

The Influence of Social Media on Information Behaviour:
A Policing Context

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Abstract

This research explores the information behaviour in a UK policing context with a focus on how social media influences their everyday work practice. More specifically it focuses on the policing of low-level crime and anti-social behaviour. Police tasks vary from structured and routine, to environments that are uncertain, complex and time pressured. Digital technologies such as social media have the potential to disrupt and destabilise existing work activities through the way people communicate, interact and share information. This is particularly the case for information intensive organisations such as police, which have, in recent years, started to engage with social media. There is a lack of empirical research on police use of social media and how it fits with existing work practices. Similarly there are limited studies that explore information behaviour in policing, and more specifically the mediating role of social media within this context. Therefore it is important to understand firstly how social media influences existing work practices and secondly how it influences information behaviour. To address these research questions, this research takes an interpretive approach using activity theory as a methodological and analytic framework. Semi-structured interviews and observations were conducted in three policing organisations.

In exploring the first question it was found that the same tool (social media) was used in multiple ways, which created new and different ways of policing low-level crime and anti-social behaviour. This in turn led to new and distinct information behaviours in three different contexts. Three models of use were identified. In the emergent model, social media is used to share information with the public but a high degree of ambiguity constrained work practices, which also led to information avoidance. In the augmented model, social media is enhancing existing policing activities and is used for information seeking and to support decision making. In the transformed model, a radical change in policing activities is taking place. This led to new collaborative information behaviours evolving. This study provides new insights by highlighting the complexity and layers of police use of social media in practice. To the authors knowledge no other study has yet to dig below the surface of social media use and explore how police adopt social media in practice and how this adoption manifests in different and emerging information behaviour.

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Chapter One Introduction

1.1 Research motivation

The phenomenon this study will explore is information behaviour in policing, focusing on the mediating influence of social media¹. It is important to understand how information is sought, shared and used to support decision making in organisations. This is particularly so today, as there are currently significant transformations taking place in the way we communicate with one another. This change has been brought about by new digital technologies such as social media as demonstrated in a number of studies (e.g. Ngai *et al.*, 2015; Simeonova, 2017; Skoric *et al.*, 2015; Treem & Leonardi, 2012). Research in information studies, organisation studies and information systems has been exploring the role of technology in organisations for some time, and there is a growing body of literature exploring information processes and the role of technology within work environments (Allen *et al.*, 2014; Singh, 2017). However, many of the studies focus on the features of technological devices and how they aid work tasks rather than the changing information behaviour taking place. Since these studies emerged, technology has become more interactive and faster with information being shared in real-time. This has changed the way we seek, retrieve, share and use information in everyday life. For organisations, social media presents new opportunities but also potential challenges, which are not yet fully understood. This is particularly the case for information intensive organisations such as police, which have, in recent years, started to engage with social media. It is therefore important to explore how these emerging technologies are impacting on police work practices, and in particular their information behaviour.

The remainder of this chapter is organised as follows: section 1.2 presents the research gap this thesis aims to address; section 1.3 presents the research

¹ Social media is defined as “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content” (Kaplan & Haenlein, 2010, p.61)

questions; 1.4 introduces the research context; 1.5 highlights the contribution of this research; and 1.6 gives an overview of the remaining chapters in the thesis.

1.2 Research Gap

This research is motivated by several gaps in the literature on information behaviour in context, in particular the mediating role of technology and its influence on work practices in dynamic environments such as policing. These gaps are presented below.

1.2.1 The importance of context

In the literature on information behaviour, context has become a critical theme to understand information needs, seeking and use (Johnson, 2009). It is stated that without context there is no meaning (Talja *et al.*, 1999) and that it is essential to recognise the individual as inseparable from the context (Johnson, 2003). That is, the way we come to seek out, use and interpret information is entwined in the cultural, historical, social, and political environment in which we exist. There have been different approaches proposed to study context; for example, to understand the social context of information use, Jaegar and Burnett (2010) and Burnett (2015) used theory of information worlds. On the other hand, Fisher *et al.* (2005) put forward the concept of information grounds to understand information flow and human interaction in everyday settings. However, Allen *et al.* (2011) suggest that although many scholars agree that context should be addressed, very few explore how it actually influences behaviour and how information behaviour in turn shapes context.

Information technologies are increasingly embedded in organisational contexts. Aldrich (1999) suggests that organisations provide natural boundaries in which to study context. However, it could be suggested that with the rise in technologies such as social media, information is increasingly shared and exchanged across organisational boundaries with greater ease. This could influence information behaviour, as Courtright (2007 p.285) states, "*IT plays a dual role in context, as it is both a shaper of information practices and the object of shaping by other contextual factors and by users themselves*".

To study the role of social media in policing activity this research turns to the theoretical contribution of activity theory (Allen *et al.*, 2011; Engeström, 2000; Karanasios, 2018). Activity theory views context as dynamic and constantly changing, while at the same time a determinant of history and embedded in action (Allen *et al.*, 2011, p.783). Activity theory is becoming more established in information studies and information systems research particularly when exploring and analysing technologies situated in context (Allen *et al.*, 2011; 2014; Kaptelinin & Nardi, 2018; Karanasios, 2018).

1.2.2 Information behaviour

In the information studies literature, research has mainly focused on information seeking and less on how information is used (Vakkari, 2008; Wilson, 2010). Information is used in many ways; two of these uses are for sharing information with others and using information to make decisions. These two elements of information use are particularly important in the context of policing as Bouwman and Wijngaert (2009) suggest policing is an information intensive activity and in order for them to carry out their jobs effectively they utilise the whole process of seeking, sharing and using information to make decisions. However, information use in the context of policing is an underexplored area in the literature.

In the information studies literature, in comparison to information seeking, information sharing is under-researched. In the context of organisations, research has explored intra-organisational sharing and collaborative sharing (Forsgren & Byström, 2018; Sonnenwald & Pierce, 2000); and inter-organisational sharing (Allen *et al.*, 2014; Loebbecke *et al.*, 2016; Zhang and Dawes, 2006). These studies shed light on information sharing in organisational contexts, but they only consider information shared between individuals and groups in the same organisation (Sonnenwald & Pierce, 2000) or across groups in multiple organisations (Mishra *et al.*, 2011a; Zhang and Dawes, 2006). Policing organisations also share information with people outside their organisation i.e. the public, and expect the public to reciprocate. Social media is being used increasingly to facilitate this. Pilerot (2011) and Mastley (2017) both suggest that research on information sharing and social media is lacking and that more work should be done to illuminate the connection between the two. As it currently stands, less is known about information sharing in policing organisations or the influence of social media in this process.

There is a growing body of research in the information studies literature that has started to move away from the assumption that decisions are made rationally and instead acknowledges intuitive decision making (Allen, 2011; Berryman, 2008; Mishra *et al.*, 2015). This is in line with literature in the field of psychology and cognitive science that has produced on-going debate about the role of two types of decision making processes – System 1 (intuitive) and System 2 (analytic). The formal rules and regulations of policing suggest an analytical decision making model is used. However, research by Allen (2011) and Mishra *et al.* (2015) has found that intuition also plays a role in decision making. It is important to understand how information is used to make decisions and how social media supports this.

1.2.3 Dynamic work environments

Research in the field of information behaviour is vast and has covered a variety of areas such as information seeking in everyday life (Savolainen, 1995; 2008; Sundin *et al.*, 2017), information behaviour of different types of online users (Choo *et al.*, 2014), information behaviour in work tasks (Byström & Järvelin, 1995), information behaviour of professionals (Leckie *et al.*, 1996), amongst others. There is growing literature on the information behaviour of professionals. Studies exploring information behaviour in professions have focused on academics (Herman, 2004; Talja, 2002), scientists (Ellis & Haugan, 1997; Flaxbart, 2001), engineers (Fidel & Green, 2004; Yitzhaki & Hammershlag, 2004), lawyers (Choo *et al.*, 2008; Kuhlthau & Tama, 2001), health care professionals (Leckie *et al.*, 1996; McKnight, 2007) civil servants (Byström & Järvelin, 1995), the military (Sonnenwald, 2006) and the emergency services (Allen *et al.*, 2014; Mishra *et al.*, 2015). With the exception of a few such as Allen (2011) and Baker (2004), few studies have explored the information behaviour of police.

Due to the dynamic nature of policing, traditional information behaviour models are limited in their application to police as a profession (Baker, 2004). Therefore, information behaviour might be better explored in terms of policing activities, rather than the profession as a whole. Literature in information technology and information systems has explored the implementation of new devices and highlighted that the investigation of contextual factors and work tasks is

essential to understand how information is used. They also demonstrate that working practices are changing and adapting, particularly with the development of new mobile technologies (Allen *et al.*, 2008; Manning, 2003; Singh 2017; Sørensen and Pica, 2005). There is a gap in the literature to explore new technologies and the associated information behaviour through the notion of contextual factors and work tasks.

1.2.4 Policing and social media

Literature on policing and new technologies has recently turned to the use of social media. Policing is currently undergoing significant changes (Thomas, Rogers & Gravelle, 2014) for example, since the change in government in 2010, a number of drivers such as the need to demonstrate efficiency and effectiveness of performance, and the privatisation of policing activities, against a backdrop of budget cuts and government pressure to deliver more for less, has led to policing organisations adopting new working practices. This coincides with the transformation of communication technologies, which police are starting to engage with. For example, reports suggest policing organisations have recently realised the potential of social media, enabling them to gain access to a wealth of information and intelligence, (Bartlett *et al.*, 2013; Deneff *et al.*, 2012; Trottier, 2015). At present, studies on police organisations' use of social media largely focus on retrospectively analysing the content of tweets. Less attention has been paid to understanding how these emerging technologies influence change within the organisation or how they fit into the existing work practices of policing. Scarcely any academic research has been carried out to explore the impact of social media on policing activities, particularly everyday practices that are high on the government and public agenda such as the policing low-level crime and anti-social behaviour. Little is known about the influence of social media on information sharing and decision making in policing.

1.2.5 The importance of this research

The sections above highlight the main gaps in the literature. This study differs from the current literature in the following ways. There is a growing body of work exploring information behaviour in the context of work. This is illustrated by research being carried out by networks such as European Network of Workplace Information (ENWI) over recent years. Work in this context has

explored information behaviour in relation to workplace learning (Byström, 2015), workplace information sharing (Forsgren & Byström, 2018; Widén *et al.*, 2016), collaborative information behaviour (Hansen & Widén, 2016; Hyldegård *et al.*, 2015), amongst others. In the field of organisation studies, Leonardi and Vaast (2017, p.150) state there are “*growing considerations of the ways in which social media within the workplace changes organizations and the work of their employees*”. Although this is not from an information perspective it does illustrate the pressing need to understand social media use in organisations.

While research is starting to explore social media use in organisations (Forsgren & Byström, 2018), little is known about how police organisations use social media and how this use influences work practices and in turn information behaviour. Policing organisations have a hierarchical structure and operate in an environment of strict rules and regulations (Manning, 2014), which influences their adoption and use of technology and its mediating influence on information behaviour (Allen *et al.*, 2011). Although police have been using social media since 2008, Innes recently stated in a news report that police were still “*struggling to grasp social media*” (BBC News, 4 September, 2017). This could have serious implications for both the use of social media for information sharing and communication with the public (Burnap *et al.*, 2015), and for the gathering of information and intelligence to aid investigation and support decision making (Williams *et al.*, 2013). This could also have wider implications for accountability and legitimacy. If police are not seen to be engaging with these technologies it could impact on public trust and confidence in policing (Innes, 2014; Webb *et al.*, 2016). It is therefore essential we begin to understand the influence social media is having on police work practices and police officers’ information behaviour.

This thesis takes an interdisciplinary approach to synthesise the gaps in the literature by understanding the influence of social media on information behaviour, in particular, information sharing and decision making. It focuses on the policing of low-level crime and anti-social behaviour (elaborated on in section 1.4). It contributes to the growing work on information behaviour in the context of work and also the wider literature on policing and technology mediated change (this is discussed in section 1.5 below).

1.3 Research questions

To address the gaps in the literature highlighted above, the following questions are explored:

1. How is social media influencing policing of low-level crime and anti-social behaviour?
2. How is social media influencing police information behaviour?

To answer these questions, the research takes a qualitative approach, drawing on a social constructivist meta-theory. It uses activity theory as an approach to study context and also as a methodological and analytical framework. Methods of interview, observations, and think aloud techniques are used for data collection.

1.4 Research context: Policing

In the UK, policing is diverse and incorporates a number of activities and duties. Innes (2014) provides a useful description of the four main categories of policing.

1. *Patrol and response* consists of largely visible police activities carried out by uniformed officers. It involves tasks such as engaging with the public, responding to emergency calls and providing community reassurance. It usually takes place within a neighbourhood policing context.
2. *Prevention and protection* cuts across a number of areas including property crime, domestic violence and counter-terrorism. In this activity police draw upon their protective function by managing potential risks and established threats and applying various forms of situational and social crime prevention.
3. *Investigation and intelligence* includes gathering, managing and working with information to develop intelligence and help support prosecutions by producing cases and also identifying crime patterns such as hotspots. It may also involve the investigation of online crime and online investigation methods.
4. *Specialist services* are used when specialist knowledge and skills are required such as the use of firearms and in times of public order such as mass public events.

In this research the focus is on the core disciplines of *patrol and response*, and *investigation and intelligence*. These are considered the most important for addressing low-level crime and anti-social behaviour, which are high on public and government agenda. The literature suggests these are also the areas where social media is more likely to be utilised.

It is important to point out that policing in the UK is made up of “*a constellation of actors, agencies and processes both within and beyond the police*” (Crawford, 2014, p.174). This includes the police and non-police such as private security, citizens, private sector organisations and local authorities. These make up the ‘extended policing family’ (Crawford, 2014). Policing is discussed in more detail in section 2.5.

1.4.1 Low-level crime and anti-social behaviour

Low-level crimes are not defined in UK criminal law, however the term is used in the media and academia alike. Low-level crime is considered to be minor offences such as shoplifting, car crime, criminal damage, etc. (Innes, 2007; Jacobs & Potter, 1998). Anti-social behaviour is defined in the Crime and Disorder Act (1998) as, “*Acting in a manner that caused or was likely to cause harassment, alarm or distress to one or more persons not of the same household as (the defendant)*” (Home Office, 2004). This includes behaviours such as drug and substance misuse in a public space, disorder and rowdy behaviour, verbal abuse, graffiti etc. (Home Office, 2004). Innes (2007) suggests that although these types of crimes and behaviours are not classed as serious, it is these that people are more likely to experience on a day-to-day basis. This study is concerned with this aspect of policing.

1.5 Research contributions

This research makes important contributions to both academic research and policy/practice. Two key contributions to the literature are presented:

1. It adds new insights on policing and technology mediated change and how it impacts information behaviour. It is one of the first studies to take the officers’ (often neglected) perspective into consideration and observes the use of social media in an everyday policing context. It found that rather than a unified approach in policing organisations; social

media was used in multiple ways, which influenced changes in work practices (see section 5.2). Three different models of social media use were found across the organisations. These were characterised as emergent, augmented and transformed. The research proposes the concept of 'ambiguity' as a way of understanding the multifaceted dimensions of social media use in policing. The study contributes to the literature on policing, but also the wider literature on technology mediated change in organisations, by demonstrating the role of ambiguity in influencing this change. Ambiguity provides agency, which is both enabling and restricting work practices. Activity theory provided a framework to understand the interaction between actors, collective structures and tools.

2. It contributes to the growing literature in information studies on information behaviour in work contexts, by demonstrating the different information behaviours found in the context of policing. Each work activity illustrated distinct information behaviours that were influenced by social media use. In the emergent model, the findings shed further light on information sharing behaviour in work activities and the intervening contextual factors. The findings also show how social media has raised issues around information avoidance. While this has been found in extensive studies on healthcare, this is a new finding in relation to policing.

This study further illuminates how information is used for decision making in the augmented model of social media use. In this model, police use information on social media to both support and justify their decision making. Figure 24 shows a model of social media use and information behaviour in the activity of intelligence gathering. Figure 25 shows the use of social media for decision making in time pressured environments. Thus, the two models illustrate how social media is used for decision making in different spatio-temporal settings.

The transformed model illuminates some of the ways information behaviour changes and adapts from individual information behaviours to collaborative information behaviour through the use of social media. This suggests new collaborative approaches to information sharing and

decision making are evolving as the activity changes into new ways of working.

1.6 Remaining chapters

The remainder of the thesis is structured as follows. Chapter Two provides a review of the literature on information sharing, decision making, information behaviour and policing and social media. The chapter provides an overview of the main themes from the literature and demonstrates the gaps in the research. Chapter Three follows with a discussion of methodology and data analysis, proposing activity theory as a theoretical framework. In this chapter the research design is put forward followed by a discussion of the research site and consideration of ethical issues. In Chapter Four activity theory frames the analysis of the findings in relation to social media use and policing activities. Chapter Five discusses these findings in relation to the literature on policing and technological change. Chapters Six and Seven present the findings and discussion in relation to information behaviour and social media use. The thesis concludes in Chapter Eight with a discussion on the implications for academia and practice.

Chapter Two Literature Review

2.1 Introduction

In line with qualitative research and as suggested by Silverman (2013) the literature review aims to frame the study by highlighting the relevant field of literature in which the research aims to contribute. As is suggested by Wolcott (2009) the literature review connects the study to the wider research context. Therefore this chapter reviews the literature in the fields of information studies, information systems, policing and decision making to highlight the key themes, critically evaluate previous research and identify the gaps in the current literature. As is common in qualitative, inductive research, new themes and concepts emerged through the data analysis process that were not in the initial literature search and instead were later included in the review (Silverman, 2013). Further details are provided in Chapter Three. Therefore as well as providing the context for the study, this chapter also introduces the key concepts, which are discussed further in Chapter Five and Seven. The structure of the chapter is outlined below.

The chapter firstly discusses definitions of information behaviour and the terminology used throughout the remainder of the thesis. In section 2.3 it is acknowledged that many previous studies on information behaviour have often neglected information sharing and information use. This section reviews the available literature on information sharing and focuses more specifically on information sharing in policing in 2.3.2. The literature on information use is limited and therefore this review draws upon the literature in decision making as an element of information use in 2.3.3 and links this to information behaviour in 2.3.4. Section 2.4 reviews the current context of policing and discusses the relevance of this to help understand police information behaviour. It draws on the few studies that have explored information behaviour and policing and suggests this is still a complex area due to the changing nature of policing. This section was developed during the phase of data analysis. In section 2.4.3 the literature from related fields such as information systems and information technology, discuss existing research on new technologies in policing which helps to shed light on how technology may influence information behaviour. Section 2.5 focuses more specifically on social media and policing and

discusses the emerging literature from the field of law and criminology. Section 2.6 concludes the chapter by synthesising the identified gaps in the literature leading to the development of the research questions.

2.2 Defining Information Behaviour

Information behaviour refers to *“the totality of human behavior in relation to sources and channels of information, including both active and passive information seeking, and information use”* (Wilson, 2000, p.49). Wilson suggests that information seeking, searching, and use are subcategories of information behaviour. Similarly Pettigrew, Fidel and Bruce (2001) consider information behaviour to be *“the study of how people need, seek, give, and use information in different contexts”* (Pettigrew, et al., 2001, p. 44). Case (2012), suggests these include a range of activities that make up behaviour for example, noticing a change in climate, deciding to visit another country, researching travel times and schedules, choosing a departure date, buying a plane ticket. They are considered the *“types of behaviours that are basic to human existence”* (Case, 2012, p.3).

In the field of information science, there has been some debate on the use of term information behaviour. Savolainen (2007) suggests the terms *information behaviour* and *information practice* have been used simultaneously to describe the ways people deal with information, however others have suggested the two terms generally refer to different approaches. Savolainen (2007) suggests the term information behaviour may be adequate for describing cognitive processes and behavioural frameworks, but is not when applying social approaches. Savolainen (2007) along with others (McKenzie, 2003; Talja & McKenzie, 2007) prefer the term *information practice* as it:

“Assumes that the processes of information seeking and use are constituted socially and dialogically, rather than based on the ideas and motives of individual actors. All human practices are social, and they originate from the interactions between the members of the community” (Touminen, Talja & Savolainen, 2005, p.328).

The debate continued and led to an online discussion in 2009 between Wilson and Savolainen in a response to Wilson’s review of Savolainen’s 2008 book;

Everyday information practices: a social phenomenological perspective (see *Information Research*, 14(2) paper 403 for the full debate). Whilst Savolainen and others maintain that information behaviour and information practice are closely related and complementary, albeit from different perspectives; Wilson suggests practice is an element or mode of behaviour, much like actions, activities, routines and habits. Although the distinction between the two terms remains, the term 'information behaviour' seems to have prevailed as an 'umbrella' term to relate to a variety of information-related phenomena (Case, 2012, p.91). This thesis does not intend to add to the debate or distinguish between the two terms. Instead it will adopt the more established phrase of *information behaviour* to study how people need, seek, give, and use information (Pettigrew *et al.*, 2001) in the context of police work.

2.3 Information sharing and use

Although information behaviour can be defined as "*the study of how people need, seek, give, and use information in different contexts*" (Pettigrew *et al.*, 2001, p. 44), research in this area has largely concentrated on the information seeking behaviour and information needs of individuals (Vakkari, 2008; Wilson, 2010). Tuominen (1996, cited in Kari, 2010) suggests information use is the most essential research area in studying information behaviour; it is therefore surprising that little attention has been paid to it. It is important to move beyond information seeking behaviours and explore other elements such as information sharing and information use. People seek out information because they intend to use it to share with others, for learning purposes, to make decisions, complete tasks etc. This is particularly important in policing, who as an organisation rely on the sharing of information to protect the public by detecting and reducing crime.

Information use can start as soon as people have located and linked to an information source (Hart & Rice, 1991). Maybee (2007) categorised different ways information can be used; for decision-making and problem-solving, forming a personal point of view, sharing the information with others, and creating new knowledge. Kari (2010) suggests information use can be conceptualised in various ways depending on the approach taken. Here information use is taken as something that is oriented in action, that is, the

practical applications of information (Tuominen & Savolainen, 1997; Savolainen, 2009). In this sense information use is both functional and constructive (Tuominen & Savolainen, 1997). This thesis aims to explore how social media is influencing information behaviour and in particular how information is used in policing of low level crime and anti-social behaviour. Although information use has received less attention than information seeking within the individual approaches to information behaviour, information sharing and decision making has started to gain some attention within organisational or collaborative contexts of information behaviour (Talja & Hansen, 2006).

2.3.1 Information sharing

Information sharing can be defined broadly as “*the voluntary act of making information available to others*” (Davenport, 1997, p. 87). This definition fits with the nature of policing that relies on information offered by the public and also information shared within the organisation and between organisations.

Research in the context of work and Everyday Life Information Seeking (ELIS) suggests that collaborative or organisational information seeking and sharing is as common as individual information behaviour (Hansen & Järvelin, 2005; Talja & Hansen, 2006). This is particularly the case in today’s world where collaborative information technologies such as document sharing, wikis, social networking sites, videoconferencing etc. enable information sharing between individuals and groups to solve problems (Choo, 2016; Talja & Hansen, 2006). From an organisational perspective, Choo (2016) suggests that organisations influence how their members use work-related information (p.153). In organisations, information is sought out by individuals and groups, and used to “*acquire knowledge and enable organisational learning*” (p.153). Both Fidel *et al.* (2004) and Hansen and Järvelin (2005) stress the role of context, and suggest that information behaviour is embedded in everyday settings and work practices and therefore should not be studied separately.

