which these evolve. After all, a priori objective of the police officer is the resolution of 'something-that-ought-not-to-be-happening-and-about-which-someone-had-better-do-something-now' (Bittner 1974, p. 249). Yet there are multiple objectives an officer could have, and a number of ways in which non-human actants such as Taser may interact with these objectives. In practice, then, determining what impact non-human actors have had is far from straightforward – particularly in policing research, as expecting officers to accurately remember and recount their rationales for using force is a challenging ask (see, for example, Rojek *et al.* 2012). Moreover, as STS often eschews the idea of making firm predictions – stressing, instead, complexity, contingency and unpredictability – it is not always clear for the researcher to tell what an outcome in keeping with STS might look like.

Finally and relatedly, while STS has been useful in asking new questions about the exercise of discretion, one might question how necessary is it to use these approaches to generate new insights about the role of technologies in policing and elsewhere. For example, Sierra-Arévalo's work has uncovered a number of 'unintended' consequences associated with the weapon, including concerns with excessive use of Taser which he has argued ultimately contributes to 'the very problem TASERs were intended to ameliorate' (2019, pp. 420–421). Moreover, it is also important to consider a range of possible outcomes, not just those favoured by STS. In some circumstances, as this case study has detailed, new, unexpected outcomes may be created from the mingling of the human and non-human agency. Yet, in other circumstances the promises of the technology (for example, the

ability to minimise the use of lethal force) may prevail, and in other cases the pre-existing goals of the operator may prevail and the weapon may indeed appear to be a neutral tool. A range of outcomes may be possible, some of which may be keeping with more traditional approaches to technology in policing (Wieser 2006). Indeed, it might be in keeping of the spirit of STS to argue that, while STS insights may appear useful and helpful on some occasions, it should not be assumed that this is always the case. A judicious and even-handed application of the symmetry principle may yet require us to investigate such issues further.

Notes

1. In keeping with the prior literature, the term 'offender level' variables is used throughout. However it is important to point out that many of those who are the target of a Taser may have committed no crime.
2. Alternative explanations for these associations have been advanced including that, as discussed above, Taser officers are sent to more violent incidents (Donald in Doherty 2018). However, while this may explain differences in use of force and assaults between Taser and non-Taser officers who are policing at the same time, this may be less relevant to this study. If we assume that the more confrontational and violent incidents are equally distributed between control and treatment conditions (and Ariel *et al.* have clarified that there were no variations in terms of the work undertaken in the different groups) and that these situations often require a relatively timely response, then it seems plausible that officers under control conditions would also face their 'fair share' of more confrontational and violent incidents. As they would have to use force, and risk assault, to resolve these, this may not be able to explain increases in the frequency with which force is used and officer assaults.

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Data access statement

Further information on the data used and findings of this study may be available on request from the corresponding author. The data are not publicly available due to their containing information that could compromise the privacy of research participants.

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