Yang and Maxwell (2011) conducted a literature review of information sharing in public sector organisations and suggested three contexts of information sharing were present in the literature: interpersonal, intra-organisational, and inter-organisational, each presenting a series of factors that influence information sharing behaviours.

Interpersonal information sharing focuses on relationships and how people share information within these. Yang and Maxwell (2011) suggest information sharing can become more complex within an organisational context, which may hinder information sharing.

In professional settings, research in intra-organisational information sharing has been studied by Sonnenwald (1995) and Sonnenwald and Pierce (2000) who proposed the concept of 'contested collaboration', highlighting the complex interplay between social interactions. Sonnenwald and Pierce (2000) also found that interwoven situational awareness and social networks were important for information sharing and task completion. They suggest that groups and teams may have different goals, priorities, perceptions of quality, and diverse work practices. In a similar setting Prekop (2002) explored collaborative information seeking and found different types of information seeking roles within the teams, i.e. information referrers, gatherers, verifiers, instigators, indexers, group administrators and managers.

In comparison to interpersonal factors, intra-organisational factors were found to be much more complex as factors are interrelated (Yang & Maxwell, 2011). Yang and Maxwell (2011) present these as nested within different layers in Figure 1 below. Whilst not all of these will be discussed in detail, it is worth highlighting a few within the different layers, particularly those that may be relevant in a policing context.



Figure 1 Factors influencing intra-organisational information sharing (Yang & Maxwell, 2011)

Organisational structure, such as the hierarchical structure found in a bureaucratic organisation (such as government and policing), can create barriers to information sharing as information is generally located centrally and decision making is limited due to the need for approval from higher levels (Kim & Lee, 2006). However formal rules and procedures were not found to negatively impact information sharing on their own (Kim & Lee, 2006). Willem and Buelens (2007) suggest that other organisational factors are more critical for enabling information sharing. Organisational culture may influence information sharing if the value of information sharing is not part of the organisation's culture (Zhang *et al.*, 2005, cited in Yang & Maxwell, 2011). Therefore the values, attitudes and beliefs of the individual must align with those of the organisation. This is what Choo (2016) terms *information culture*: “the values, norms and attitudes that people have about creating, sharing, and using information – has its own effect on organisational information behaviour” (p.163). Inconsistency between these can have a negative impact on sharing behaviours (Yang & Maxwell, 2011). In policing, organisational structure and culture may not only influence information behaviour but could also influence the ways in which information technologies such as social media are adopted or not, and hence influence information sharing. In Figure 1 above, structure and culture are depicted as influencing the lower levels of factors, including information technology. Whilst this may be the case, research in policing demonstrates that information technology also has the potential to create new

organisational cultures (Ericson & Haggerty, 1997). Therefore the figure above may be too simplistic to address the complex nature of information sharing within a policing context. Yang and Maxwell (2011) acknowledge that as yet, there is little research within the information field to demonstrate how the factors are related. While these studies shed light on how teams of people share information with each other in intra-organisational settings, they do not explore the sharing of information between multi-agencies.

Inter-organisational information sharing is considered more complex than intra-organisational, as factors are more diverse when different organisations interact (Yang & Maxwell, 2011). The literature suggests that information sharing across boundaries of organisations is explored from three perspectives: technological, organisational, and political. Zhang and Dawes (2006) found that technology can enhance the efficiency and effectiveness of information sharing, however Lee and Rao (2007) also found IT to be a challenge for security, as government organisations deal with particularly sensitive information. Similarly a study by Mishra *et al.* (2011a) explored silver (tactical) commanders from the emergency services in the UK (i.e. police, fire and ambulance) and found that technological factors such as the reliability and availability of technological tools emerged. It was found that technology must be both reliable and easily accessible, and interoperable to aid information sharing (Mishra *et al.*, 2011a). Similarly Kim and Lee (2006) suggest a high level of IT use by organisational members can improve information sharing.

Organisational factors such as culture (Gil-Garcia *et al.*, 2007; Kim & Lee, 2006); trust (Akbulut *et al.*, 2009; Dawes, 1996; Gil-Garcia *et al.*, 2010); roles (Pardo *et al.*, 2006); leadership (Akbulut *et al.*, 2009; Willem & Buelens, 2007); and resources (Zhang & Dawes, 2006) were found to interact in complex ways and can hinder information sharing. Research has found that regulation on policy and legislation have a strong influence on public sector information sharing (Gil-Garcia *et al.*, 2007; Zhang & Dawes, 2006). These were found to both enable sharing by reducing risk and providing formal guidelines (Yang & Maxwell, 2011) but also create barriers for sharing across organisational boundaries (Gil-Garcia *et al.*, 2007). If policies and procedures do not align between organisations then security of information may be at risk, which could also impact on trust. Mishra *et al.* (2011a) found trust influenced information sharing – if people trust one another then confidential information is more likely to be

shared between agencies. This was also found in studies by Zhang and Dawes (2006), and Willem and Buelens (2007). Both suggest trust between individuals is critical as it can enhance communication and enable efficient information sharing. Barriers to information sharing can occur when there is a lack of trust among members (Ardichvill, Page & Wentling, 2003).

Whilst the above studies shed light on factors that may influence information sharing in interpersonal, intra-organisational and inter-organisational contexts, less is known about how these factors interact and influence one another. Also within the context of public sector organisations and policing in particular, information is not just shared within and between organisations, but also with the public. This is different to inter-organisational sharing as the public are not governed by the same rules, norms, values and beliefs as organisations. Instead, the public exist within their own social environment or *small world* (Chatman, 1999), which may influence the way information is accepted and used or not used.

2.3.2 Information sharing and policing

This section reviews the literature on information sharing in policing. The context of policing is discussed in more detail in section 2.5. The nature of policing is that support staff, officers, managers, and senior personnel often carry out work tasks and share information from remote locations. Although physical meetings do take place, information is increasingly shared through the use of mobile technologies and applications (Allen *et al.*, 2008; Bouwman & Wijngaert, 2009; Singh, 2017; Singh & Hackney, 2011; Sørensen & Pica, 2005). More importantly police rely on information sharing with the public and this has always been a two-way process. This could be in the form of the public responding to appeals for information from police or the public voluntarily offering information about a crime. Therefore it could be argued that the public are a main source of acquiring information about a crime. Traditionally this has been done over the telephone, face to face and in writing, however information sharing between the public and policing organisations is increasingly incorporating virtual methods of communication such as live web chats, online reporting, and interaction through social media (Burnap *et al.*, 2015; Lowe & Innes, 2012; Williams *et al.*, 2013). The literature suggests that information sharing is already a complex field taking into account contextual, social and cultural factors, work roles, personal

experiences and group dynamics, however little research has been conducted that explores information sharing in policing—most focuses on the impact of technology (literature on the use of technology and information behaviour in policing is discussed in section 2.5 below). Literature suggests policing organisations are starting to communicate with the public through new channels such as social media, which is a fruitful area to explore how information is shared in this medium. Therefore the development of technology and virtual ‘information grounds’ (Fisher *et al.*, 2005; Fisher & Naumer, 2006) has opened up new areas of study which are particularly important in the context of policing. It is important to explore these new fields of information behaviour to understand how new technologies such as social media are mediating information sharing between policing organisations and the public. This thesis aims to explore this new dimension and contribute to the literature in the area of information behaviour, where very little research has explored the dynamic context of policing.

2.3.3 Decision making

A form of information use is decision making (Maybee, 2007). Although decision making is not usually the focus of information behaviour studies, Case (2012) suggests that it is still very much intertwined with aspects of information behaviour. A classic definition of a decision is choosing between two or more options (Hardman & Macchi, 2003) through a multistage cognitive process (Jungermann, 2000). Decision making is a research area in its own right and there is great debate in the decision making literature on how the process of making decisions actually takes place. It is beyond the scope of this thesis to add to that debate. Instead this thesis considers decision making as part of information behaviour and therefore explored from an information perspective.

2.3.4 Decision making and information behaviour

Classic decision making research utilised experiments and mathematical modelling to identify optimal ways of making decisions (Case, 2012). These were usually carried out in well-structured settings that could be highly controlled, and suggested that individuals go through a process of analysing available options before deciding on an optimal course of action. While these normative models of decision making seem plausible when under certain

controlled conditions and calculating probability, they have been criticised for failing to account for how people make decisions in real life situations (Klein & Klinger, 1991; Kahneman, Slovic & Tversky, 1982).

Simon's theories of bounded rationality suggested that human cognitive capacities were limited and that individuals do not have time to go through the slow process of analysing every available option to produce the optimal outcome (Simon, 1997). Instead they accept an alternative that is good enough to allow them to reach the desired outcome, therefore they 'satisfice' (Simon, 1997). Others have also suggested this is particularly the case in fast paced environments with a high degree of uncertainty and where time is often constrained (Klein & Klinger, 1991). From an information perspective, Agosto (2002) carried out a study on young people's web based information searching and found some support for Simon's bounded rationality and satisficing. People stop searching for information once they perceive they have enough (Berryman, 2008; Simon, 1997).

In response to the doubts of classical decision models that relied on normative models, other researchers in the field of decision making began to embark on descriptive models, which explore how people actually make decisions in natural contexts (Lipshitz *et al.*, 2001). Case (2012) suggests it is these descriptive models that are of more use to information behaviour. An example of this is naturalistic decision making (NDM), which is defined as, "*the way people use their experience to make decisions in field settings*" (Lipshitz *et al.*, 2001, p.334). Expertise and intuition are considered to be primary factors in NDM models, and particularly so in contexts of uncertainty and time pressure. Berryman (2006) found support for NDM when studying how policy makers in dynamic and complex environments decide when to stop seeking information. She suggests the need to develop a framework to help make judgements on enough information that highlights the fluid, multistage process of decision making, rather than a process that is linear.

Allen (2011) used Activity Theory as a framework to explore information behaviour and decision making in police traffic stops. This is one of few studies that explored the information needs of police officers to make decisions during time pressured and uncertain contexts. Allen found that although organisational rules dictate an analytic decision making process, police used a combination of

intuition and analytic decision making, reflecting a complex interplay between the two decision making systems that are largely complementary. Allen found support for the dual-processing model of decision making, however as five modes of decision making were identified, intuitive; intuitive-led, supported by deliberative information behaviour; deliberative information behaviour moderated by intuition; truncated, deliberative information seeking; and parallel information behaviour (intuition and deliberation working together) (Allen, 2011, p. 2179), this suggests dual-processing models are more complex than originally thought.

Mishra *et al.* (2015) found similar results to Allen (2011) in a study on decision making of silver commanders from multiple agencies in the emergency services. She suggests that although silver commanders are not encouraged to use intuition (due to its association with error prone decisions (Kahneman & Frederick, 2005)), when a silver commander is experienced and confident, they are better able to recognise patterns and seek information quickly to manage the incident efficiently (Mishra *et al.*, 2015). They use a combination of System 1 (intuition) and System 2 (analytic) decision making, however this is not deliberative. This finding contradicts current models used for decision support in emergency services (Mishra *et al.*, 2015).

Choo (2009) applied Hammond's cognitive continuum theory (Hammond *et al.*, 1987) to information use and the accuracy of detection in early warning systems for disasters. He found that accuracy (i.e. making a correct decision) improved when there was congruence between the threat information environment and the information use environment of the system monitoring the threat (p.1080). Choo (2009) states, "*both environments may be analyzed as a balance of factors that induce cognitive (rule based), intuitive (pattern-based), or quasi-rational (hybrid) information processing*" (p.1080).

While each of these studies are carried out in different contexts, it could be argued that each environment involves time constraints, uncertainty and complex tasks. Although they differ somewhat in their findings, they all suggest that intuition plays a role in making decisions. Allen (2011) and Mishra *et al.*, (2015) suggest, the use of intuition in policing is not encouraged and specific policies and models are in place to guide a more analytic decision making

process. For example, Police in England and Wales use the National Decision Model.

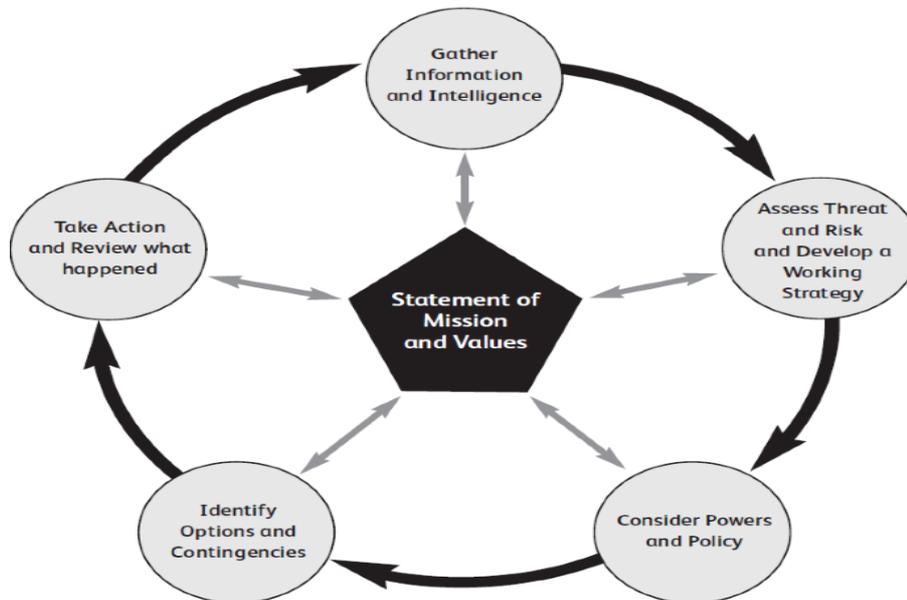


Figure 2 Police National Decision Making Model (ACPO, no date)

This model was developed as a replacement for the Conflict Management Model. While the Conflict Management Model was considered effective for making decisions, the model was generally used in times of emergency and conflict (ACPO, no date). The National Decision Making Model was introduced as it could be applied to guide decision making in any situation (ACPO, no date). The two models are essentially the same; however the National Decision Model has greater emphasis placed on the values of the organisation, which are seen as central. It is suggested that if the core values are not shared then there is potential for poor decision making (Orford, 2012).

Although findings from Mishra *et al.* (2015) and Allen (2011) suggest police and silver commanders deviate somewhat from these models when making decisions in time pressured and uncertain environments; the role of information in these models to support decision making is still considered central and of utmost importance in information behaviour. Fisher and Kingma (2001) suggest that if information is inaccurate or wrong, then decisions are likely to be flawed. As the literature below discusses, policing is currently going through radical change; working practices are changing as police adopt new technologies leading to information behaviours taking new forms. Information is essential for

policing organisations to carry out their duties (Bouwman & Van de Wijngaert, 2009) but little is known about how information from social media is utilised in every day policing activities such as low level crime and anti social behaviour.

2.3.5 The gap in literature on information behaviour

- Information behaviour research has largely focused on information seeking, less is known about information sharing and use (Wilson, 2010).
- It is important to understand not just how information is sought, but also how information is used in order to understand the full range of information behaviour.
- Literature has explored information sharing and decision making which are important elements of information behaviour in policing (Bouwman & Van de Wijngaert, 2009).
- Literature on information sharing has identified factors involved in intra-organisational, and inter-organisational sharing, but little is know about 1) how these factors interact within a policing context, 2) how information is shared between policing organisations and the public, which is essential for police work.
- Literature also suggests that decision making is an important element of information behaviour that is currently under explored. Decisions are made on how and when to seek information, what kinds of information are needed, when to stop searching and how to use information (Case, 2012).
- Allen's (2011) findings suggest the importance of understanding information use in terms of decision making in the context of policing, as it is an information intensive activity that operates in environments with varying degrees of time constraints, complexity and uncertainty.

2.4 The context of policing

This section demonstrates why an information behaviour perspective is important for the study of policing. It firstly defines policing tasks and activities, followed by a review of the literature on information behaviour and policing, and then moves on to review studies on new technologies in policing.

2.4.1 How are policing tasks and activities defined?

Research in policing suggests that the scope of policing activities is difficult to define, with some scholars such as Egon Bittner proposing that policing can be described generally as intervening in “*every kind of emergency*” (2005, p.150), whilst others such as Jean-Paul Brodeur (1983; 2010) divided policing into “*high policing*” and “*low policing*”. High policing is related to intelligence gathering which not only refers to the gathering of data, but also the surveillance of physical and social space for crime control (Brodeur, 1983). Brodeur (2007) describes this as the type of activities carried out by intelligence agencies such as the US FBI and CIA, and the British MI5 and MI6 in the name of (national) security. On the other hand, low policing refers to ‘everyday’ policing or work performed (usually) by uniformed officers. This may also include intelligence gathering, but this would be in the name of (more localised) crime and building criminal cases (Brodeur, 2007). However Innes (2014) suggests Brodeur’s definition is too wide and instead presents four main categories of policing. As outlined in section 1.4 these are, *patrol and response*; *prevention and protection*; *investigation and intelligence* and *specialist services*.

Innes (2014) suggests viewing policing in this way enables us to focus on the core disciplines of policing by simplifying the organisation of police activities (p.68). In this sense, this thesis could be seen to focus on what would be considered low policing, that is everyday policing, and more specifically the core disciplines of *patrol and response*, and *investigation and intelligence*.

As well as the broader policing functions, Millie (2014) suggests that contemporary policing activities include a range of tasks such as dealing with anti-social behaviour, crime reduction, public reassurance, offender management, traffic duties, tackling terrorism, event security, disaster management and so on. These can take the form of structured administration tasks and routine patrol of physical space, to help reduce crime and anti-social behaviour, or carrying out tasks in time-pressured, uncertain and complex environments such as attending emergency situations.

Ackroyd *et al.* (1992) demonstrate that police work is an “*eclectic assemblage of activities*” (p.103) where everyday policing is made up of various tasks and activities, which are broken up into segments and arranged in ad-hoc ways depending on previous obligations and duties. Studies have found that generally

police officers have rather large discretion and autonomy over how to organise their working day, but there is a need to prioritise their tasks in terms of importance (Ackroyd *et al.*, 1992; Bittner 1967; Innes, 2014). Ackroyd *et al.* (1992) make a simple distinction between those tasks that are considered *“important, less important, necessary because that’s what the sergeant wants, or because that’s real police work”* (p.109). They use the example of an emergency call from the public as ‘real police work’ and something to act upon quickly at the expense of other tasks and taking high priority. An administrative task such as writing up a report would be lower down the list of priorities. A further dimension is the notion that some police tasks that are at the lower end of the priority list can sometimes be referred to as ‘loose ends’ (Ackroyd *et al.*, 1992). These are tasks that are on-going and as such may require follow ups, revisits, updating information entries etc. Ackroyd *et al.* (1992) suggest that police tasks are rarely started and finished at a single point in time and that they often take place over several days, weeks and months. Therefore work tasks in policing may not be as simple as in other professions where tasks are less reactive and subject to more prior planning. This may influence their information behaviour.

2.4.2 Information behaviour in the context of policing

As noted, research in the field of information behaviour is vast and has covered a variety of areas such as information seeking in everyday life (Savolainen, 1995), information behaviour of internet users (Choo *et al.*, 2000), information behaviour in work tasks (Byström & Järvelin, 1995), information behaviour of professionals (Leckie *et al.*, 1996) amongst others. Studies exploring information behaviour in professions have focused on academics (Herman, 2004; Talja, 2002), scientists (Ellis & Haugan, 1997; Flaxbart, 2001), engineers (Fidel & Green, 2004; Yitzhaki & Hammershlag, 2004), lawyers (Choo *et al.*, 2008; Kuhlthau & Tama, 2001) and health care professionals (Leckie *et al.*, 1996; McKnight, 2007). However with the exception of a few (i.e. Allen, 2011; Baker, 2004) little attention has been paid to the information behaviour of police, for example in Case’s (2012) review of information seeking behaviour, police get one line of mention out of his 491 page book. The activity of policing is information intensive as Bouwman and Van de Wijngaert (2009) state,

“Information is crucial to police officers carrying out their daily duties, not only in terms of obtaining the right information on time and in an

adequate way, but also with regard to sharing information with colleagues and providing information to relevant information systems” (p.186).

Manning (2014) suggests police deal with and control huge amounts of both formal and informal information due to their traditional status as being “*at the centre of governmental interfaces with the public*” (p.27). Similarly, Innes (2014) argues that police work operates within an ‘information environment’ which influences how police understand and make sense of what is happening. He goes on to suggest that recent advancements within this information environment, such as access to online information in various forms, has changed the way police interact with information through the use of technologies. It is therefore important to develop further understanding of the information behaviour within the context of policing activities.

It could be argued that one of the reasons why little attention has been paid to police information behaviour is due to the difficulty in gaining access to the organisation (Reiner & Newburn, 2008). Another reason may be due to the varied and complex nature of police tasks and activities (as discussed above), not to mention the hierarchical structure of the police service. The different dimensions of police work may require different needs and information processes; therefore it is difficult to encompass policing as one profession. This is supported by the findings of Baker (2004) who applied Leckie *et al.*'s, (1996) Information Seeking of Professionals model, to explore the information needs of female police officers working in undercover prostitution work. She found Leckie *et al.*'s model was insufficient to explain “*the fast-paced, give and take, real-time information world of decoys*” (p.10). Baker suggests variables such as context, complexity, immediacy of the situation and the uncertain nature of the task all impacted on the complex information behaviour of the officers. The author concludes that although Leckie *et al.*'s model may apply to professions with traditional work tasks in institutional settings, it is too formal to apply to police activities such as work in uncertain and chaotic environments that rely on information sources from the immediate environment. Due to the nature of police work as highlighted above, it is doubtful that a general approach to police information behaviour could ever be established. As Baker (2004) demonstrates, it would be more appropriate to view policing in terms of tasks and activities, rather than a profession as a whole.

Task complexity has been linked to uncertainty (Vakkari, 1998). If the environment is uncertain (as policing often is), then the task is likely to be viewed as more complex (Culnan, 1983). One area of information behaviour research that explored this is Byström and Järvelin's (1995) task complexity model. Byström and Järvelin (1995) suggest tasks are considered complex when an individual lacks an adequate mental model that would have enabled them to evaluate information efficiently. As the complexity of the task increases, more information is required to solve the problem or make a decision, and individuals are likely to consult more information sources and prefer to confer with people, rather than documentary sources. Further to this, as the complexity of the task increases, the successfulness of information seeking decreases. However these findings were based on deliberative seeking of information to complete conscious analytic work tasks (Allen, 2011). While their model sheds interesting light on the notion of tasks, it may lack the ability to explain and reflect the dynamic environment that is involved in policing activities.

The notion of uncertainty and how individuals make sense of their environment is also bound up with the notion of ambiguity (de Alwis *et al.*, 2005). Ambiguity is said to enact sense-making in organisations and refers to there being several different interpretations at the same time (Weick, 1995). Martin (1992) suggests, *"ambiguity is perceived when a lack of clarity, high complexity, or a paradox makes multiple (rather than single or dichotomous) explanations plausible"* (p.134). Allen and Wilson (2005) suggest that the introduction of new technology into a work environment could illicit uncertainty and ambiguity, which may influence information behaviour. McCasky (1982) suggests that during times of change, ambiguity may present itself in numerous ways to trigger sense-making, and provided 12 characteristics of ambiguous situations (Table 1 below).

Characteristic	Description and Comments
Nature of the problem is itself in question	"What the problem is" is unclear and shifting. Individuals have only vague or competing definitions of the problem. Often, any one "problem" is intertwined with other messy problems.
Information (amount and reliability) is problematical	Because the definition of the problem is in doubt, collecting and categorizing information becomes a problem. The information flow becomes either overwhelming or insufficient and data may be incomplete and of dubious reliability.
Multiple, conflicting interpretations	Individuals develop multiple, and sometimes conflicting, interpretations.
Different value orientations, political/emotional clashes	Without objective criteria, individuals rely more on personal and/or professional values to make sense of the situation. The clash of different values charges the situation.
Goals are unclear, or multiple and conflicting	Individuals do not enjoy the guidance of clearly defined, coherent goals. Either the goals are vague, or they are clearly defined and contradictory.
Time, money, or attention are lacking	A difficult situation is made chaotic by shortages of one or more of these items.
Contradictions and paradoxes appear	Situation has seemingly inconsistent features, relationships, or demands.
Roles are vague, responsibilities are unclear	Individuals do not have a clearly defined set of roles they are expected to perform so decision making becomes vague or in dispute.
Success measure are lacking	Individuals are unsure what success in this situation looks like or have no way of assessing the degree to which they have been successful.
Poor understanding of cause-effect relationships	Individuals do not understand what causes the situation. Even if they are sure of the effects they desire, they are uncertain how to obtain them.
Symbols and metaphors used	In place of precise definitions or logical arguments, individuals use symbols or metaphors to express their points of view.
Participation in decision making is fluid	The key decision makers and influence holders are changed as players enter and leave the decision arena.

Table 1 Characteristics of ambiguous, changing situation. Adapted from McCaskey (1982, p.5)

Allen and Wilson (2005), in their study of the implementation of mobile information systems into a UK police force, found that it wasn't just the interpretation of the situation or task that was considered ambiguous, but also understanding the information technology that was implemented. They found that where high levels of ambiguity about the use and reasons for use of information technology existed, this challenged existing work practices and resulted in a rejection of the new technology. In contrast, where ambiguity was reduced through alignment with existing values and practices, the technology augmented their work practices. This suggests that whilst information behaviour may be influenced by the type of task, and the environment or situation in which the task takes place, it may also depend on the interpretation of the source of information. Therefore rather than the task influencing the information behaviour, as suggested by Byström and Järvelin (1995), it may be more complex. It could be the combination of the interpretation of the task, the interpretation of information source (in this case technology) and the interpretation of the situation that influences the information behaviour of police (Allen & Wilson, 2005).

2.4.3 New technologies and policing

While studies in information behaviour have paid less attention to policing, over the last decade, studies in related fields such as information technology, organisation studies and information systems have explored the use of new technologies in policing (Allen *et al.*, 2014; Singh, 2017). Policing has changed significantly over the years and is still transforming and emerging. While many studies have explored technological change in policing organisations, different perspectives on the extent to which technology has changed policing have emerged (Chan, 2001). On the one hand, Manning (1992) suggests the influence of information technologies have been constrained by the traditional structure and role of the police officer (p.350). This suggests the organisational culture and hierarchical structure of policing may contradict attempts to adopt new technologies. On the other hand, studies have demonstrated that new technologies can make police work faster, more efficient and transform the spatio-temporal context in which officers operate (Harper, 1991). Similarly Ericson and Haggerty (1997) found that information technology had a profound impact on the way officers think, act and report their activities, leading to a

radical alteration in the structure of police organisations by blurring traditional divisions of labour (p.388) and creating new cultures (p.412).

Although some of the studies discussed below do not attempt to explore information behaviour per se, through their exploration of technology implementation, they explore new ways of working, which can shed light on police information behaviour through the lens of new artefacts of study. For example, Sørensen and Pica (2005) explored the use of mobile technologies in operational policing in a UK police force and found that the type of mobile device and interaction with it was dependent on the physical context of the situation they were facing. Their findings suggest a complex interaction between individuals and mobile technology takes place that is situated by the physical and virtual contexts of work.

Allen *et al.* (2008) explored mobile information use in police activities from an activity theory perspective. They found information processes in stop and search and traffic operation activities were carried out more efficiently, while mobile information use in community policing provided access to more detailed and timely information. This suggests mobile information systems have the potential to allow more efficient and richer information flows in a range of policing activities. The authors also suggest a cyclic process takes place where the conditions of the task drive the need for information and the information drives the task.

Bouwman and Van de Wijngaert (2009) produced similar findings to Sørensen and Pica (2005) and Allen *et al.* (2008) that suggest contextual and task-related factors seem to play more of a role in mobile technology use than the characteristics of individuals. While these studies shed light on the types of technology adopted and how it is used, they do not explore the impact on the officers that are using them.

Singh and Hackney (2011) and Singh (2017), however did attempt to explore this. Singh and Hackney (2011) found mobile technologies enhanced the tasks of different groups of police officers and enabled greater efficiency of performance in time, resources and workflows. As officers were able to access information from remote locations this ensured they were better informed before attending an incident, which also enhanced decision making and provided a

safer working environment (Singh & Hackney, 2011). In a more recent study, Singh (2017) explored the use of Tablet PCs and found they enabled better management of information and police effectiveness, which facilitated improved information sharing, information access, and recording by all users. Both of these findings suggest mobile technologies transformed police processes to become more virtual and in turn changed the organisational culture. These studies support Allen *et al.* (2008), Bouwman and Van de Wijngaert (2009) and Sørensen and Pica (2005), who suggest the information behaviour and mobile technology use of police officers, is related to the task and the context.

This literature demonstrates research on policing and information behaviour has largely focused on the use of mobile technologies and specifically the mobile devices themselves, to aid police work, such as giving officers access to information from databases and intelligence systems in more efficient ways (Singh & Hackney, 2011). It could be argued that more attention needs to be given to the information behaviour of policing activities, rather than the types of devices used, particularly as technology is constantly advancing and changing. This is evident over recent years with the development of faster wireless networks and social media communications which have altered the way we seek, receive, use and share information.

2.4.4 The gap in information behaviour and policing literature

- Police information behaviour can be explored in relation to tasks and activities to incorporate a range of contextual factors such as time pressure, complex and uncertain environments as well as routine and structured tasks.
- Research on mobile technology illuminates a new dimension to information behaviour research, but tends to focus too narrowly on the device itself and the effectiveness of it, with less attention to the influence on information flows and behaviour. It could be argued that the types of device used is less important than the way the information is actually received, interpreted, and used within different contexts.
- There currently remains a gap in the literature to explore information behaviour in relation to work tasks and within the context of policing.

2.5 Policing and Social Media

As this thesis aims to explore information behaviour in policing, it is important to consider the wider policing context and the current changes that are taking place. These will form the backdrop to the research and allow us to explore the contextual factors of police information behaviour. This section reviews the literature around the current developments in policing, particularly the recently adopted social media. It discusses the uses of social media that are emerging from the literature, highlighting the UK riots of August 2011² as a turning point in police engagement with social media. It is recognised that other events from around the world have also influenced engagement with social media, but it could be argued that in the UK, the August 2011 riots drew attention to social media in new ways, which is reflected in the growing academic interest in police engagement with social media since 2011.

2.5.1 Policing in the “Google generation” – new technology and policing

Policing is undergoing significant changes in the way it manages and shares information both within police organisations (Lowe & Innes, 2012) and with the public (Cooke & Sturges, 2009; Mawby, 2010). A number of these drivers have revolved around political pressure to deliver more for less, and at the same time providing greater police visibility on the streets to help improve public confidence and community engagement (Lowe & Innes, 2012). Other changes in UK policing have occurred due to the adoption of new technologies.

Advances in technology and the internet have influenced the ways policing organisations operate (Lowe & Innes, 2012). Orlikowski (2000) suggests that while organisational change can be influenced by technology, it is more than a physical object that exists independent of the organisation; its adoption and influence are also shaped by social, cultural and political factors. Police adoption of mobile technologies have increased over the last decade to produce better informed officers, improve coordination of limited resources and provide more efficient and informed responses to crime (Manning, 2003). This new

² Between 6-11 August 2011, thousands of people in London and other towns and cities across England rioted. This resulted in looting, arson and the deaths of five people. It started with people protesting over the death of Mark Duggan who was shot dead on 4 August 2011 by police. The riots were said to have been orchestrated through the use of social media networks such as Blackberry Messenger, Twitter and Facebook.

incorporation of information technologies within the police was labelled 'e-policing', with the aim of mobilising information, making it available to officers as and when they needed it, through mobile devices (Povey, 2001). Recently the expansion of digital technologies and improved access to the internet via wireless, mobile devices has changed the way we seek, receive, use and share information. We have become what Rowlands *et al.* (2008) terms the "*Google generation*".

2.5.2 Social media and policing

Social media has enabled us to access and share global information in 'real-time' by uploading images, text and data on platforms such as You Tube, Facebook, Twitter, and Flickr etc. These are distributed instantly to a mass of 'followers', 'friends' and 'viewers' who each have their own network of people to share information with. Some have argued that police have viewed this shift in communication as a potential disruption to their 'image' (Mawby, 2010). Thompson (2005) suggests media communications have become much more complex through new mediated visibility and made it virtually impossible to control the words and images that flow through the public domain. Goldsmith (2010) suggests this may become a problem for organisations such as the police who are one of the most visible institutions to the public (Mawby 2002; McGovern, 2009). The 2009 G20 protests demonstrated the power of 'citizen journalism' when a member of the public captured images of police misconduct against Ian Tomlinson who minutes later died (Greer & McLaughlin, 2010). These images were quickly distributed via social media leading to a public enquiry, which raised concerns of police accountability and legitimacy (Lee & McGovern, 2012).

Although there have been examples where social media has highlighted police misconduct, the National Policing Improvement Agency (2010) suggests police use of social media should be encouraged as a further tool for communication with the public. By setting up their own social media accounts, police have the advantage of gaining more control over what information is shared with the public while also facilitating two-way communication (Heverin & Zach, 2010). This has the potential to enhance community engagement by sharing information about what's going on in their area and allowing police organisations

to gather information from social media as a means of 'community intelligence' to inform decision making.

As police adoption of social media is still relatively recent, there is little empirical academic research on its use, however papers have started to emerge across various disciplines. Reports from the fields of law and criminal justice began to explore how social media was being used by police and the potential it had both as a form of intelligence gathering and an opportunity for engagement with the public. Niven and Massie (2010) provide a case study illustrating how open source (public available) information on social media is used as an investigate tool to locate suspects wanted by the police using surveillance techniques. They suggest police organisations can utilise information generated by the public to aid their investigations and provide intelligence to inform decision making. However this report was not an academic study and was based on only one particular case. Similarly a report by Marsico Jr (2009), a District Attorney in the U.S. suggests social networking websites are the new "*fingerprints of the twenty-first century*" (p.967) as information can be gathered from social media and used as evidence in a court of law. The report describes various methods police could use to gather evidence on individuals; however he also warns that police must ensure that evidence gathered from social media is in conjunction with other evidence and is verified before it is used. Whilst this report suggests some of the new methods police are using to gather evidence on individuals via social media, it only provides a small sample of newspaper reports as examples where this has been successful, therefore using information from social media as evidence in court may be limited in practice.

Academic research in criminology is also emerging, exploring social media use for community engagement. Research by Duffy, *et al.* (2007) found that in general the police are highly trusted by the public but this trust reduces after contact. They suggest updating the public with information about what is happening in their neighbourhood could improve confidence in policing. Building on this, Copitch and Fox (2010) suggest police should make more use of communications such as social media as it has the potential to improve public confidence by providing a platform for engagement between local communities and police. Essentially the more people are informed about what's happening in their local communities, the more likely they are to take an active role and participate in community engagement (Mayhill, 2006). Ruddell and Jones (2013)

provide empirical research in the form of a survey, which suggests users of social media have more confidence in police and greater satisfaction. They also found users of police social media, tended to be younger in age i.e. 18-34 years old, suggesting that communication via social media may be an effective method of engaging with younger people, which are traditionally harder to reach (Ruddell & Jones, 2013). This study is one of the first to provide empirical evidence of the public's perception of police and their use of social media, however it is not known whether the positive perceptions were the reason they accessed police social media in the first place, or whether the social media platforms changed their perceptions of police and gave them a more positive feeling once they had viewed them (Ruddell & Jones 2013).

In contrast, other studies have suggested some types of social media may not be suited to community policing, as it is not sufficient to engage the public. Sakiyama *et al.* (2010) conducted a content analysis of U.S. Police Departments' use of Twitter for community interactions. They found evidence to suggest some Police Departments were using Twitter to communicate information to the public; however this was often one-way communication. This suggests the limited nature of Twitter (messages containing no more than 140 characters) may not be the most effective platform for engaging with the public from a community policing perspective. Support was found from Crump (2011) and Heverin and Zach (2010) who found similar results from a study of police Twitter accounts, suggesting that while police use Twitter to share information with the public, they do not engage in conversation via this platform. However these studies only focused on the use of Twitter; it might be that other social media platforms such as Facebook are better suited to two-way interaction.

These studies highlight social media's potential, while other research started to explore the different approaches police were taking towards social media. For example, McGovern (2010) draws comparisons between how Australia and the UK police were utilising social media platforms. She suggests the two countries generally take different approaches. Australian police social media platforms were generally managed by media officers or public relations staff, whereas in the UK, police forces use a more personal approach with individual officers 'tweeting' to their local communities. While this may be the case for some officers, other UK studies such as Crump (2011) have demonstrated that police use of Twitter operates at different levels – 'force' level provides a Twitter profile

to represent and distribute information to a whole force area and 'local' level represents individual officers "tweeting" with information directly related to specific neighbourhoods. Although these two studies identify different approaches taken by police, they are largely descriptive and do not evaluate the different approaches to advance our knowledge on which method may be more successful for engaging the community. Further to this, a US study of Police Departments use of Facebook found that as the technology is still new, there is no clear policy or best practice on how to use it most effectively, with many departments relying on individuals to maintain a social networking presence (Lieberman, Koetzle & Sakiyama, 2013). More recently Dai *et al.* (2017) examined the use of Facebook and Twitter by local police departments. They found that the public were using social media to interact in different ways and that in order to engage their communities, police need to adjust their use of social media to meet those needs.

2.5.3 Police use of social media in the UK

Research outside the UK has explored the potential of social media for crisis management, (e.g. Bird *et al.*, 2012; Kavanaugh *et al.*, 2012; Perlman, 2012; Terpstra *et al.*, 2012), in the UK, government use of social media has tended to revolve around public events such as protests, marches and demonstrations, rather than crises and disaster. A series of riots in UK cities during August 2011, has led to a recent growth in papers published on social media use by police during times of riot and disorder. These papers from various fields focus on how the police can utilise social media.

During the summer of 2011, riots started in London following the death of Mark Duggan (shot dead by police) and quickly spread to other cities in England. These events were significant as they highlighted the importance of police use of social media to share information with the public and also gather intelligence and evidence. It would also seem that the riots helped to boost public engagement with police social media. As Crump (2011) observed, the number of 'followers' on police forces' main Twitter accounts increased significantly from 121,000 in June 2011 to 347,000 in August 2011. This may suggest that the public were using social media to seek and share information about what was happening during a time of uncertainty.

Research in criminology demonstrates how police were using social media during the riots and how it could be used in future. A report by Her Majesty's Inspectorate of Constabulary (HMIC) titled *The Rules of Engagement*, reviewed the disorder that took place and the police response to it. The report suggests that while police were aware of posts on open source social media channels that suggested community tension and anger was mounting towards police, the information was not corroborated by other intelligence sources and therefore was not acted on before the situation could escalate. Although the role of social media during the riots is still being explored, the report found that,

"The police have much to learn about social media, and the quickly shifting modern communications of today. With some notable individual exceptions, the power of this kind of media (both for sending out and receiving information) is not well understood and less well managed" (HMIC, 2011, p.30).

Following this report a series of papers relating to policy and practice emerged. Deneff, Kaptein, Bayerl, and Ramirez (2012) reported on best practice in police use of social media as part of the COMPOSITE project, which is a longitudinal study across the UK and Europe, exploring organisational change in the policing context. In a Demos report, Bartlett *et al.* (2013) highlight the challenges of social media and recommendations for future use (i.e. the need for regulation and a clear national framework that incorporates the Regulation of Investigatory Powers Act for intelligence use). Bartlett *et al.* suggest that currently a legal issue exists and must be dealt with if police are to make more use of social media intelligence (SOCMINT) in a variety of covert and open source methods. Although this is not an academic study based on empirical research, the authors use publically available data from social media as examples of current use from events such as the riots of 2011 and political protests to demonstrate the need for policy to be incorporated into social media use, and ensure a legal framework is in place to protect the public and police.

Procter *et al.* (2013) examined how Twitter was used during the disorder and carried out an analysis of publicly available tweets covering a 12 day period during and after the riots. The authors found that a number of Twitter accounts were set up during the riots to share information such as updates, and details about how individuals can help during clean-up efforts; however police accounts and links to these were hardly mentioned. They also found that during the riots,

police Twitter accounts were largely inactive and therefore did not provide reassurance and updates to the public. However this is likely due to the large number of police resources that were needed on the ground to manage the disorder. Further findings suggest (as also suggested in the HMIC report) police had access to a large source of intelligence but due to the volume and speed of these tweets, and possibly the inexperience of managing this information; it was difficult for them to keep up with the flow of information. Procter *et al* conclude police need to understand the structure of social media and how it works if they are to use it as a platform to engage the public and gather information. This study provides a good example of how Twitter was used during the riots and how policing practices may need to change to adapt to it, however it is only one rather extreme example and may not reflect how social media is used on a day to day basis. Further research is needed to understand the everyday mechanisms of police use of social media first, if they are to make more use of this in times of emergency.

Williams *et al.* (2013) introduce the 'social media tension-monitoring engine' as part of the development of the Cardiff Online Social Media Observatory (COSMOS). In support of the HMIC report and Procter *et al.* (2013), they argue police failed to utilise information generated on social media during the August riots to form 'neighbourhood intelligence' which could have provided police with a better picture of how individuals and the community were responding to the shooting. This paper is the first to measure tension in social media information streams to identify and predict possible events. To test their social media tension-monitoring engine, the authors monitored social media of more predictable events such as football matches and drew on the work of Harvey Sacks Conversation Analysis and Membership Categorisation Analysis. Williams *et al.* found that it is possible to monitor tensions through the use of automated 'engines' to collect and analyse tweets and that this performed better (in terms of volume and speed of classification of tweets) than human police coders. If the police are to make better use of information from social media Williams *et al.* (2013) suggest there needs to be a systematic and routine method of monitoring social media, as 'social listening' can add a further digital layer onto the traditional methods of neighbourhood intelligence gathering. However they also highlight the difficulty in corroborating information to distinguish between rumour and information that may contribute to intelligence. A further difficulty lies in the lack of understanding (not just by police, but many

organisations) of online expression and offline action, Williams *et al.* argue this must be explored further before full use of automated monitoring tools can be taken advantage of.

While the studies above relied on analysis of social media data such as Tweets, more recent research such as Trottier (2015) has utilised in-depth interviews to understand social media monitoring situated in practice. The study included police from different countries across Europe, including the UK. The study found that the adoption of social media monitoring activities were constrained by organisational factors such as financial budgets and resources, staff training and a lack of suitable legal frameworks. In contrast to Williams *et al.* (2013), Trottier (2015) found that social media monitoring should not replace human decision making, and that automated processes were mainly used for keeping an eye on trends, filtering information, and where there are large amounts of data. This suggests that although automated processes could aid human information behaviour, they lack the ability to interpret and make sense of information on social media and therefore a police officer is still essential when managing information on social media (Trottier, 2015).

The studies discussed above highlight some of the areas of research into police use of social media that have emerged over the last few years, however few (with the exception of Trottier, 2015), have attempted to explore what influence social media is having on police work practices and how this in turn may influence information behaviour.

2.5.4 The gap in policing and social media literature

- Literature on technology and policing explores existing technologies in everyday policing such as the implementation and use of mobile devices (Allen *et al.*, 2008; Bouwman & Van de Wijngaert, 2009; Singh, 2017; Sørensen & Pica, 2005), very few studies explore emerging technologies such as social media and the influence these technologies are having on policing work practices.
- Studies that do explore emerging technologies such as social media do this from a perspective situated outside the organisation, often exploring police use of social media by analysing the content of tweets posted by police (e.g. Crump, 2011; Sakiyama *et al.*, 2010).

- Whilst these studies are useful for providing a foundation to understand how police are using social media, they do not enhance our understanding of how these emerging technologies influence change within the organisation or how they fit into the existing work practices of policing.
- A gap currently exists in the literature. This study aims to provide a novel contribution to the literature by exploring how police use social media situated in practice. This allows the nuances and complexities of social media use to become visible – something which is currently empirically lacking.

2.6 Conclusion

The literature has identified a number of themes for this research:

- Research in information behaviour needs to move beyond information seeking and also explore other elements such as information sharing and information use (Wilson, 2010).
- Research has focused on the information behaviour of professionals but little is known about the information behaviour of police.
- In the information behaviour field, research has demonstrated that context is important and should be focused on as it provides a more holistic approach to information behaviour.
- To explore context and contextual factors; policing tasks and activities will be the focus of study.
- Policing is going through a process of organisational change, it is important to understand the role of social media within this.
- New technologies such as social media applications have introduced new ways of seeking and sharing information. This has started to be utilised in policing organisations, which are information intensive (Bouwman & Wijngaert, 2009).
- Current reports on policing and social media lack theoretical and empirical foundation, therefore the field requires theoretical concepts to provide a framework for study.

2.6.1 Contributions of this research

Several gaps in the literature have already been identified throughout the review; a brief overview of the contribution this research aims to make is presented below.

Tuominen (1996, cited in Kari, 2010) suggests information use is the most essential research area in studying information behaviour. Research on information sharing has explored collaboration, intra-organisational and inter-organisational information behaviour. However there is little research on police information sharing, particularly in relation to the influence of social media. While research from the studies discussed in the literature do shed light on information sharing in organisational contexts, they do not consider information shared with individuals outside those organisations i.e. the public. The use of information to aid decision making is also underexplored in the information science literature, with a few exceptions (Allen, 2011; Berryman, 2008; Choo, 2009; Mishra, 2012). While it is beyond the scope of this thesis to add to the current debates in the decision making literature, it will attempt to explore it as an element of information behaviour, in particular information use.

Baker (2004) suggested the dynamic nature of police work means models of information behaviour that focus on traditional professional work tasks are limited in their application. Studies such as Allen *et al.* (2008), Allen (2011) and Mishra (2012) have utilised activity theory as a lens to study police work activities. One area of research that highlighted the importance of studying information behaviour in relation to tasks is the study of new technologies in policing. However these studies largely focus on the technological device itself rather than the information processes and practices involved in its use. This thesis aims to address these gaps in the information studies field. In particular it will explore information behaviour and policing by exploring information use through the context of policing tasks and activities. This could shed further insights into the notion of activity and the wider literature on information behaviour.

Policing is undergoing organisational change, which is driven by a number of contextual factors including technology. Research on social media information use has started to emerge, however lacks theoretical and empirical foundation. As Goldsmith (2015) states social media “*has the potential to transform many*

policing practices” (p.249) but there is currently limited research on the impact social media is having on policing. As policing is an information intensive activity, this thesis aims to address these gaps in research from an information behaviour perspective.

These gaps in the literature will be addressed by answering two research questions:

1. How is social media influencing policing of low-level crime and anti-social behaviour?
2. How is social media influencing police information behaviour?

Chapter Three Methodology

3.1 Introduction

This chapter provides an account of the philosophical underpinnings of the study and the theoretical framework. It discusses the rationale behind the research design and data analysis (Silverman, 2013). The structure of the chapter is outlined below.

The research adopts a wider social constructivist approach to explore information behaviour in policing which is discussed in section 3.2. Within this approach it then proposes activity theory as a methodological and analytic framework in which to study the context of policing (3.3). In 3.4 the research takes a qualitative approach using semi-structured interviews, observations and think aloud techniques for data collection. Within this details of the methods and data collection procedure are discussed. 3.5 details the data analysis and coding process, while 3.6 addresses reliability and validity. 3.7 discusses how ethical issues were dealt with.

3.2 A social constructivist approach

According to Bates (2005) *“metatheory can be seen as the philosophy behind the theory, the fundamental set of ideas about how phenomena of interest in a particular field should be thought about and researched”* (p.2). Talja *et al.* (2005) suggest that in information science, meta-theory can offer tools to identify a wider range of theoretical orientations to develop practical solutions in research. Talja *et al.* (2005) put forward three meta-theoretical perspectives that are emerging in information science, constructivism; social constructivism or collectivism; and constructionism. Gergen (1999) points out the difference between constructivism, which assumes the individual mind constructs reality; and constructionism, which suggests reality, is constructed through discourse and social relationships. The two perspectives generally oppose one another, but Gergen (1999) suggests an amalgamation of the two, which draws on both domains to open up new ways of looking at the world. Gergen (1999) labels this social constructivism. From a social constructivist perspective it is argued, *“while the mind constructs reality in its relationship to the world, this mental process is significantly informed by influences from social relationships”* (Gergen, 1999, p.60).

Talja *et al.* (2005) and Sampson (1993) suggest that in information science the constructivist approach is largely associated with the cognitive viewpoint, emphasising the individual, which is not appropriate for exploring the wider social aspects, cultural meanings and representations in information seeking and use. Constructionism on the other hand focuses on linguistic processes rather than mental processes, and assumes reality is constructed through discourse, conversations and shared meanings. Therefore information needs and seeking are produced through conversational constructs (Talja *et al.*, 2005). Ingwersen, (1999, cited in Talja *et al.*, 2005) criticises the constructionist approach in information science for lacking in empirical research by largely remaining at the meta-theoretical and philosophical level and not applying to practice.

In recognising some of the limitations of the two approaches above, this thesis will draw on a social constructivist perspective. Social constructivism is an intermediate position that sits between the cognitive and constructionist viewpoints as a socio-cognitive perspective (Leonardi & Barley, 2008; Talja *et al.*, 2005). From this perspective information processes are embedded in context i.e. social, cultural and organisational. Therefore social constructivist approaches *“are oriented toward a deeper understanding of the practices of professional groups...and the tacit knowledge underlying these practices”* (Talja *et al.*, 2005, p.88). This approach is appropriate for this research as it aims to explore how information is used in the context of policing. It is interested in interactions of individuals and the social world through the exploration of action and activities (Jacob & Shaw, 1998, cited in Talja *et al.*, 2005). In information science this perspective has been associated with Hjørland and Albrechtsen (1995); Hjørland (1997; 2002) who were influenced by Vygotsky and Leontiev’s work on activity theory. Activity theory proposes a dualism between the individual and social as it suggests *“an individual lives within a world that is at once physically, socially and subjectively constructed, and that living and acting in this world constitutes knowledge”* (Jacob & Shaw, 1998, cited in Talja *et al.*, 2005, p.86).

In this study a social constructivist perspective will be adopted as a wider meta-theoretical position. This allows the study of both the micro and the macro and the interactions that take place between and within these. This is essential in

understanding information behaviour in policing activities, as individual officers operate within an organisational context governed by rules and norms; however they are also individuals that construct their own ways of working and interpreting situations. Activity theory is considered to fall under social constructivism.

3.3 Theoretical framework

In this section the activity theoretical framework is discussed. Activity theory proposes human consciousness shapes and is shaped by the objective world through human activity (Xu, 2007). Activity theory is concerned with the interaction between individuals, culture and society. As Allen *et al.* (2011) state *“the human subject is social in nature, shaped by culture, and influenced by language, acting with or through other people in organizations, groups, and communities”* (p.780).

After initially developing in psychology activity theory has been applied in many different disciplines such as education (Engeström, 2000; Gedera *et al.*, 2016), work (Blackler, 2009; Engeström, 2000; Engeström & Kerosuo, 2007) information science (Allen *et al.*, 2011; Widén-Wulff & Davenport, 2007, Wilson, 2008) and information systems (Forsgren & Byström, 2018; Hasan *et al.*, 2016; Karanasios, 2018; Simeonova, 2017). Scholars in the field of information science consider activity theory to be an explanatory framework to explore information behaviour in social environments (Allen *et al.*, 2011; Nardi, 1996; Widén-Wulff & Davenport, 2007; Wilson, 2008). This thesis uses activity theory as methodological and analytic framework. Firstly a brief introduction to activity theory is presented, followed by a discussion on the rationale and its appropriateness in studies of information behaviour.

3.3.1 An introduction to activity theory

Activity theory originated in the field of psychology in Russia in the 1920s and 1930s as an alternative to the Western psychological schools of behaviourism (Engeström, 2000). Early work was generally associated with Lev Vygotsky and Alexei Leont'ev and was later developed by Engeström. Vygotsky developed the first generation of activity theory and produced a model showing the interaction between the subject, object and mediating artefact (Figure 3).

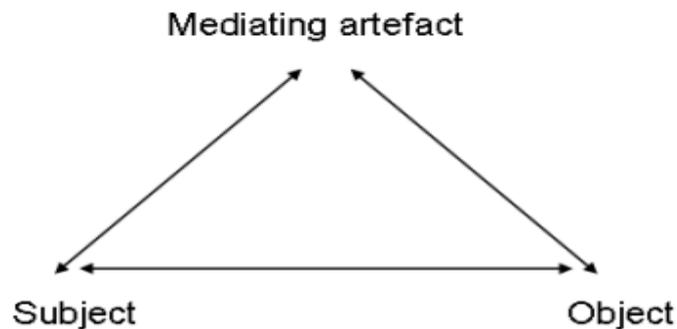


Figure 3 Vygotsky's model of activity theory

In Vygotsky's model mediating artefacts include 'psychological tools' such as language, writing, maps and symbolic structures (Wilson, 2008). A student of Vygotsky, Leont'ev built on Vygotsky's work and developed the cultural-historical aspect and hierarchical relationships between activity, actions and operations and relates these to motives, goals and the conditions under which the activity is performed (Leont'ev, 1978, p.5).

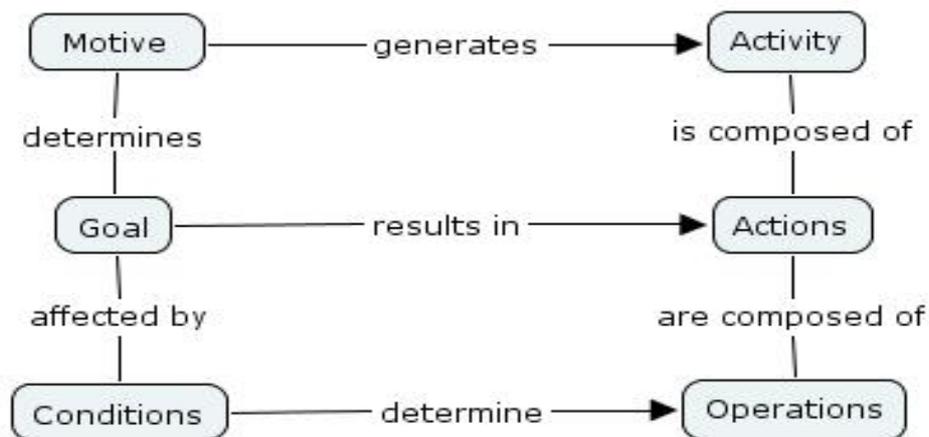


Figure 4 A hierarchical structure of activity, actions and operations (Wilson, 2006)

This model demonstrates Leont'ev's notion that activity is generated by motives (objects). Activity is composed of actions, which are driven by goals. Actions are composed of operations which are automatic or routine processes determined by conditions. These levels are not fixed and are subject to change, for example an operation can become an action through externalisation i.e. if the condition changes; and an action can become an operation through internalisation (Leont'ev, 1978).

Engeström later developed Leont'ev's ideas further and added rules, community and division of labour to the model (Figure 5).

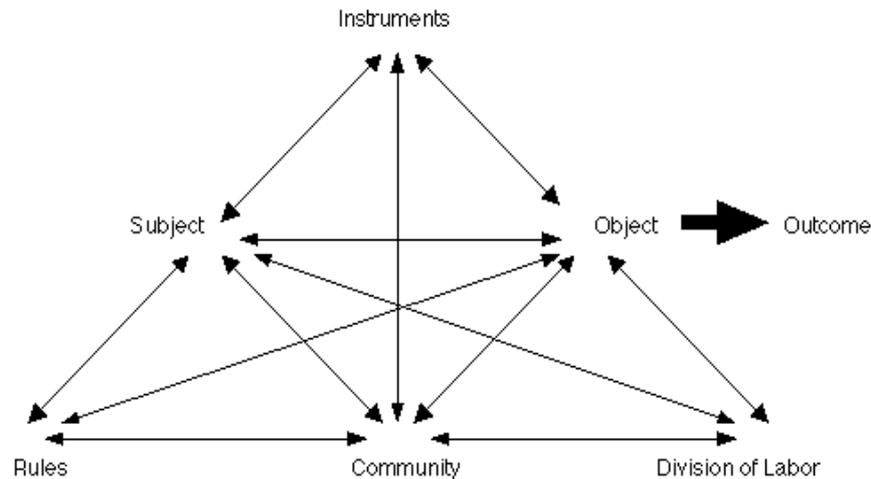


Figure 5 Leont'ev's activity theory (developed by Engeström, 1987)

In this model, rules and norms are formal or informal, laws, policies, and procedures that govern the subject within the activity. Depending on the level of study, the community can be an immediate team or group which the subject forms part of, or it can be applied to the wider organisational community. The division of labour is associated with the allocation of tasks within the activity, for instance sharing tasks and working collaboratively. Wilson (2008) suggests the extensions proposed by Engeström (1987) move the focus from the individual to activities within a community. While an activity system can represent an individual subject, it can also represent a group of people with a common object. Further to this, activity systems can be produced to see how they relate to one another (Figure 6).

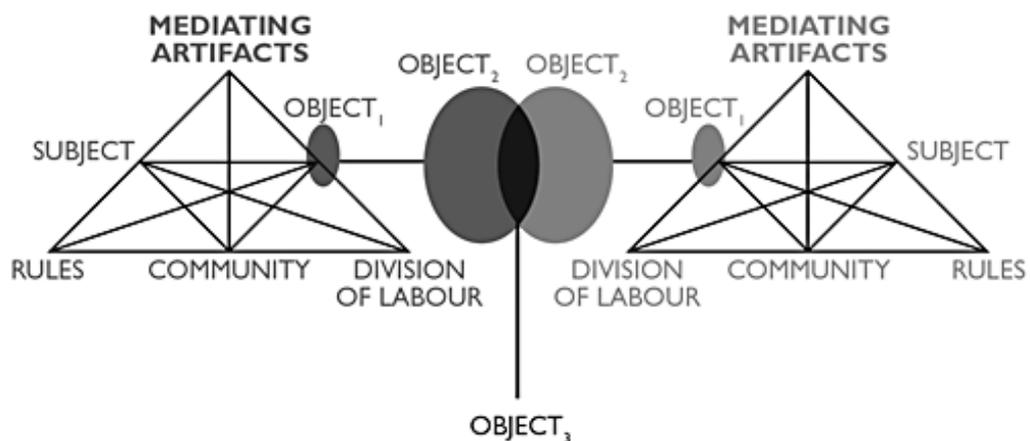


Figure 6 Interacting activity systems (3rd generation activity theory) (Engeström, 2001)

Engeström (2001, p.136) summarises activity theory into five main principles:

1. Collective, artefact-mediated and object-oriented activity system, seen in its network relations to other activity systems. Goal-directed actions and automatic operations, are only understandable when they are interpreted against the background of entire activity systems.
2. Multi-voicedness of activity systems – multiple points of view within the community and from different cultural-historical positions. It is said to be multiplied in networks of interacting activity systems and can be a source of innovation and trouble.
3. Historicity – *“Activity systems take shape and get transformed over lengthy periods of time”*. They are only understood against their own history.
4. Contradictions are sources of change and development (discussed below).
5. Expansive transformations – *“activity systems move through cycles of transformations...when the object and motive of the activity are reconceptualised to embrace a radically wider horizon of possibilities than in the previous mode of the activity”*.

Contradictions

Contradictions are considered to be a fundamental concept in activity theory (Engeström, 2001). They can occur within and between activity systems and are open to changes in the socio-cultural environment, which can in turn lead to transformation in the activity (Kuutti, 1996). Engeström (2001) states that contradictions in the system are what drive innovation. In this sense contradictions are disturbances that provide opportunity for change and transformation (Karanasios, 2018). It is suggested that by focusing on contradictions, we can better understand deviations from the established rules and norms (Karanasios, 2018).

There are four types or levels of contradiction. 1) Primary contradictions are within the individual elements of the activity, for example within the division of labour. 2) Secondary contradictions occur between elements of the activity system, for example between the tool and subject. 3) Tertiary contradictions are between an activity and a culturally more advanced central activity. 4) Quaternary contradictions occur between the neighbour activity systems and the central activity system.

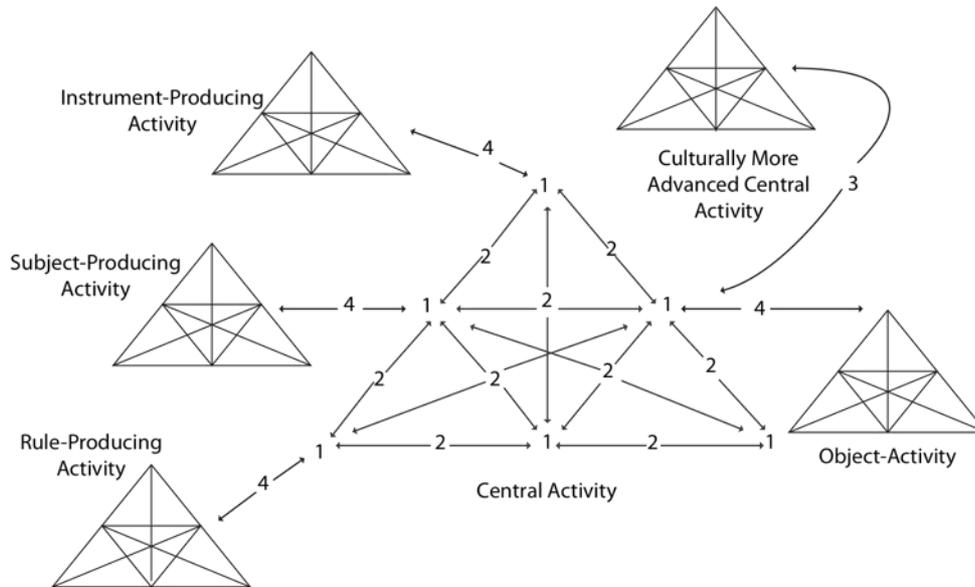


Figure 7 Levels of contradiction in activity theory (adapted from Engeström 1987)

In exploring contradictions these can provide the researcher with an analytic lens to understand change and transformation in activities. An extension of this analytic lens is proposed by Allen *et al.* (2014) and more recently Karanasios (2018). They suggest that as well as exploring contradictions it is also useful to explore resolution or “congruency”, where temporary harmony exists as the activity changes and adapts. Karanasios (2018) goes on to suggest these could later become contradictions.

3.3.2 Approaches to study context

There are numerous approaches to study context. Nardi (1996) considers three approaches to study context: activity theory, situated action model, and distributed cognition. Situated action models emphasize the emergent way activity develops out of the minutiae of a given situation. Therefore the unit of analysis is a relation between the individual and the environment. This is different to distributed cognition where the unit of analysis is moved to the functioning of the system and is concerned with structures as representations both internal and external of the mind. Therefore both cognition and interaction between individuals and artefacts are the focus of study (Nardi, 1996). Activity theory takes activity as the unit of analysis. An activity is made up of subject, object, actions and operations (Leont'ev, 1974). Context is internal to the individual in that it involves specific objects and goals, but at the same time,

external to individuals, as it involves artefacts, other individuals, and certain settings.

Nardi (1996) suggests that activity theory and distributed cognition are similar and believes the two approaches may merge in the future, however she suggests *“activity theory will continue to probe questions of consciousness outside the purview of distributed cognition as it is presently formulated”* (p. 44). The situated action perspective is criticised for being too descriptive and less appropriate for comparison due to its immersion in a particular situation (Nardi, 1996). Nardi also suggests activity theory is more thoroughly developed and is richer than the situated action approach. Nardi (1996) proposes activity theory provides a broader and deeper account of human action as activity develops over time and incorporates subjective accounts of why people do things and how prior knowledge forms experiences of given situations, which is better for studying context in a more holistic way. Wilson (2006) notes, activity theory, is not intended as a predictive theory, but instead as a framework based upon a theory of human consciousness that aims to explain human behaviour. Similarly Engeström and Miettinen (1999) suggest activity theory *“develops novel conceptual tools for tackling many of the theoretical and methodological questions that cut across the social sciences today”* (p.8).

3.3.3 Activity theory and information behaviour

Wilson (2008) suggests that studies in the broader field of information studies are starting to utilise activity theory, although it has been largely associated with the areas of human computer interaction (Nardi, 1996) and information systems (Allen *et al.*, 2008; Barki, Titah & Boffo, 2007; Mishra *et al.*, 2011b; Karanasios, 2018). Wilson (2008) suggests activity theory is concerned with practice i.e. how things are done, how to do them more effectively, and how to develop systems that support it; and therefore is appropriate for the study of information behaviour (p.151).

Research in the field of information behaviour, which applies activity theory, is starting to be recognised and applied (i.e. Allen, Karanasios & Slavova, 2011; Talja *et al.*, 2005; Widén-Wulff & Davenport, 2007; Wilson, 2006; 2008). Wilson (2006) states *“the key elements of activity theory, Motivation, Goal, Activity, Tools, Object, Outcome, Rules, Community and Division of Labour are all*

directly applicable to the conduct of information behaviour research" (Abstract, para 2). In this thesis, activity theory provides the framework to explore the relationship between tasks and the wider activities they form part of (Wilson, 2008). Spasser (1999) suggests one of the main advantages of using activity theory in information behaviour is that it takes context into account.

Widén-Wulff and Davenport (2007) also suggest activity theory "*embeds studies in a wider organizational framework that allows the intersection of behaviour and processes to be observed and assessed over time and across a range of organizational activities*" (p.3). In this thesis, activity theory is particularly appealing as Karanasios and Allen (2013) suggest "*it provides a holistic framework which can be employed as a mode of analysis and underlying conceptual framework*" (p.292). Engeström's third generation of activity theory is used in this research as a methodological and analytic framework. In this study activity theory provides a framework to explore how actors use tools such as social media within a policing context and how this influences and changes policing. It provides a holistic approach to study as it is able to relate actions to information use. More specifically by focusing on the object it can explore how social media (as a tool) mediates information sharing and also through understanding the organisational rules and norms that provide the foundation of the activity, highlight the regulations and procedures around decision making and information sharing (Allen *et al.*, 2013).

3.4 Research Design

The aim of this research is to explore information behaviour in the context of policing. In particular, it aims to investigate in detail the influence of social media within this context. To gain an in-depth understanding of this phenomena, a qualitative interpretive approach is adopted. Qualitative approaches are used when investigating people's experiences, thoughts, feelings, behaviours and interactions with others (Corbin & Stauss, 2008) and are underpinned by different perspectives and meta-theoretical assumptions. They are also concerned with the 'how', 'what' and 'why' questions, rather than the 'how many' or 'how often' (Ormston *et al.*, 2014). On the other hand, quantitative research focuses on large sample sizes and generalisation, qualitative research is used to provide depth of understanding of the context of the social world and how participants make sense of that world (Ormston *et al.* 2014; Silverman, 2013).

This research uses a qualitative approach from an interpretive perspective i.e. social constructivism. Interpretive studies have been used in information science and information systems research and generally attempt to understand phenomena through meanings that people assign to them (Walsham, 2006). Walsham (1993) suggests that interpretive methods are "*aimed at producing an understanding of the context of the information system, and the process whereby the information system influences and is influenced by the context*" (Walsham 1993, p. 4-5). Researchers such as Togia and Malliari (2017), Tuominen and Savolainen (1997) and Walsham (1993, 2006) have argued that more qualitative and interpretive research should be carried out in the field of information science as it has largely been dominated by quantitative studies.

3.4.1 Methods

In the following sections the data collection methods and sampling are discussed. This research utilised multiple methods to provide rich, detailed accounts of policing activities. Multi-method approaches are established in information studies (Mingers, 2001) and particularly within activity theory as they provide triangulation and a more holistic perspective (Allen *et al.* 2013).

Two main forms of data collection are used – interviews and observation. The research therefore has many similarities with field research and ethnography whereby the researcher carried out observations and interviews within the natural setting of policing organisations (Marvasti, 2014). However it is not considered to be a pure ethnography for two reasons; 1) the researcher was not embedded within the organisation and therefore did not establish direct relationships with social actors, 2) the researcher did not spend significant time in the same natural environment (hours as opposed to weeks and months) (Silverman, 2016).

Semi-structured Interviews

Gillham (2005) suggests the semi-structured interview is the most important way of conducting a research interview. Semi-structured interviews are flexible, as they can allow questions and answers to be clarified and the researcher can probe for meanings and further explanations (Neuman, 2003; Frankfort-Nachmias & Nachmias, 2008). In line with other studies, both activity theory and the initial literature review were used to design and guide the interview

questions (Karanasios & Allen, 2014; Mishra *et al*, 2011b). In terms of activity theory, interviews explored individuals' interpretations of the tools they use, the rules and norms they follow, how information is shared and the community involved. For example, questions such as "*how do you use social media within your role?*" allowed participants to explain how they used tools within their work. To establish perceptions and interpretations of the rules and norms, the questions were framed as "*are there any guidelines or policies you follow?*". Therefore although questions were guided by activity theory, questions were not always framed in activity theory language. This was to ensure the interviews were more conversational in style.

Due to the conversational nature of semi-structured interviews, the researcher did not keep tight control over the interview questions and instead allowed a degree of flexibility, which was steered by the participants (Silverman, 2016). However there were occasions where the conversation diverged off topic. When this happened the researcher reverted back to the interview schedule to ensure the relevant topics were discussed (see Appendix 2 for a interview schedules).

Whilst interviews have their advantages it is also worth noting their limitations. One of the biggest criticisms of interviews is that they are open to the researcher's interpretation and potential bias (Arksey & Knight, 1999; Crow & Semmens, 2008; Fielding & Thomas, 2008). Fielding and Thomas (2008) suggest we cannot ignore interviewer bias, whilst Creswell (2009) suggests the researcher should embrace it and acknowledge their influence on the research process by reflecting on their background for instance, gender, culture, class etc. (Creswell, 2009).

Interviews were carried out with a range of individuals at different levels that directly receive and use information. For example operational police officers such as PCSOs, PCs, support staff, and other individuals involved in information sharing and decision making, such as senior police officers.

Observation

Taylor and Bogdan (1984) suggest observation allows the researcher to study the day-to-day experiences, behaviours and practices of subjects in certain contexts and situations. Schmuck (1997) suggests observation allows the

researcher to check for nonverbal expressions of feelings, explore how individuals interact and communicate, and observe how things are carried out. DeWalt and DeWalt (2002) suggest observation can be used to increase validity, as it may help the researcher create a better understanding of the context and phenomenon under study. Similarly Flick (2009) suggests that practices are only accessible through observation, where as interviews make accounts of practices accessible. In combining the interviews and observations it allowed comparison between how people articulate what they do, with how they actually carry out the task or activity in practice. This was particularly useful when exploring the rules and norms dimension of activity theory and highlighted contradictions and tensions within the activity system (Allen *et al.* 2011).

Flick (2009) suggests one limitation is that the individuals being observed are likely to act differently when they know they are being studied, however Waddington (2004) suggests this is largely overcome through the more time spent in the field with the participants. Similar to interviews, DeWalt and DeWalt (2002) suggest biases may occur for example, the researcher's gender may provide access to different information as they have access to different people, settings, and bodies of knowledge. However they also note that this is unavoidable and the researcher must understand how his/her gender, ethnicity, culture, class, and theoretical approach may affect observation, analysis, and interpretation.

Observation has been used in information science and information behaviour (Allen *et al.*, 2008; Allen, 2011; Mishra *et al.*, 2011b). In this research, policing activities were observed across multiple organisations. In terms of activity theory, observation was used to establish and explore the use of the tool, community and interactions in the division of labour. Observations took place with individuals at different levels and engaged in different activities such as patrol, briefing meetings, emergency control room, security operations and during major events. During observations think aloud techniques were utilised.

Fonteyn, Kuipers and Grobe (1993) state, "*Think aloud studies provide rich verbal data about reasoning during a problem solving task*" (p.430). As we cannot observe the cognitive information processes involved in carrying out activities and functions such as decision making, the think aloud technique can be used when observing an individual completing a task. It allows for the

participant to articulate what they are doing and explain why they are doing things in certain ways. Fonteyn *et al.* (1993) suggest think aloud techniques are useful for describing what information is concentrated on and how it is used to solve a task or make a decision. This technique was particularly useful in this research and helped complement observations in the field. In this study it was used alongside observations so individuals could verbalise their decision making processes and explain how they use information from social media.

3.4.2 Data collection

This section discusses access to participants and organisations, the sample and the data collection process.

Access

In this study multiple organisations were sampled. Initially five policing forces were contacted, however due to locations, timing and stretched resources within the forces, three policing organisations took part in the study. In addition to police forces, other organisations and individuals that work alongside the police also took part. These consisted of security professionals, local authority workers, and individuals in private organisations. Prior to the data collection period, the researcher had recently undertaken a research role at the Home Office and had already conducted substantial research with various UK police forces. Therefore access was gained through existing contacts.

Access was initially gained through contact with senior officers, which included the Head of Corporate Communications, a Deputy Chief Constable and a Police Inspector. Each of these contacts agreed to be interviewed and this enabled the first phase of interviews to take place. This provided an overview of the organisation and helped develop the next stage of contacts. From here a snowball sample was generated and a further 32 interviews were conducted. Altogether 35 interviews were conducted. 30 of these were with police staff such as support staff, PCSO's, PC's, Sergeants, Inspectors, Detectives, Head of departments, Assistant Chief Constable, and Deputy Chief Constable. Five interviews were with individuals that are considered within the policing family but not situated within a police force, such as private security professionals and local authority workers (town centre managers and wardens). Although the study did not set out to interview the wider policing family, during an interview

with a police officer it was found that they were also working closely with other policing partners in the local area and suggested speaking with them about their use of social media. As this was still within the scope of the research it was considered appropriate to widen the sample. It was thought this would provide a broader view of the context under study.

Observations were conducted with staff that had either already been interviewed or had been obtained through snowball sampling. For example after interviewing a Chief Inspector he suggested coming back to the station at another time to observe how his staff use social media. For those that had already been interviewed, this helped to establish a rapport with the participants prior to observation. Building a rapport is considered to be an important element of observational research (Marvasti, 2014). 40 hours of observations were carried out in the field. Further details of the observations are discussed below. A summary of the collection of data is presented in Table 2 below.

Data collection method	Number/ hours	Areas of work	Participants role
In-depth semi-structured interviews	35	Media/comms, neighbourhood policing teams (NPT), intelligence, security, Business Improvement Districts (BID).	Senior officers (i.e. ACC, DCC), head of department, Inspectors, PCs, PCSOs, support staff (i.e. team coordinators), security staff, local authority officers
Observations	40 hours	NPT, intelligence, security, BID	PCs, PCSOs, support staff, security, local authority officers

Table 2 Summary of data collection

Sample

As stated above, multiple organisations and individuals were sampled in this research – three police forces, and individuals and organisations within the wider policing family. Two police forces were located in the north of the England and both geographic areas are made up of rural and urban policing teams. In

this research police officers were located in and around largely urban areas i.e. towns and cities, rather than rural. The third police force and their partners from the wider policing family were located in the middle of country. This was also largely urban areas. No data was collected on the demographics of participants it was not within the scope of the study to explore different variables such as age, gender etc.

Data collection process

Data collection took place over a 13 month period from December 2014 to January 2016. Interviews were mainly conducted at the individual's workplace, which was either a police station or office. However on one occasion an officer was visiting Leeds on business so agreed to conduct the interview at the university and on another two occasions interviews were conducted on the move, whilst out on patrol with the officer either in car or on foot.

Interviews ranged from a minimum of 45 minutes to 200 minutes. The average interview lasted 70 minutes. This was considered enough time to a) obtain enough data from the participants, and b) justify the time a police officer could spend 'off duty' within a shift. All interviews were audio recorded on a digital recorder with encryption facility. Permission was given by participants for the audio recording and participants were told the recording could be stopped if they wanted to talk about something 'off record' or if they felt uncomfortable.

Although participants had agreed to be recorded, due to the sensitive nature of police operations and investigations, care was taken to ensure they didn't over-share or divulge sensitive information. Whilst in the majority of cases police officers were very conscious about what they were discussing, with many using terms such as "*I'm not telling you anything I shouldn't*" or "*I'm allowed to say this*", one police officer had a tendency to discuss sensitive and covert operations that were outside the premise of the study. This study is concerned with low-level crime and anti-social behaviour and information that could be gathered from social media through open source, publicly available platforms. Although the researcher tried to steer the conversation away from covert operations, the officer continued to discuss them. He was aware he was being recorded but as the interview had lasted over two hours, it was felt he had become too comfortable and this could be why he shared sensitive information. Therefore for ethical purposes and to protect the participant, these elements of

the conversation were edited out of the recording and not transcribed or used in this research.

After conducting the first phase of interviews with senior officers (see Appendix 3), another interview schedule aimed at operational officers was drawn up (Appendix 3) and based on these insights. Similarly after speaking with the officer who provided access to partner organisations, a further version of the interview schedule was drafted specifically for those respondents (Appendix 3). This was not initially anticipated but as interviews continued it became apparent that different activities of policing warranted slightly different emphasis on the questions. Therefore although all interview schedules followed the same or similar topics and were developed using activity theory as a framework, some questions were worded slightly differently. For example, senior officers were asked to discuss the organisation as a whole, where as operational officers and policing partners were asked to focus on their own activities and role. The first draft of interview questions can be viewed in Appendix 2. As interviews continued and analysis began, further questions were added to explore further concepts that emerged during the data collection process. For example, in the interview schedule for operational staff questions such as *“How do you manage information on social media?”* And *“Are there any challenges when using social media to share information with the public?”* were added to explore further areas that emerged during data analysis (this is expanded on in section 3.5 below).

Different versions from the first draft of the interview schedules to the final question set can be found in Appendix 2 and 3. After conducting the first few interviews with operational officers the schedule was used as more of a guide as the researcher became more familiar with the topics, questions and probes.

As interview questions were asking about officers' experiences and perceptions, aspects of critical incident technique were also used (Flanagan, 1954). This was to help with recall about past events and to explore how practices have changed with the adoption of social media. Questions such as *“Can you give an example of when you have used information from social media to inform your neighbourhood policing?”* were useful in enabling participants to recollect events and experiences in their own words. Each interview was fully transcribed by the researcher and data was collected until saturation was reached, that is until no new findings were emerging (Thornberg & Charmaz, 2013).

In addition to interviews, observations were also conducted to gain further insight into how social media was used and integrated into work practices. As suggested by Flick (2009), observations are a way of accessing people's practices. Similarly Blanford and Rugg (2002) found that observing practical demonstrations of tasks uncovered nuances that were not articulated during interview because they were not thought to be worth mentioning. In this study observations of individuals engaged in activities helped to contextualise the themes emerging from the interviews. A series of activities where social media was used were observed such as, routine patrol, the planning of events, live events, security control room, and communications. The research accompanied police staff engaged in police work and was introduced to other staff during observations. Observation periods ranged from two to eight hours. In total 40 hours of observation was conducted.

Observations took place during the individuals work shift. For example, one of these was a night shift that commenced at 22.00 hours until 05.00. During this shift the researcher accompanied two police officers on routine patrol in a busy city centre on a Friday evening. Observations such as when, what and how officers used and interacted with social media were noted. It was also noted how this use was negotiated within their existing work tasks. Other observations took place during a live major event, a football derby. In this situation the researcher was positioned within the incident control room alongside intelligence officers, the media team, call handlers, and the silver commander. In this activity it was observed how social media was used for information sharing and decision making during a live operation. Think aloud techniques were particularly useful in this activity as participants were able to articulate what they were doing and why. This allowed comparison between what officers said they did and what they actually did in practice.

Due to the nature of conducting observations in sensitive environments, audio or video recording was not permitted. However, extensive field notes were written. This was sometimes difficult, particularly when out on patrol with officers, therefore in these situations, the researcher took opportunities such as travelling in the police car to another location, or during 'down time' where officers would stop off for 15-20 minutes for a quick break. This was usually in a local police station or in a partner organisation.

3.5 Data analysis and coding

Bernard (2006) proposes that data analysis is *“the search for patterns in data and for ideas that help explain why those patterns are there in the first place”* (p.452, cited in Saldaña, 2009). In this research both interview and observation data were analysed. This section discusses the analysis process starting with how the data was transcribed and documented, stored, and then coded and analysed.

All interviews were fully transcribed. Due to the sometimes sensitive nature of interviews with police, care was taken to ensure anonymity when transcribing the data. All identifying text were removed and renamed, for example, police names were replaced with a number and referred to as Interviewee 1 (I1), I2, I3 etc., organisation and police force names were removed and any reference to a town or city that may identify the force/organisation was simply changed to “town”, “city”.

As Marvasti (2013) states *“the simplest way to represent observations is to only describe them – write them down as you see them.”* (p.359). In describing observations it is argued that this maintains an element of analysis in itself. Emerson (1988,p.20) suggests,

“What is selected for observation and recording reflects the working theories or conceptual assumptions employed, however implicitly, by the ethnographer. To insist on a sharp polarity between description and analysis is thus misleading; description is necessarily analytic.”

Field notes were written up after observation with the aim to describe the context and phenomena, and also to understand how the phenomena is made meaningful by participants in the field. Therefore it could be said that both a descriptive and constructivist approach to analysis took place. In this research observations were used to complement, add meaning and context to interview data. As well as providing thick descriptions, they were also analysed within the interview coding framework, which is discussed below. Both transcription files and observation field notes were encrypted and stored on a password protected computer at the University of Leeds, where only the researcher had access.

3.5.1 Coding

Coding is a process used to organise and categorise data into meaningful patterns to develop assertions about the phenomena of study (Charmaz, 2006; Roulston, 2013; Saldaña, 2009). As Thornberg and Charmaz (2013) point out, coding is not a linear process but instead a cyclical activity where the researcher moves back and forward between different phases of coding and categorising. The approach taken in this research is illustrated in Figure 8.

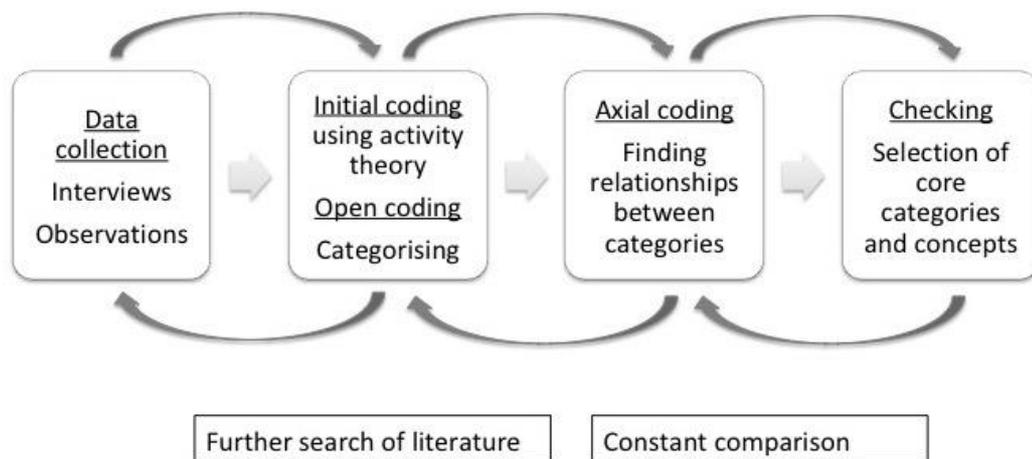


Figure 8 Data analysis process

In this study an inductive iterative approach was taken and activity theory was used as a framework during the initial coding phase as it was important for the researcher to firstly establish what is actually going on (Thornberg & Charmaz, 2013). This was done by firstly reading word by word and line by line, and the method of constant comparison (Glaser & Strauss, 1967). During these initial coding phases, as well as using activity theory, open coding was applied to the first few interviews to generate the emerging themes. This led to the first wave of clusters and categories of codes to be developed (see Appendix 4 for an example of initial coding and Appendix 5). For example, categories based on the elements of activity theory were developed such as rules, norms, and division of labour. Contradictions were also explored and coded, but also themes such as ‘sense-making’, ‘experience’, ‘role’, also emerged during this initial phase. At this stage the literature was searched in combination with coding in order to categorise and label codes this led to the next phase where more focused coding took place and categories were reorganised and connections between categories (axial coding) started to develop. For example,

when exploring relations and connections between codes sense-making appeared to be linked to rules and norms, and roles and more specifically ambiguity around them. The concept of ambiguity was explored further in the literature and added to the literature review as it became a key concept in the study. This also enabled interviews and field notes from observations to be re-coded and organised. During this phase mind-maps were drawn up to help visualise and make connections between the emerging themes. This led to the separation between different activities as it was found that the level of ambiguity differed between different activities. This was then explored further in terms of key themes relating to information behaviour such as information sharing. An example of a mind map used to establish the relationships between categories in information sharing is presented in Appendix 6.

After analysing 22 interviews it was found that no new categories were emerging, therefore the remaining data simply confirmed the current themes, rather than establishing new ones. This suggested saturation point had been reached (Strauss & Corbin, 1998) and therefore after analysing 35 interviews and 40 hours of observation, no new data collection was needed.

3.5.2 The use of qualitative data analysis software

This initial phase of coding was conducted manually, however due to the volume of data, the next phase of coding was assisted through the use of computer assisted qualitative data analysis software (CAQDAS), Dedoose (see Appendix 5 for an example). CAQDAS has become established as a tool in research in multiple fields over the last 20 years (Gibbs, 2013). In this research it helped in the management and organisation of data. For example the use of memos and coding descriptions helped during axial coding phase to create links between categories and themes (Gibbs, 2013). The software also enabled certain codes to be merged.

Although Dedoose was a useful tool to aid data analysis, once the codes, categories and themes were established, the researcher reverted back to manual tools such as drawing mind maps to assist with theoretical coding. This enabled key themes to be linked back to theoretical concepts in the literature.

3.6 Reliability and validity

Reliability refers to the replicability of results, consistently over time, where as validity is concerned with the accuracy of the findings and measuring what they claim to measure (Silverman, 2016). Reliability and validity are highly applicable in positivist and quantitative studies that are aiming for causal relationships between variable and to generalise their findings. However qualitative researchers have redefined these terms to be more applicable to qualitative research where the aim is not generalise, but to provide depth of understanding (Silverman, 2016). Qualitative researchers have instead suggested that reliability and validity can be conceptualised as trustworthiness, rigor and quality (Golafshani, 2003). This can be applied through triangulation of data sources and the use of thick detailed description (Silverman, 2016). As discussed above, this study used triangulation through interviews and observation where participants were interviewed and then observed in their natural work environment. Further to this, where verification was needed, participants were contacted to validate. Thick description of the findings is provided in Chapters Four and Six.

3.7 Ethical Considerations

This research followed the University of Leeds Ethical Code of Practice and was approved by the faculty research ethics committee at the University of Leeds. The researcher also obtained clearance from each policing organisation before commencing research. As in any research, but particularly research involving populations where information can be sensitive (police), ethical considerations are of the utmost importance. The main ethical considerations for this research are discussed below.

Consent: Before they decided to participate, every individual received an information sheet outlining the study and what they would be asked to do. Separate sheets were provided for interviews and observations. These provided the researchers contact details and answers to anticipated questions (see Appendix 1 for information sheets). Once the participant decided they wanted to take part in the study, full informed consent was gained. The consent sheet was read out loud to participants at the start of the interview and consent was audio recorded. For observations, consent was either given at the time of interview (and audio recorded) or in the form of written consent.

Confidentiality: As stated above, all transcripts were anonymised and simply referred to as Interviewee 1 (I1), I2, I3 etc. For confidentiality, the names of policing organisations are not published and individual participants' identities are anonymised. Whilst this was the case on the researcher's part, there was an ethical issue that arose that was out of the researchers control. In a number of instances police officers tweeted that a researcher from Leeds University was spending the day with them. In one instance an officer took a photograph of the researcher at police headquarters and posted this on Twitter to thousands of followers. This meant that anonymity could no longer be guaranteed for either the organisation or the individual that tweeted the post. Although during the write up process anonymity remains and no organisation or individual have been named in this research, examples of tweets are presented in Chapter Four to demonstrate uses of social media. Although care has been taken to remove the name of the organisation, as the tweets are publicly available, it is possible they could be identified. Therefore these images have only been selected for the purposes of illustration and will not be used in publication or write up outside of this thesis.

Right to withdraw: All interviewees had the right to withdraw from the study.

Data storage: Data was encrypted and stored on a password protected computer in Leeds University Business School, where only the researcher had access. No identifying details were kept with the transcripts.

Chapter Four Findings: Changing Work Practices

4.1 Introduction

This chapter provides a description of policing activities found in this study. In particular this chapter addresses research question one – How is social media influencing police work practices? It uses activity theory to provide a thick description of the work practices taking place. Therefore the unit of analysis is the human activity embedded within its social context i.e. the participants, their activities and the activity setting (Engeström 1987). The chapter describes three contexts of social media use in police organisations. It acts as an overview before more detailed analysis is discussed in Chapter Five. During this chapter quotations are included to contextualise and support the findings³. By the end of this chapter, the first research question will have been addressed to provide an understanding of how social media is influencing policing.

In this chapter sections 4.2 – 4.3 provide an overview of social media in policing, including examples of tweets and posts made by police. Sections 4.4 – 4.6 present the findings from three different contexts of use where activities are emerging and changing. Section 4.7 provides a conclusion.

4.2 Context: The use of social media in policing

Before presenting the main findings it is important to firstly contextualise the use of social media in policing organisations. As the literature in Chapter Two suggests, social media operates on numerous levels such as, at the organisation wide level, at the team or unit level and an individual level (Crump, 2010).

The organisation level use of social media is the official dedicated channel of the police force and usually operates on the two largest social media channels i.e. Facebook and Twitter. It was found that these social media accounts are usually managed by a corporate communication department or media team. It largely consists of updating the accounts with information concerning the whole

³ Excerpts have been edited for clarity, with the removal of words such as “um”, “like”, “ah”. Square brackets have been used where clarification is needed.

force area, sending out press releases and appeals for information. It is therefore a news channel that pushes out information as shown in Figure 9.

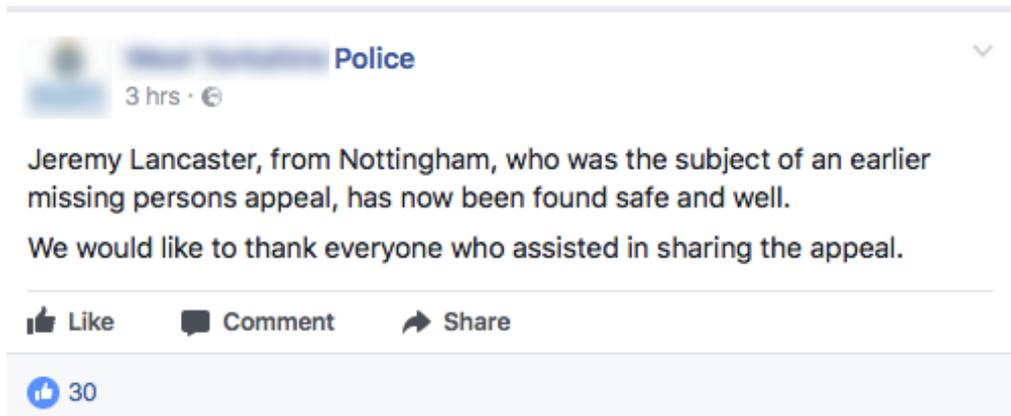


Figure 9 Example of an update on social media

Organisational accounts also link to other social media accounts operated by the force such as YouTube for video sharing and Flickr for image sharing, however this differs by organisation. Figures 10 and 11 provide an example of social media content that links to other platforms.



Figure 10 Example of image sharing



Figure 11 Example of video sharing

The team level accounts consist of neighbourhood policing teams and other units such as road traffic unit, airport etc. These team accounts consist of dedicated individuals that range from PC, PCSO's neighbourhood coordinators, inspectors etc. It was found that team accounts were commonly used for specific geographical locations and neighbourhoods. Therefore, the information on these accounts is tailored towards the communities they represented, as shown in Figure 12.

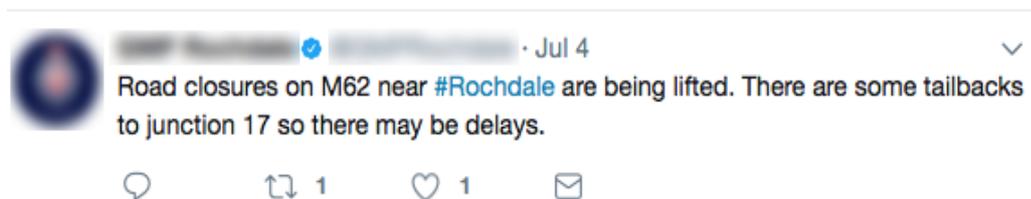


Figure 12 Example of a team account

Individual accounts are less common and tend to only be used by either higher ranking officers e.g. chief inspectors, assistant/deputy chief constable and the chief constable, or a specialist individual i.e. an officer who is a dog handler or part of the mounted unit. These accounts are more personal and tend to engage their followers by providing personal stories of what they do on a day-to-day basis. Figure 13 shows they do not just push out information, they also engage in two-way conversation.



Figure 13 Example of engaging in conversation

As well as the public facing accounts aimed at engagement, policing organisations are also using social media to gather information and intelligence to inform operations. As this research is exploring policing of low level crime and anti-social behaviour, intelligence and information gathering is only considered when it is public information, or what is often referred to as open source social media intelligence or SOCMINT (Bartlett *et al.*, 2013). This is due to the rules around covert surveillance and intelligence gathering. The Regulations of Investigatory Powers Act (RIPA) 2000, maintains that officers can view open public electronic information sources, but not private electronic information and communication unless a warrant has been issued.

In this research the focus is on the team level use of social media, rather than the organisations as a whole or the individual, however it does explore the individuals that make up the teams. Through activity systems the next section will discuss the use influence of social media on police work practices.

4.3 The influence of social media on policing

This study found that social media is influencing activities of policing low level crime and anti-social behaviour in a number of ways, which varied across

different organisations. Through inductive data analysis, it was found that these broadly fit into three models of use;

- 1) Emergent – where social media is creating ambiguity within work practices
- 2) Augmented – where social media is enhancing policing activities
- 3) Transformed – where a radical change in policing activities is taking place.

Each model will be explored as activities in the following sections and analysed to discuss the changing nature of policing activities. Activities may interact and overlap to create a network of activities (Zott and Amit, 2010), for example activities can have the same motivation and outcome (i.e. tackling low level crime and anti-social behaviour), but reach these through different objects and goals (i.e. communicating with the public, gathering community intelligence etc.). In this section the analysis will illuminate three activities of policing at a higher level and consider them as discrete activities with the same outcome (tackling low level crime and anti-social behaviour). In the next sections we will explore how these activities interact in terms of information behaviour.

4.4 An Emergent Model of Social Media Use

This section describes each element of the activity. It firstly describes how social media as a tool mediates the subject and object, through the notion of actions and then goes on to describe the rules and norms, community and division of labour.

As stated in Chapter Two, neighbourhood policing is characterised by communicating and engaging with members of the local community to identify and solve problems related to low-level crime and anti-social behaviour. This model was found to be largely associated with using social media to engage with members of the community. Although each neighbourhood team will take a slightly different approach as dictated by the needs of the local community, an overview of neighbourhood policing for communicating and engaging with the community is depicted in the table below (Table 3). Table 3 shows the elements of the activity system of neighbourhood policing before and after the adoption of social media.

Before the adoption of social media, the subject (neighbourhood policing team (NPT)) used tools such as local face-to-face meetings, online web chats, attending local events etc. to communicate and engage with residents and local stakeholders. They also use tools such as the Police National Computer (PNC), crime statistics and combine these with conceptual tools such as experience and local knowledge of the area and residents to identify local priorities and solve problems. In acting on the object (engaging with the local community), the NPT are influenced by other factors such as rules and norms, the community and the division of labour.

The rules and norms that govern the NPT consist of social norms within the community, these vary by neighbourhood and influence how officers interact with the public or use tools. There are also formal rules and regulations governed by law and police procedures and policies. The community is made up of people who share a common interest in the outcome (i.e. local residents, businesses, local authority etc.), tackling low level crime and anti-social behaviour. This is further influenced by the division of labour – the tasks allocated to each member of the team i.e. neighbourhood coordinator, police constable (PC), police community support officer (PCSO), inspector etc.

This activity is labelled as emergent due to a high degree of ambiguity, which surrounds the activity (this is expanded on in more detail below and discussed in Chapter Five). This has led to a number of contradictions, which will be highlighted in detail later in this section. Table 3 shows the subject and object have remained the same, however the introduction of a new tool i.e. social media, has brought about new expectations and with this, influenced the rules and norms that govern social media use; the community now incorporates the online community; and the division of labour now includes the organisation's media/corporate communications team.

Activity System elements	Pre social media adoption in policing organisations	Post social media adoption in policing organisations
Motivations	Tackling low level crime and anti-social behaviour; solve problems in the community	
Subject	Neighbourhood Policing Team (NTP)	
Object	Engaging with the local community	
Tool(s)	<p>Tools for communicating with the public include: face-to-face meetings, web-chats, local events, newsletters etc.</p> <p>Tools for neighbourhood policing tasks include: PNC, mobile devices, radio, email, crime statistics, knowledge of the task, experience etc.</p>	<p>Tools for communicating with the public include: Social media, face to face meetings, web-chats, local events</p> <p>Tools for neighbourhood policing tasks include: PNC, mobile devices, radio, email, crime statistics, knowledge of the task, experience etc.</p>
Rules/Norms	Law, police rules & regulations, community norms	Law, police rules & regulations, community norms, online social norms, social media policy
Community	Local residents, community groups, local authority, policing teams	Online community , Local residents, community groups, local authority, policing teams
Division of Labour	PCs, PCSOs, neighbourhood coordinators, Inspector	PCs, PCSOs, neighbourhood coordinators, Inspector, media team, support staff

Table 3 Activity system elements pre and post the adoption of social media

4.4.1 Social media as a tool

This section will firstly describe how social media is accessed through devices. It then describes how social media is used and how it is influencing the activity.

Access to social media

The way social media is accessed varies between organisations and is largely determined by the organisational rules and norms. In one organisation, the rules dictate that all social media platforms can only be accessed via an interface – Crowd Control HQ (CCHQ). The interface means that when officers use their work mobile devices (i.e. smartphones) they cannot access social media platforms directly, they have to go through CCHQ. CCHQ logs all individuals that sign in and the activity they engage in. So for example, it would log that an officer signed in at 17.00 and sent five Tweets/Facebook posts and it would also capture the content of these posts.

For the organisation, CCHQ enables officers to be more efficient by using the features such as accessing all their social media accounts at the same, uploading photos and setting pre-programmed posts; however a number of tensions developed around it, firstly it was perceived by many to be a way of monitoring their social media use. For example,

“they [senior management] say it’s not to monitor you, but it logs all your interactions” [I9]

“two years ago we went to an interface called CCHQ, so the staff now cannot go straight onto Twitter, and the reason that was brought in was because staff were putting some inappropriate stuff on which you’ll have seen in the news” [I2]

Therefore as well as being a tool, it also became a rule within the organisation. Engeström (1990) suggests this shift in function of the artefact from tool to rule is usually when the subject perceives it as “administrative demand” (p.90) designed by those in power to satisfy the community members, rather than as an instrument useful for the subject to engage in the object of activity.

CCHQ provided a further tension between the subject and technology as many of the officers complained how slow CCHQ was and that it wasn’t compatible for many of their devices, which were not up to date with the new software.

“it does have some analytical advantages but because it’s quite a slow operating platform you may not get your replies immediately as you would on Twitter, so it can be a little difficult managing that kind of live Twitter, you might have a time lag of 15 minutes...sometimes it’s just easier to check Twitter through your own personal device then reply via CCHQ” [I2]

“because it’s [CCHQ] so slow and times out, you sometimes have to logon at home after a shift to ensure what you’ve put on has gone out properly” [I10]

Contradiction between the subject and community

Whilst out on patrol it was observed that it took an inspector 35 minutes to upload a photograph using CCHQ. As the officer was on foot patrol at the time, it also had the potential to create tension between the subject and community as the officer did not want to be perceived by the public as spending too much time on his phone. The mobile device itself created a tension between the subject and the tool. For example,

“it’s difficult because I’d have to do it [use Facebook] through my personal phone for the simple reason, we get these devices which is a Samsung Galaxy, but they tend to be, we basically bought a device which isn’t fit for purpose...I’ve got all my operational stuff on there, but in terms of internet access, we’ve got email on there but it’s absolutely horrendous, you’ve got to connect up to the internet via this thing here which gets me to the forces, that times out all the time, so it has been known for me to spend two hours trying to send one email” [I23]

“You can’t access the internet on here [mobile device], so you have to wait until you get back to the office and use the PC, which means you can’t live tweet...so if there’s a traffic accident and you want to let people know through social media, you have to do it back at the station” [I25]

Again this was dictated by the rules of the organisation and all officers in this organisation commented on how the device constrained their use of social media. This suggests that the technology needs modifying to fit with the emerging work practices through online working. However the organisation are looking into a solution so the officers can access social media on the move in the near future.

Social media use

As discussed above, where NPT would traditionally use tools such as local meetings, community events etc., social media enabled a wider audience to be included in policing. For example a senior officer explained,

“using it as a neighbourhood tool, as a way of our neighbourhood teams increasing their visibility, getting feedback from people and starting to put messages out about crime prevention, requesting information from the public... we were using it but with a very clear aim that it was there to support local policing” [14]

Many officers explained that community meetings had generally low attendance so social media was used as a way of trying to get members of the community to engage with their neighbourhood teams, both online and offline. This is reflected in the excerpt by a NPT inspector,

“We promote a lot of our engagement stuff via Twitter so for example we do something that we call coffee with cops, which is literally ‘we’re in Starbucks today between 11-12 come and have a chat’, so again we’ll push that because no one really goes to community meetings you know you’ll say third Tuesday of every month we’ll be in the parish hall but it’s the same three people that come” [12]

It was found that although social media was encouraged to be used as an engagement tool by the organisation, only some NPT teams and individuals were using it in this way, i.e. although every neighbourhood team has a social media account, they are dependent on the individual officers that engage in it.

4.4.2 Rules and norms

Although the legal regulations and policies have remained the same, new rules such as social media policies, training and online social norms are still emerging and being established. In this context, social media adoption by police officers was ad-hoc with individuals either requesting to be made an author on the account because they were interested in using it or being told to use it by a higher-ranking officer. In this organisation there was no formal training offered. As one officer put it,

“there’s no real guidance...we just make it up as we go along” [123] and another

“we get a list of don’ts, what not to do, but there isn’t any guidelines on how to use it...if I have a problem I just speak to the media team” [I21]

Contradictions between the subject, tool and rules

In this context tensions and contradictions between the subject and tool were prevalent due to the ambiguity surrounding the rules. This would sometimes manifest in conflicts in the division of labour as individuals had different interpretations on the purpose of police social media accounts;

“there was one comment on there [Facebook] that was “I’m glad you’ve seized it [car seized for a traffic offence] because he was driving like a dick”, the boss removed that comment but to me I think perhaps we should have left it on, it’s not that offensive in the great scheme of things, it’s someone who’s witnessed what was going on and is reporting what we’ve done, so yeah it’s a police site but it’s also an open forum” [I23].

It was observed however, that although these police officers stated they lacked formal training around social media use, they were aware of the legal rules around what information you can share when an individual has been arrested. These seemed to be standard media guidelines adopted by policing organisations, which were then applied to social media and shaped by the officers’ experience.

“There are very strict guidelines around information that we will give out following arrest or a raid or conviction or asbo...what I layer onto that in terms of locally is just learning from some of the pitfalls I’ve fallen into, with my new staff, I’ll always sit down with them and spend a couple of hours talking about my additional do’s and don’ts” [I2].

“if that goes out viral and people see it, you [offender] go to court and you say your honour no matter what I say today it’s not going to work because I’ve already been found guilty on social media and because of that I’m not going to have a fair trial so I request that this is thrown out” [I3]

It could be that broadcasting on social media has become an operation for some officers. The legal rules are already embedded into their routine work and they therefore do not directly think of them, it’s just what they do.

4.4.3 Community

The community in the activity now incorporates the online community as well as those in the local community. Unlike the offline community, social media communities are not bound by physical location. Any individual can 'like' or 'follow' police social media accounts, therefore the community has widened to include individuals that may be physically located elsewhere and even in another country. In practice NPT are bound by physical locations and every team will have its own area or division to manage. The policing and security needs of these areas are dictated by the communities that inhabit them. For example it is the community that set the priorities for police by expressing their concerns, whether it be vandalism, anti-social behaviour, theft, etc. The NPT's role is then to target these priorities and work with communities to develop a plan to tackle them.

With the introduction of social media this could be problematic. If police are using social media by trying to gauge feeling and tension in their communities it may not reflect the feeling in their geographical location. At the NPT level, it is unlikely police are able to disentangle information in terms of information sharing with the local and wider community. Therefore it was found that police used social media to foster discussions offline, rather than risk tackling priorities that may not serve their immediate geographic areas.

Contradiction within the community

A contradiction was created through managing the expectation of people in the online community. It was suggested that as they have online 24 hour access, seven days a week, it was sometimes difficult for officers to manage people's expectations in terms of responding to posts and tweets. This is reflected in the excerpts below,

"you'll see sometimes that someone will tweet at 3am and then they'll tweet at 4am 'oh you're not interested then' and I'm like, I'm in bed, I don't say that but you know they expect a response quicker than we would give a commitment for a 999 call or a 101 so it is odd" [12]

"One of the issues we're having to manage is that the expectation for people out there is someone standing there waiting for those tweets to come in 24/7. Our front page says if it's a crime or an incident and it needs dealing with now, ring 101 or 999, don't report on Twitter but people don't look at [it]" [13]

Many stated that they have now had to make it clear on the social media account bio that the account is only managed between set hours, i.e. 0900-1700 and to contact the police directly if it is an emergency (see Figure 14 below). However participants also stated that most people ignore that and post comments as and when they see fit.



Figure 14 Example of stated when the account is monitored

4.4.4 Division of labour

The division of labour now incorporates the media or corporate communications team. It was found that since the adoption of social media, media teams in each organisation have become more involved in the communication side of neighbourhood policing.

Contradiction between the subject, rules and division of labour

One police officer relayed a story where the media team were perceived to have acted inconsistently regarding the rules and this was manifested within the division of labour, when the media team posted photographs on the organisation account around a local community event.

“I took part in [the local] Pride event, and there were photos all over Facebook posted by the media team, whilst I am openly gay they chucked all those photographs of everything they could possibly find and I was like you haven’t got my permission to use that so what’s the difference between what you’re saying here [in relation to posting photos of children at a community event on

the NPT page] and they were like, well you're an officer, but it doesn't necessarily mean everyone knows and there were people there who are not openly out, so what's the difference, and they've also put the rule out, no photographs in uniform on social media because of us potentially being targeted by terrorists...but actually from that point of view, you've targeted me because I'm a police officer but now you've openly identified me as a gay police officer on social media. So that's my argument some of us are putting photographs on and some aren't so tell us which is it? [123]

The change in the division of labour was seen by some officers as the media team creating rules around how to communicate with their local communities. It also created new targets for police. These changed work practices. As well as having targets offline in the sense of crime reduction in their local communities, NPT have now found they have social media targets in the way of getting 'likes' and 'shares', for some, this was driving their social media use, for example,

"unbeknown to me our accounts were the worst performing account. So I said ummm I don't like worst performing, so personal pride kicked in...I went to [person in the media team] at the end of the meeting and said "when's the next meeting?" She said four month's time, so I said "I can assure you our account will not be the worst performing account next time" [13]

For those accounts that are considered to not be utilising social media, the media team will request the current user be taken off the account and someone new take over.

Managing work practices

As well as police officers, support (or back office) staff were also found to be using social media. However many reported that this was a new element of their work and they were still a little unsure of how to use it. For example, one participant said they would often seek out approval with a senior member of staff before making posts available to the public. This is to ensure they are posting what they perceive to be the 'right' kind of content and replying in the appropriate way.

"sometimes we [support staff] have to ask other officers about how to reply to the public as we don't always know the correct answer if it is to do with a legal matter or law and sometimes we ask corporate comms for help in wording posts and messages" [18].

This suggests that some staff are still learning how to use social media and may still lack confidence as they are not used to communicating with the public.

This section highlighted some of the key changes in elements of the activity and the contradictions that manifest. The next section presents the findings around some of the new actions that were found within the activity.

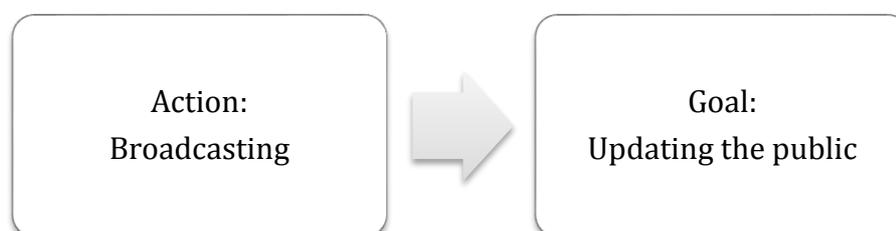
4.4.4 Actions in the emergent activity

The data suggests that social media is used as a tool to communicate and engage with the community in many different ways. Although the extent of use varied by individual and team, the data suggested engagement could be grouped into three routine actions: 1) broadcasting; 2) engaging in discussion and dialogue; and 3) monitoring. It is important to point out that these actions were not sequential as might have been expected. Instead various teams and individuals would perform all or just some of these actions depending on the goal. As stated in section 3.3.1.2 actions are goal directed. Therefore these can be analysed as discrete actions within the activity (Leont'ev, 1978).

4.4.5 Action 1: Broadcasting

Broadcasting was found to be the most commonly used action. For police the main goal of broadcasting is to update the public on what is happening in their local community. They explained that broadcasting through social media is not necessarily aimed at getting responses and engaging in dialogue, but to reach a large number of individuals and communities. For example,

“there’s huge appetite for live time reporting and I think that’s been the other development is that we’re moving towards almost like a news media style so I’m certainly pushing the staff to get out and get a picture, get it on” (I2)

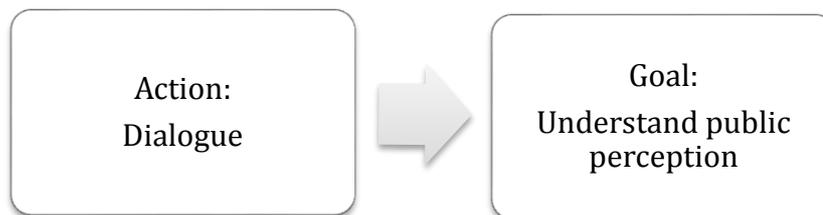


Therefore this is similar to posting leaflets and fliers and tends to be one-way communication. In this context, it enables policing organisations to take control of the information they decide to share, without having to rely on the media to broadcast information and messages. Whilst this was generally seen as a positive thing in the organisations, there were a number of contradictions that emerged. For example it wasn't unclear whose role it was to broadcast through social media. This linked to the findings on the division of labour above. A PC commented that support staff don't always know what to post or how to do it.

“At one point the neighbourhood coordinator [support staff] was the only person allowed to put stuff on here which was ridiculous...the information that was going on wasn't current, half the stuff you were sending wasn't put on until one or two weeks later... they're not talking from the police perspective quite often” [123]

4.4.6 Action 2: Generating discussions and dialogue

As one of the aims of neighbourhood policing is to engage with the community, police officers were encouraged to use social media to generate and engage in discussion and conversations online. In this sense social media is used for getting feedback and engaging in open-ended communication. With regard to policing organisations, the goal of this action is to get an insight into public perceptions.



Although police expressed the need and benefit of engaging in dialogue with the public through social media and many did so. Others preferred to start conversations and then allow the public to converse amongst themselves.

“the best tweets for us which I mentioned are the ones where we launch the idea or the conversations and we just take this big step back...if they want to go off and have that conversation that's fine and we might need to chip in now and

again just to kind of and you know if there's a relevant point or statistic that we can chuck in then we will do" [12]

Time and resources

Starting a discussion was one thing, but officers found it difficult to find time to respond to comments, with some responding to comments in their private time or not responding at all. This developed as a tension as the goal of generating conversations is to get an insight into public opinion and perceptions of the community. If officers are not engaging in conversations then the goal is unlikely to be reached.

"it starts to take over your life because I was updating the Facebook page at 10 o'clock last night and I think you've got to be mindful of that" [123]

"The problem is we just don't have the resources to be able to respond to every comment..." [120]

Knowing what to share

This linked to the finding that they found it difficult to predict what would "take off" and what would get very little attention. For example, a few PCSO's explained how they had to be careful what they posted as it could often have negative reactions,

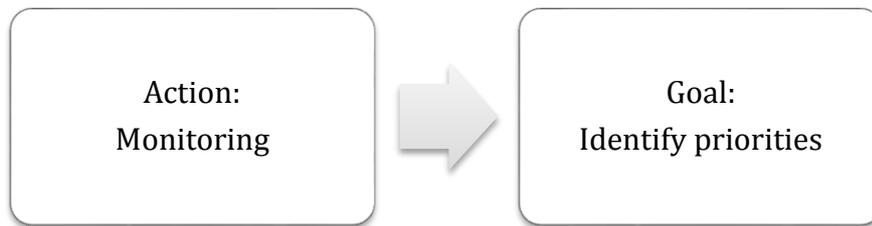
"There's no pattern around what people decide they're going to like [on Facebook] so I can look at stuff and think they liked that last week so I'm going to put that on this week, it got a good response last week and you'll just get slagged off left right and centre 'haven't the police got anything better to do'" [124]

"The problem is just can't tell what people want to engage with, last week we had to take a post down due to the negative and abusive comments we received" [121]

This suggests that using social media as a tool for engagement creates a different type of relationship between the public and police, which can often create tension. One that is not replicated offline. Many officers commented that the public would not talk to them in the same way on the street as they do online.

4.4.7 Action 3: Monitoring

The goal of this action is to gather information to help identify local priorities.



This was surprisingly the most under developed aspect in the activity system. It links to the data presented above. Although the potential for gathering community information from social media is there, it was explained that the NPT do not have time or resources to monitor social media. This was also prevalent in the observations, officers would often post messages but did not monitor the responses, mainly because they were busy engaging in their traditional work practices.

Using social media in this way created a tension between the tool, the division of labour and the object. For example, when interviewing a neighbourhood coordinator about how she monitors social media, she responded with,

“it’s not my job to monitor social media, I just put the information out, and I’m not intelligence, that’s their job” [120].

This view was not shared by other police officers who placed more importance on monitoring social media, even if they recognised this was sometimes difficult to keep up with,

“if we put a post on then someone should be monitoring that post, whether it be the neighbourhood coordinators or the bobby, but ultimately it’s pointless putting something on there without someone monitoring it, it’s ridiculous” [123].

It appears that for some police staff (as highlighted above) there is a great deal of ambiguity around what their role in engaging with social media actually entails and how the existing work practices are supporting that.

This section has presented the findings illustrating how social media is influencing work practices in this context. It would appear that within this emergent context a lack of clarity around the rules and division of labour within

the activity. It could be that the structure and culture of the organisation may facilitate certain types of social media use but not others. This will be discussed further in Chapter Five. The actions and associated information behaviours will be discussed in Chapters Six and Seven.

4.5 An Augmented Model of Social Media Use

In this model social media is enhancing existing ways of working. When compared with the emergent model, this context had fewer contradictions and instead congruency. This context was found to be associated with the activity of intelligence and based largely on observation as a data collection method, but also includes several interviews with intelligence officers. In this section the activities of intelligence officers and neighbourhood officers from police forces are described with the aim to provide an understanding of the actions performed by officers.

Community intelligence can be used for a variety of policing activities such as investigation, tension monitoring, building relationships in the community, community cohesion, highlighting local crime hotspots and issues in the community. This section looks at the activity of gathering community intelligence for local events where low-level public disorder and anti-social behaviour have the potential to manifest. Table 4 highlights the elements of the activity system pre and post social media adoption.

Activity System elements	Pre social media adoption in policing organisations	Post social media adoption in policing organisations
Motivations	Tackling low level crime and anti-social behaviour; solve problems in the community, gauge community feeling	
Subject	Neighbourhood Policing Team (NTP)	NTP, intelligence officers
Object	Gathering community intelligence	
Tool(s)	Technological tools: PNC, radio, mobile device etc. Other tools: Local knowledge, expertise, informants	Technological tools: PNC, radio, mobile device, social media platform, social media search tools, MacBook etc. Other tools: Local knowledge, expertise, informants
Rules/Norms	RIPA, National decision making model, laws, police rules and regulations	RIPA – extended to online , National decision making model, laws, police rules and regulations, social media policy
Community	NPT, local community members	NPT, local community members, online community
Division of Labour	NPT, intelligence officers	NPT, intelligence officers, social media search tools

Table 4 Activity System elements pre and post social media adoption

Prior to the implementation of social media, intelligence would have been gathered through local neighbourhood police officers or as they are often referred to, the “bobby on the beat”. They would spend time building relationships with members of the community (or informants) and gather intelligence using their local knowledge and expertise (tools) on what was going on, local issues, tensions building up etc., to build up a picture of the

community. The subject would use the tools, which were influenced by the rules and norms i.e. the Regulation of Investigatory Powers Act 2000, the National Decision Making Model and police rules and regulations. The community was made up of the NPT and local community members that share the same object. The division of labour included the NPT and the intelligence unit.

This activity is labelled as 'augmented' as it is enhancing existing work practices. Table 4 shows the object has remained the same, however the subject now includes intelligence officers. The introduction of new tools i.e. social media and social media search tools has also influenced, the rules and norms that govern social media use by extending current regulations and policies to include social media use, the community that now incorporates the online community, and the division of labour which now includes social media search tools. Each of these will be discussed in more detail below.

4.5.1 Social media as a tool for intelligence

In this section the activities of intelligence officers and neighbourhood officers are described with the aim to provide an understanding of the activities and actions performed by officers when using social media to gather community intelligence. This section describes community intelligence for local events and more specifically a local football derby where low-level public disorder and anti-social behaviour have the potential to manifest. Section 4.5.1 firstly describes how the tool is enhancing existing work practices more generally and then goes on to describe the event as an example of changing practices. Three interrelated activities consisting of actions are explored to analyse the stages of intelligence gathering for large public events i.e. a local football derby as shown in Figure 15 These actions start from the moment the officer begins gathering information to when the intelligence is generated and passed to a higher-ranking officer i.e. the silver commander.

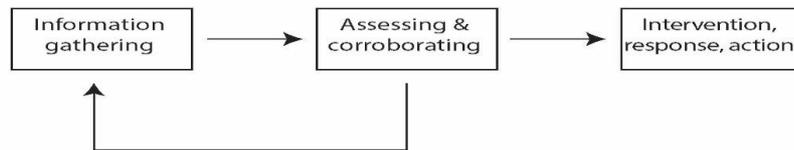


Figure 15 Activities in the augmented model of use

The teams use a number of sources to gather data. Social media analysis tools such as TweetDeck, RepKnight, Buzzbar, Cosain, Echosec are used to scan for information using keyword searches determined by the intelligence officers. The aim is to ‘listen’ to online public conversations that may be of relevance for police. In this context information is sought out through open source public platforms, i.e. only information that is publically available. Open source scanning includes anything not covered by RIPA i.e. where you need a warrant to conduct covert searches of information. The use of social media to gather information was described by one officer as,

“a fantastic tool for us, it’s used right across the board whether it’s in response to our volume crime, priority issues, what we glean from stuff, but probably most effective around the kind of public disorder, community cohesion side of business, so for everything like football matches right through to local protests and national protests.” [15]

Although there are still traditional methods of gathering data being used through the “bobby on the beat”, when it comes to community intelligence, it was found that more reliance is now placed on using tools such as social media to gather information, using dedicated teams who scan and search for information using an automated process.

“we do very little of that kind of traditional engagement now...I’d say probably 80% of the stuff that we get now around tensions is out there in open source, we can see it, right through to local comments that happen and incidents say local comments, through to media reports, you can link it all and put it together in a report” [15].

The use of software and predetermined search terms, enabled the teams to continue working on other things whilst scanning is taking place in the background. The officer sets up an alert that emails the officer when a keyword has been detected.

Where as previously neighbourhood teams would have needed to be on the ground and located within their communities to gather information for intelligence, social media has enabled information to be gathered remotely and through an increasingly automated system. Therefore where once the neighbourhood officer would use their own knowledge, expertise and relationships in the community to make a decision on what could be relevant information, this is now being aided by an automated search tool that actively scans for all relevant information and is not location bound. Officers described this as proving fasting information, which helped inform decisions.

Contradictions within and between activities

A contradiction was found within elements of the activity, and between other activities. While the intelligence team (subject) are able to carry out automated searches whilst continuing with other tasks, therefore managing multiple tasks simultaneously, this has created a tension concerning their workload and created greater demand on the team. For example,

“we can have dozens of searches set up and running because they do dynamic stuff as well during the day...then you’ll have stuff like the major incident teams who are perhaps investigating a murder or something like that, they’ll come to us and say can you look at this persons social media footprint, what can you tell us about them, we’re just in the process of training people on each of our major incident teams to do that themselves, to take the demand away from my team.”
[15]

Therefore where as previously there had been a dedicated neighbourhood officer gathering information which was integrated and formed part of their duties, this is now taking place by a team who are not just concerned with community intelligence, but are also conducting digital investigations for major incidents. One of the intelligence team members commented that they were finding it harder to cope with the increasing workload as every department was now sending them open source information requests daily.

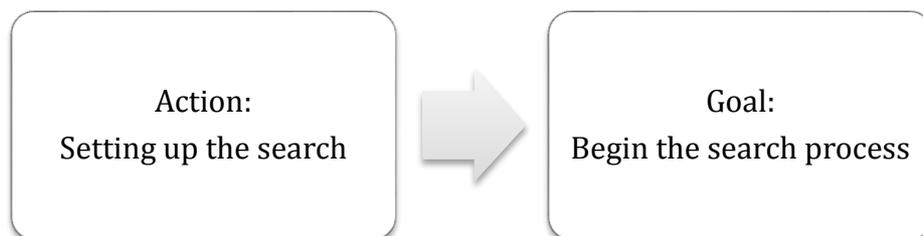
This section provides the overview of how social media is used and is enhancing existing work practices. The following sections describe the three interrelated activities (Figure 15) and the associated actions that were found when using social media for intelligence 1) information gathering 2) assessing and corroborating 3) intervention, response and action. These were found to be sequential with each informing the next activity but with feedback loops when more information was required.

4.5.2 Activity 1: Information gathering

The subjects' main motivation for this activity is to identify relevant information before moving to the next activity of assessing and corroborating information. Two actions were found to run sequentially; setting up the search and information seeking.

4.5.2.1 Action 1: Setting up the search

The goal of this action is to begin the search process.



The organisation was found to use multiple social media search tools simultaneously to triangulate information, for example, Echosec allows a geofence to be set up across a given location, in this case around the football ground and surrounding area. It uses location data to search for any image that has been taken in a given location and posted on social media i.e. Instagram, Flickr and Twitter. This only works if the user has their location services data on. Another tool that was used is Bambauser. This tool is a platform that allows users to connect to it and stream live video from their device, it will then store the video to be viewed at later date (like YouTube). These tools were described as being particularly useful for capturing real time data.

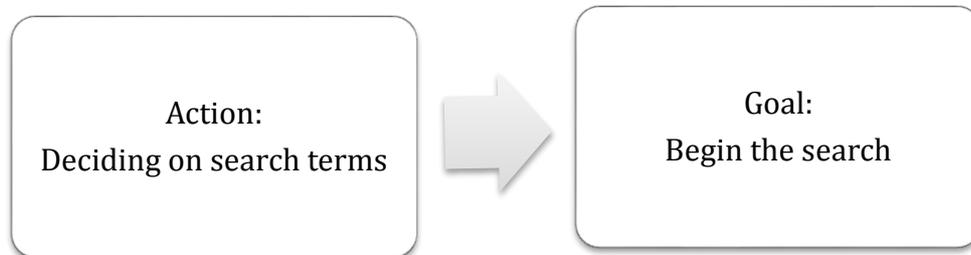
Tweetdeck and Repknight were used as harvesting tools that operate using key search words. For the football derby these revolved around the names of the football clubs. These were described as the tools most used by the intelligence officers. An intelligence officer demonstrated how they use the tools to search key terms,

“so if it’s [team name] coming up they’ll put [team name v team name], [team name] travelling, all those key words will go in the search and they’ll start looking at what the official side of [team name] supporters are saying, what the known individuals who follow them and tweet about it, what they’re saying” [15]

Open source searches are governed by RIPA and force policy, which dictates that officers can scan for open source information such as keywords, but cannot target certain individuals.

4.5.2.2 Action 2: Deciding on the search terms

Once the search tools have been set up, a decision is made on appropriate key words to search on social media.



These decisions are based on experience, and are used to

“get an idea of what’s being discussed and what the general feelings are before the game” [112]

These searches can identify any tweet that mentions the desired search term.

It was stated that in the weeks leading up the game an officer sets up searches to run in the background whilst continuing with other tasks, as demonstrated by an intelligence officer,

“we can have dozens of searches set up and running because they do dynamic stuff as well during the day... and that’s the beauty of technology they can set up the search, leave it to go, work on something else and it pops up” [15]

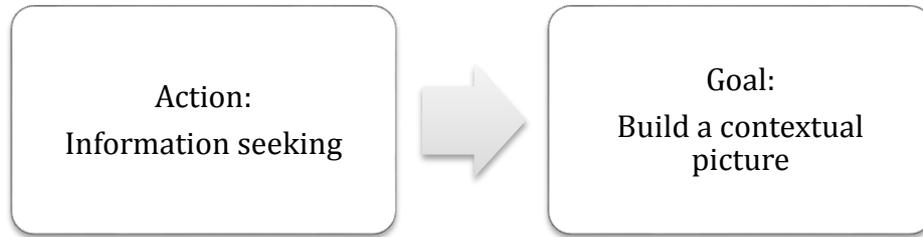
Once the search tool has identified a relevant search term, the tweet is harvested and an email is sent to alert the officer a potential ‘hit’ has been detected. This is then stored on a server. The notification can be adjusted to certain time periods such as every hour, every 5 hours, once a day etc. and can also collate information to generate reports. At this point the tool has only identified a piece/s of information for the officer to view, based on the search terms, it may or may not be relevant.

Contradiction between the subject and tool

Whilst these search tools provide a lot of information, quickly, they also reveal a lot of ‘noise’, this can lead to large volumes of tweets being identified, many of which will not be relevant. A further contradiction related to ‘noise’ and volume of tweets was identified. The tools used to harvest information are set with a limited number of enquiries so produced a data cap. Although these are usually refreshed within a given time period i.e. 24 hours and have a generous allowance, this can become an issue with events that produce large volumes of tweets, such as a football derby. This can lead to officers not having access to potentially relevant and vital information. In developing this tension, the force has started to anticipate this and purchase extra data allowances for certain events that, through experience, have quickly exceeded the data allowance. Whilst this was not an issue during this football derby, it was described as having occurred during previous events.

4.5.2.3 Action 3: Information seeking

In this case, information seeking was found to be a continuous process that is continued through every activity in the augmenting model. Here the main goal of information seeking is to widen the search to build up more contextualised information.



Different social media search tools were found to be used for searching different platforms. For example Tweetdeck is used solely for searching Twitter, whereas Echosec can be used for Twitter, Instagram and Flickr. It was explained that there are limitations on search tools. Facebook is one of the most widely used social media platforms globally, however as one intelligence officer stated, *“there is no [open source] search tool available for Facebook”*. Facebook have a different model to other platforms such as Twitter which is largely motivated by commercial gain.

Therefore information seeking on other platforms such as Facebook and websites is necessary (this action becomes more apparent in the next activity of corroboration).

As information on these other sites cannot be harvested (because the tools do not have that facility), screen shots are taken by officers to document any relevant information. However it was not clear where or for how long information was stored.

Active information seeking

Leading up to the football game social media search tools run in the background, picking up relevant tweets. Whilst this is taking place, the intelligence officers are simultaneously seeking information in a more active way. It was found that officers draw on their own expertise to guide them in knowing what to look for and where to look for it. This includes a variety of sources such as media sources, websites, blogs and exploring social media platforms such as Facebook to view for example the football teams fan groups. Intelligence officers will also search for known individuals, such as known football hooligans, to see if any information is available on their personal pages. At this point the officers are looking for any indication for potential disorder or tension. This includes searching for images, location data, groups they belong

to, associates or contacts they have. This all helps to build a picture of what people are saying and doing (or saying they are doing) in the lead up the football game.

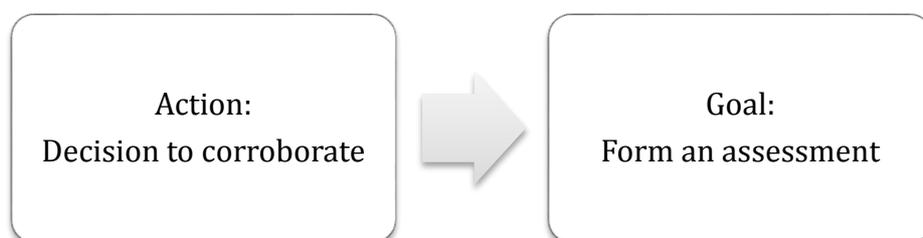
It was found that during the game as more people (community) engage in talk on social media and it becomes 'live', the task changes and much more emphasis is placed on automated search rather than actively seeking information, as this process has already transformed into the next activity.

4.5.3 Activity 2: Assessing and corroborating

As information is flagged by the tools, or sought out from other sources such as websites, the officers then start to assess the information and decide whether there needs to be further corroboration. Based on the previous activity of gathering information, changes in the division of labour when judging and assessing information to generate intelligence, suggests that decisions are now taking place at a higher, more centralised level. Where as previously an officer would assess information and corroborate it through interactions within the community; more emphasis is placed within a centralised intelligence team, who triangulate various online sources.

4.5.3.1 Action 1: *Decision to corroborate*

The goal in this action is to form an assessment.



A number of factors were found to influence the decision to corroborate information. These are, knowledge of the context (established in previous activity); how many people are talking about or sharing the same information;

and is the individual/s known (i.e. can the information be trusted?). It was found that officers draw on experience here. For example,

“You get a feel for the tweet, you look at the language used and the tone, is it angry, jokey, could it be sarcastic, who’s saying it...are they known to us” [127]

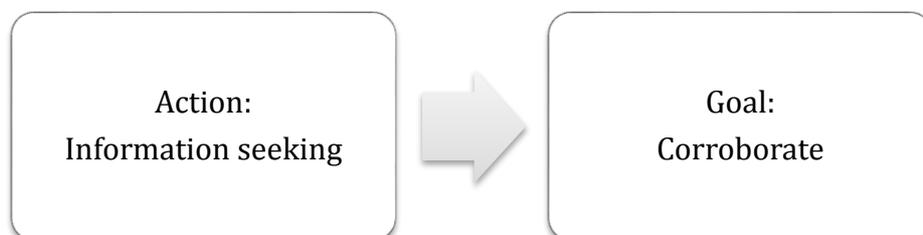
Depending on if it is an isolated tweet or more than one person saying the same or similar thing, they either decide to monitor it, start to corroborate with other sources or decide to act on it. The seriousness of the tweet content also influences the decision to corroborate, for example one senior officer explained,

“one person might say something and you know it isn’t true, but because they’ve said something like, there’s someone waving a machete around [city centre], it’s out there in the public and you know it isn’t true but can you imagine if something happened and it came back to us, you can imagine the Daily Mail...the information was there and we didn’t act on it...so if it’s something that could be serious we start to look into it, even if we know the chances of it happening are low” [127].

Therefore the decision to corroborate is based on a number of cues that officers recognise as potentially needing to be followed up.

4.5.3.2 Action 2: Information seeking

This follows from the previous action, once the officer has formed an assessment and decided to corroborate the source, they move back into an information seeking action. The goal is to search for more sources of information to corroborate the source.



“we always look for at least 2 or 3 different sources to corroborate it, so we wouldn’t see something by one person and act on it, we’d take it into consideration and then look for other people who are talking about the same thing or is there anything else we can find that’s corroborating it. So it tends to

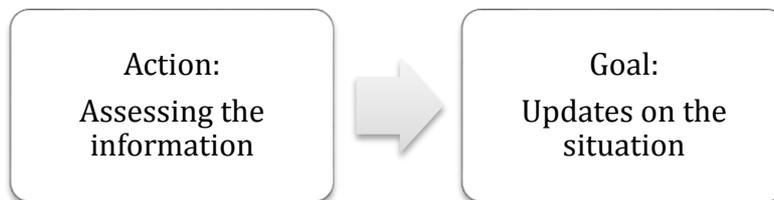
be if we've got a few people that are talking about something then it very quickly escalates, then we see that as being good information which we perhaps wouldn't always act on, but will start to form our assessment about a particular crime issue, demonstration, whatever it might be" [15].

"you can pull in other information, so you see what's being said online, and you can start to, if there's CCTV you can see what's happening, or if there's an officer around [the area] you can ask them" [127]

Once the officers begin the process of corroboration they move into the next action of formulating an assessment.

4.5.3.3 Action 3: Assessing the information

The goal of this action is to provide updates on the situation. Officers stated that the assessment is based on the information they have so far, this is continuously updated in the lead up to the event as more information is available. Therefore assessments are not a final end point, they are updates on the situation *"this is what the situation is now" [114].*



Reports are generated in the weeks leading up the event and the silver commander uses this information to formulate decisions around how many officers to deploy and where they will need to be for example,

"That forms an assessment around you know, there's going to be a couple of hundred of us on coaches and we're going to meet in such an such a place, they would make an assessment on that, if there's lots of people talking about it and it looks viable, that would get put into an intelligence report which would go to the incident commander, so we'd be saying to them officially this is what it's about, this is the game, this is what the two clubs are saying, they're expecting so many travelling, this many supporters, tickets allocated. Open source [social media] tells us, this is what we've seen and we'll reference where it's come from and they'll put an assessment on it, whether they believe it's highly likely, likely, unlikely or whatever it might be. The police commander can look at that and make some decisions...they can make intelligent informed decisions around

what the police operation looks like so instead of having loads of cops in the city centre for hours before because they think people might converge, but if there's absolutely no evidence of it then they won't [send them]" [15]

There are formal assessment reports that are submitted weekly in the weeks leading up to the event. As the event moves closer, they become more frequent with daily reports and on the day they move to hourly, until the event begins.

It is important to point out that in the hours leading up to the football game, the intelligence team have psychically changed location and are now situated in the incident room (as indicated in Figure 16 below) with other members of the community, i.e. inspectors, media team, support staff and the silver commander. This facilitates faster communication in the division of labour. For example, once the event starts, the reports become less formal and become verbal updates from the intelligence team.



Figure 16 Incident room

Situational awareness and expertise

It was observed that during the football derby the silver commander would continuously check with the intelligence team what was happening on social media with *“anything to report?”* and *“is all looking ok on there?”*. The

intelligence team are constantly in the process of assessing information during the event to aid situational awareness. Information seeking becomes less of an action and more reliance is placed on the automated search, this seemed to be due to time pressure.

It is during this action of assessment and in particular during the live event that the need for expertise seems to become more prevalent. At this point information on social media is coming through extremely quickly, hundreds of tweets are coming through every few seconds and on a continuous flow. During the event both a senior intelligence officer and a less experienced officer [who had technical experience but no operational or front line policing experience, i.e. she was not a warranted officer] were monitoring social media. When asked how they know what to follow up on, the experienced officer described *“you just get a feel for it, I can tell what might be worth investigating”* [11] however the less experienced officer commented *“see [points at the screen] when it’s like this you just can’t see what’s happening”* [16]. The theme of expertise will be discussed in more detail in chapters six and seven.

A contradiction between the division of labour and the tool could influence the assessment being made. It was found that when under time pressure the less experienced officer found it more difficult to assess information than the senior officer, or it could be that she was more willing to admit it.

From the assessment and corroboration of information, officers then decide whether to intervene, respond and/or take action.

4.5.4 Activity 3: Intervention, response, action

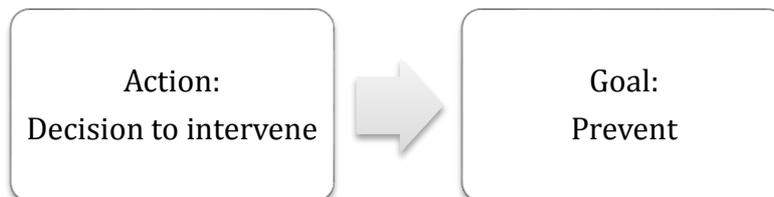
In this activity officers decide what to do with the information they have. In this section they have been broken down into actions of intervention, response and taking action. Once the information has been assessed and is interpreted as intelligence, the officers can then decide what to do with the information. As demonstrated in the quote above (15), the assessment of social media information enables the officers to influence operational decision making. It was found however that depending on what the information indicates, i.e. tensions or concerns building up, misinformation, potential disorder, disorder in progress etc., officers can take online action in the form of reassuring people, answering

questions etc. through a series of tweets, rather than taking offline action such as deploying officers to an incident. Although below the three actions are analysed separately, there is considerable overlap and a high degree of interpretation of the information needed by officers. Again the theme of experience was prevalent here as officers recognise cues in the information.

4.5.4.1 Action 1: Decision to intervene

During this action the division of labour becomes more collaborative with the intelligence team now engaging with other teams such as corporate communications, neighbourhood inspectors and officers etc. This action usually takes place leading up to an event for example, information on social media might suggest tension is building up and the goal is usually to prevent disorder, for example,

“what we’ll do if we see there’s an issue, like some people might need to be dissuaded, or they [intelligence officers] might want to put some sort of active communication out to reassure people, then we’d be in touch with [corporate communications] team to see right who’s the best person to put this out, is it one of our senior officers that should be tweeting something, or do we do it from the corporate account, or do we get one of the neighbourhood teams to do it, or is it on all of those different levels?”. [15]

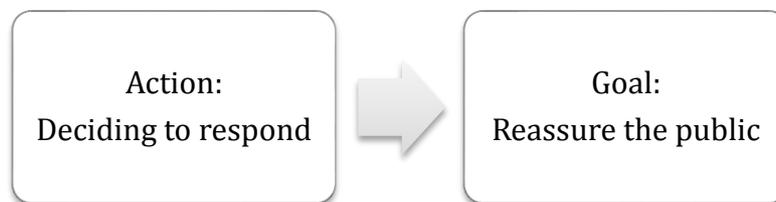


It was found that as well as deciding how to intervene i.e. in the form of online communication, the officers also collaborate with other teams to decide who is best placed to send out a message. This was found to differ depending on the type of event. In the case of the football game the messages tended to come from the main force account and corporate communications would send out the message to reach as many people as possible. However if the event is more local and community focused i.e. a local protest or demonstration, where tension was likely to build up due to the uncertain nature associated with demonstrations and the potential for violence, then it would usually be a neighbourhood officer and/or a community group leader. An example of this was

an EDL protest in an area with a high ethnic population. The officers liaised with leaders in the community who used their networks to reassure people that the protest was peaceful and prevent the potential for tension to break out into disorder. They would frequently share updates of the events as it was in progress with photographs to show there was no disorder.

4.5.4.2 Action 2: Deciding to respond

This action has the goal to reassure people by creating an accurate representation of the situation or event. Therefore this can overlap with the first action but is usually in direct response to misinformation or a question from the public, where as the intervention action tends to be done in anticipation of potential tension and public feeling.



For example, during a local protest misinformation was tweeted by a member of the public. An officer describes how they decided to respond,

“the EDL were protesting in the centre and someone had tweeted that it was kicking off and people were already worried because it was a Saturday when they wanted to be out shopping, we could see the CCTV and we knew it wasn’t, there was literally about 15 people stood there with a few banners and surrounded by police officers...we got one of the officers to take a photo and we got in touch with the media team so they could post it and reassure the public that it was ok to come in town and nothing was happening, it was under control” [112]

In this example, police were able to directly and quickly respond to the tweet. As a senior officer explained in reference to the above example,

“Sometimes it’s been a matter of two minutes from the time the first tweet with the rumour went out to us being able to get a factual assessment from the ground and dispel the rumour with a tweet from us, it [social media] enables us to respond much quicker” [15]

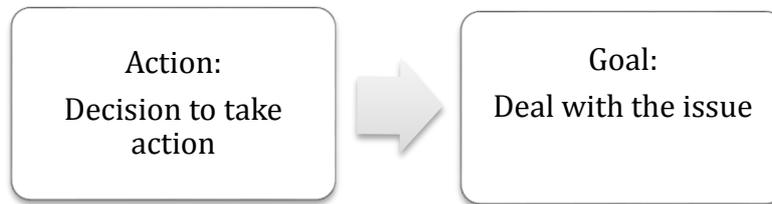
The information doesn't have to be true, but if it is enough to cause public concern then police will respond to the information.

Another example of deciding to respond was observed at the end of the football game. Although the actual game passed without incident, the operation then moves to making sure people leave the event safely. As the event is a local derby, it is likely that rival fans will be heading in the same direction, so the process is now to manage their evacuation of the stadium and in this case their journey back into the city centre. At the end of the derby, police tried to control the separation of the fans by holding back supporters of one of the teams until the other fans has started to disperse. This was because violence between rival supporters was sporadically breaking out in pockets of the crowd. From the control room it was clear what was happening, but on the ground the fans seemed to interpret it as they were being restricted in their movements. Although this seemed to be effective in terms of keeping fans apart and lowering the potential for violence, tweets started to circulate around why they were being held back. With one fan tweeting the police asking why they had closed the gate to keep them in with an image of a large group of fans being held behind a gate. This was picked up and the intelligence officer discussed with the media team and the silver commander whether they should respond to the tweet. In this instance it was decided that responding might escalate the situation and imply police were blaming one side over another, so they decided to wait and monitor the situation. There were no further tweets and within a few minutes the gates were opened and the fans continued on their journey. After the crowd had dispersed, the media team later posted a tweet explaining it was for public safety reasons to stop the exit being too congested. It was observed that the decision relating to when to respond is also negotiated through the division of labour.

4.5.4.3 Action 3: Deciding to take action

In this action it was observed that the decision to take action usually involved offline and operational action, i.e. information on social media influenced operations on the ground. This translated from an online to offline action. The goal of this action is to ensure issues are dealt with. This could be preventative

action, before the issue has happened or reactive action, whilst the issue is happening.



New norms

Preventative action is informed by assessment reports as mentioned in the excerpt above (15) where officers are deployed on account of the information around the event. In this action the theme of experience reoccurred. During situations like events, officers have developed their own norms around how to determine the likelihood of a number of people turning up to an event. The football game is fairly straight forward as it is indicated by ticket sales, but when an event is organised and advertised through social media, it could be more difficult to determine the number of people that might turn up and the number of officers you need to deploy. As one intelligence officer explained,

“we’re quite good at predicting things now, you’ll look at the event on Facebook, say an EDL demonstration, and you’ll see that about 100 people have indicated that they will be attending...I guarantee about 30 per cent of those will actually turn up. That makes a huge difference to how many officers you send out to that. We’ve [the intelligence team] have come up with the rule of whatever it says in terms of attendance to EDL events, you divide it by three. We say that in our assessment...we give our professional opinion to the weight of the information on there [social media] and the commander will go with that” [112]

A gold commander supported this and commented,

“at a strategic level it helps with our planning, they [intelligence team] are usually correct when they predict how many people will turn up, they’ll say if it says 30 people [on Facebook] it’s more likely to be 10-15 people, sometimes the groups like to make out they have more of a following or support than they actually do, our officers are pretty good at tapping into that...it means we’re not wasting resources” [114].

It was found that there was sometimes contradictions within the division of labour which influenced the outcome. Whilst it seemed that commanders and

senior officers in charge of operations generally based their decisions on the intelligence assessment, one intelligence officer commented that it depended on who was in charge as to how much trust they placed in reports from social media.

“She’s [senior commanding officer] great, she sees the value in it [social media] but there’s another one who’s not really interested in what we have to say, they’ll look at the report but because they have the final decision, they’ll do what they want anyway.” [12]

A common view from participants was that intelligence from social media was seen as an additional source of information, however a contradiction in the division of labour suggested that whether this was taken into consideration and acted on came down to the value the leading officer placed on the tool.

The action could also be used for reactive action. Whilst this was not observed during the football game, a senior intelligence officer described another example of how sometimes they hear about an issue through twitter, before it’s reported through traditional channels, therefore they can react quicker.

“we’ve had things where there’s been disorder in a street, certainly around the city centre if people see it, the speed at which they can tweet stuff is incredible and you’ll see it and often if it’s in particular areas where there’s perhaps no CCTV coverage or doesn’t get reported by the public for whatever reason, sometimes you get it and you see it before a call comes into the police, so again stuff like that we’d look to, is it something that need responding to, people take photographs of it, if people have got location data switched on, it’s quite good corroboration, you can see the picture was taken in that place...you can inform control and they can see if anyone is in the area to follow up on it.” [15].

4.5.5 Congruency

In this augmented context of social media use, the rules are more formal and there are strict policies and laws that need to be adhered to. This was due to the nature of gathering information and intelligence. The previous rules i.e. the RIPA has been extended to incorporate social media intelligence gathering, therefore officers understand how to engage in intelligence gathering work activities. This is in contrast to the more fluid and ambiguous rules that surround social media use for engaging with the community, which seems to be based on at best organisational guidelines, or on the other hand emerging social norms developed through their interactions with the public.

A final context of policing organisations use of social media is discussed in the next section. This differs from the previous two in that it incorporates collaboration between police in the traditional sense, policing organisations such as security, CCTV operatives, local authority, community groups and businesses such as retailers and event spaces.

4.6 A transformed model of social media use

This model is characterised by a radical change in the way low level crime and anti-social behaviour is policed and was largely driven by developments in the private sector.

4.6.1 A collaborative approach to policing

Police forces have started exploring new ways of working that is more efficient but still delivering the service the public expect. It was found that one way to try and manage cuts and deliver services was to collaborate with the private sector. This study found that a new model of policing is emerging to tackle low level crime and anti-social behaviour. In the new model, policing shifted from the sole role of the police, to a collaborative approach involving businesses such as shops, restaurants, bars; private security such as security guards and CCTV operatives; local authority such as community wardens, town centre managers etc. This is enabled by social media technologies that facilitate the collaboration. It is not to say that collaboration between these organisations did not exist before, community policing is based on this principle, however social media technologies have enabled a virtual space for collaborative information sharing which rarely happened before, for example one a local authority officer commented,

We'd talk to each other about the problems in the town centre but it wasn't documented so you'd maybe know from talking to the security staff that Marks's had a shoplifter last week and then the next day Co-Op had stuff stolen, but often they never bothered reporting it to police because it just wasn't worth it...this [social media platform] enables us to document these things so we can start to see if there are patterns like if it's the same person and what they're like MO is...whether its reported or not we'll still be able to share information that might help us collate evidence to either give to the police and manage them [suspected offenders] through things like banning orders. [118]

In this new model, the police role is solely to arrest. They are no longer involved in the process of taking statements and collecting evidence. Table 5 illustrates the new activity.

Activity System elements	Pre social media adoption in policing organisations	Post social media adoption in policing organisations
Motivations	Tackling low level crime and anti-social behaviour; solve problems in the community, gauge community feeling	
Subject	Neighbourhood Policing Team (NPT)	NPT, security, local authority, businesses
Object	Identify and arrest offenders	
Tool(s)	Technological tools: Radio, PNC, and mobile device, CCTV etc. Other tools: Photographs of suspects, local knowledge, expertise, informants, witnesses	Technological tools: Radio, PNC, mobile device, CCTV, digital images, Facewatch platform, other social media Other tools: Local knowledge, expertise, informants, witnesses
Rules/Norms	Laws, police rules and regulations	Laws, data protection regulations, access to information
Community	NPT, local community members, businesses, local authority, security	
Division of Labour	NPT	NPT, security, local authority, businesses

Table 5 The Activity System elements, pre and post social media adoption

4.6.2 The social media platform

Facewatch is a platform that enables groups of businesses, community groups, security firms, local authority and police to share information in one virtual space. It was commonly described by the interviewee as an online crime reporting tool. It is a closed and secure network and only individuals part of the group can access and share information within it. Information can be shared through sending alerts, creating posts and events and uploading documents as demonstrated in Figure 17 below. Whilst Facewatch is a different platform to the traditional platforms (i.e. Facebook, Twitter, Instagram etc.) used above, it still fits within the definition of social media presented Chapter One.

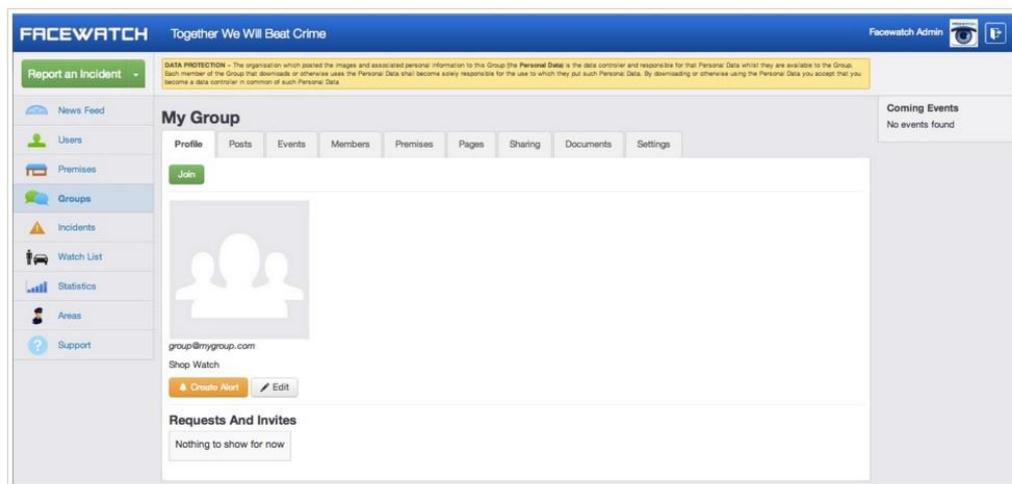


Figure 17 Facewatch groups

The image also shows the platform has a newsfeed which allows all members to get the latest information and contains contact details such as addresses and telephone numbers of the users.

The platform's main function is that incident reports can be created, including the ability to add CCTV and still images. This is in turn used as an electronic evidence pack to send directly to police. It can also be stored for in-house intelligence purposes. Figures 18 and 19 show how the incident data is recorded.

FACEWATCH Together We Will Beat Crime Facewatch Admin

Report an Incident

DATA PROTECTION - The organisation which controls the images and associated personal information is this Group the Personal Data is the data controller and responsible for that Personal Data which they are available to the Group. Each member of the Group that downloads or otherwise uses the Personal Data shall become solely responsible for the use to which they put such Personal Data. By downloading or otherwise using the Personal Data you accept that you become a data controller in common of such Personal Data.

Report an Incident F462 collapse all

Crime Information

Location ✓ ▶

Date and Time ✓ ▶

Incident Type ✓ ▼

Incident Type *
Shop Theft

Describe Items - Stolen ▶

Describe what happened ✓ ▶

CCTV ✓ ▼

Figure 18 An example of an incident report

Report an Incident F464 collapse all

Crime Information

Location ✓ ▶

Date and Time ✓ ▶

Incident Type ✓ ▶

Describe Items - Stolen ✓ ▶

Describe what happened ✓ ▶

CCTV * ▼

No CCTV Reason
Select Reason
If you cannot provide CCTV please select a reason.



120s

Figure 19 An example of an incident report with CCTV image attached

As well as reporting incidents, the platform allows users to view “Subjects of Interest” (SOI) that have been involved in incidents at premises that belong to the group. These can be uploaded on to both an individual users watch list or be shared as a group watch list (Figure 20).

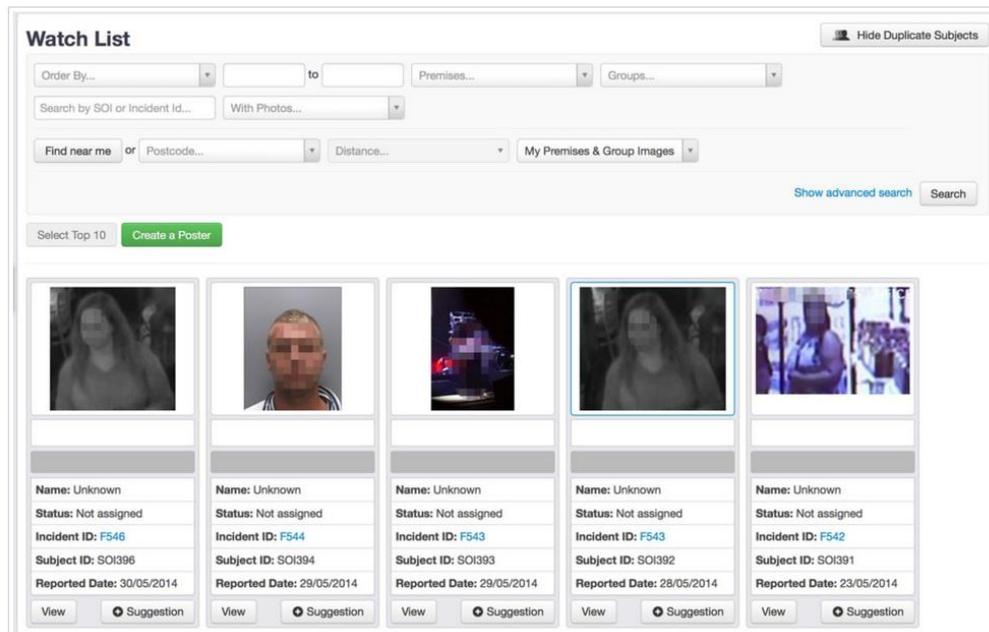


Figure 20 An example of a watch list

In this study the Facewatch platform was used by a variety of groups and individuals including, businesses, security, local authorities, Business Improvement Districts (BIDs), community organisations and the police for the purposes of sharing information and reporting incidents of low level crime and anti-social behaviour. For example, if someone has their bag stolen in a restaurant that is signed up to Facewatch, the victim can report the incident to the restaurant who can then take statement and review CCTV footage. The footage and statement are then uploaded to the Facewatch platform which would alert other groups and individuals that are part of the local network that a crime had taken place. The details can then be viewed by others within the network and the SOI may be identified. More on this process is described below.

Through the activity theory analysis a number of interrelated activities were found to coexist developing a network of activities with multiple outcomes transforming into new activities. Figure 21 below shows the main activities in this context. Engeström (1990) states that the object is a transitional being (p.181) in that its achievement or outcome transforms to develop the next object. In Figure 21 each box represents the object of the activity and the transformation of the outcome into the following object. The following section analyses each of these activities and the actions that were found within them.

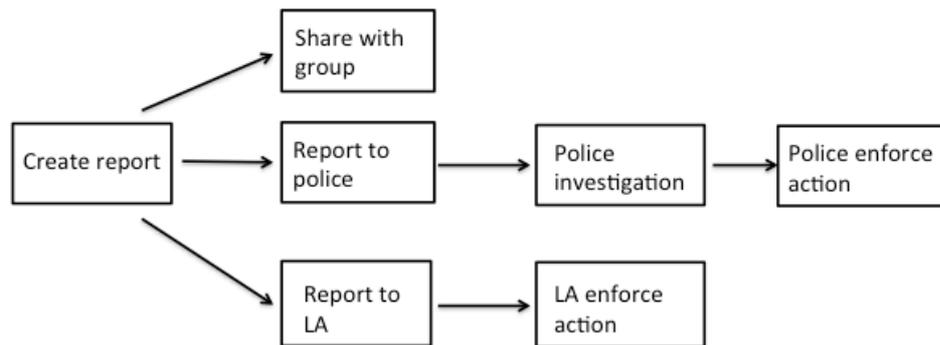


Figure 21 Transforming activities

The next section provides a description of the interrelated activities that were found through the analysis.

4.6.3 Activity 1: Create a report

In this activity the object is to create a report documenting the crime or anti-social behaviour. Facewatch was commonly described by interviewees as a crime reporting and sharing tool,

“it’s an opportunity for businesses to report low level, not in progress crimes with the potential for some cost savings, not only from [name] police’s point of view but also from the businesses point of view” [115]

Although for some this was not it’s only function,

“I know its marketed as a crime reporting tool but that’s secondary to us, we got the system and we looked at it and developed it as a database, we use it to report the offences that are not reported to the police” [118]

It is important to point out that previously many crimes and incidents were often not reported to police. The problem described by interviewees was that because some low level crime is not deemed a priority to police, they showed little interest in investigating the crimes, therefore many crimes such as theft and anti-social behaviour were going unreported. For example,

“someone will go into Marks and Spencer, steal a £5 bottle of wine, security will detain them, take their details, issue them with a store ban and off they go and

obviously it doesn't get reported to the police because for that amount of money its not going to get investigated and it's a waste of police time" [118]

As described above, Facewatch acts as a platform to reposit and share information regarding crime such as theft and vandalism and problems such as anti-social behaviour and begging. This is done through the use of groups that businesses and organisations sign up to. Once information is posted in the group, it is then shared with every member of the group. The use of reports was viewed by interviewees as being an essential aspect of Facewatch in that it enabled them to see *"the true picture of crime"*. For example, one interviewee explained,

"if you go to the police you just get the crime statistics, here [in Facewatch] we can actually see what's going on in [names city], the true picture of the crime, that's what we use it for and the businesses reporting to us and the more information they report to us using Facewatch, the bigger our database grows and the more we can analyse, we then feedback to partner agencies, police, our council community safety teams and we can then highlight offenders and areas that have got particular problems. It's the glue that gets everyone working together as a partnership." [18]

In creating the reports a number of actions were identified.

4.6.3.2 Action 1: Enter details into the system

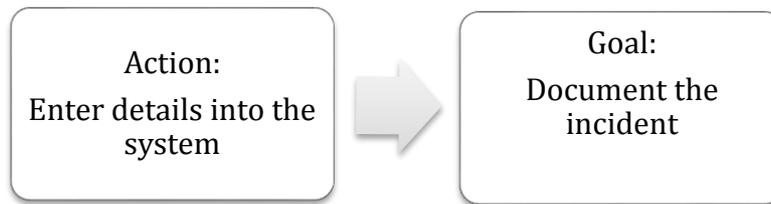
Facewatch allows members (i.e. security guards, business owners and staff) to upload information in the form of written text which could be witness statements,

"I sat in the hotel bar and my bag was stolen, I saw a man with dark hair walk off with it, I didn't give him permission to take it etc." [115],

It could also be descriptions of suspicious people, or descriptions of issues such as,

"five youths skateboarding outside [name] University, asked to move on by security and given a load of verbal abuse" [118].

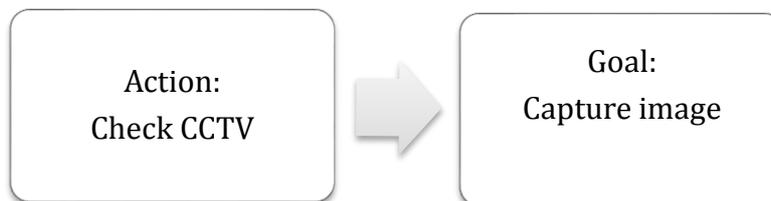
Therefore, the goal of this action is to document what happened and describe the incident that occurred.



As mentioned above, images and CCTV can also be uploaded to the platform to support statements and act as evidence.

4.6.3.3 Action 2: Check CCTV

In this action the goal is to establish whether the incident has been captured on CCTV, if so this can be classed as evidence. Where this process would have been previously done by police, in this context it is usually the role of the security officer or store manager to view the CCTV to capture the image. Therefore a change in the division of labour has occurred, whereby civilians are now engaged in traditional police activities.



One police officer described the process that a business would through to capturing the images as evidence,

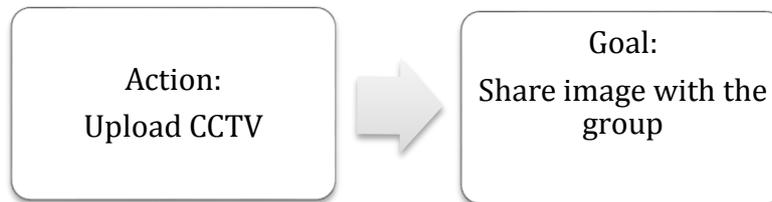
“The hotel would snapshot, they might do it from the front door, so looking at the front door walking around here, picking up your bag and then leaving so you’ve got continuity to it... most retail security professionals are really good at what they do so you’ll get a mini set of movies of the event taking place.” [115]

Once the image has been captured it is uploaded to the Facewatch platform.

4.6.3.4 Action 3: Upload CCTV to Facewatch

Following on from the previous action, once it has been established that the incident has been caught on camera, the video or still is uploaded to the

platform. The goal in this action is to document the evidence and share it with the group.



When asked how this sharing of images would have been done traditionally, interviewees described,

“They have folders with pictures of your prolific offenders in and the excluded people but obviously the problem with that is we’ve got 300 businesses so every time you need to update the images because you might get a new offender, you have to go out to 300 businesses and change the folder and you’ve got the issue of where is the folder, is it securely kept” [I18]

“[Name] would have told you about having piles of DVDs, or going back a generation having piles of videos in the office of incidents at my shopping centre that police would come and collect eventually, but I could have months worth, so it meant a video out of circulation, a copy and a master tape all bagged up in a big pile or stashed in a cupboard waiting for someone to pick them up with a crime number on them” [I15]

In this instance the tool has changed from a paper-based photo album and hard copies of DVDs and videos, to a virtual photo album, which is held securely and only visible by group members.

Once the report has been created and the details and images have been uploaded. There are three possible outcomes. The report can either be formally sent to the police; it can be reported to the Local Authority (LA) or it might just be shared within in the group with no formal action at this stage. The next section will report the findings for the second activity – sharing the report with the group.

4.6.4 Activity 2: Sharing information with the group

It was found that for some incidents, the documentation and collection of evidence was (temporarily) enough, and that formal reporting to the police was

not necessary at this stage. Instead it may be decided (usually by the administrator of the group) to monitor the incidents or reported behaviour to build up a picture of what is happening. These could be connected incidents of anti-social behaviour or thefts by the same individuals. Therefore the object here is to share information with the group to build up a picture of crime or the issues that are developing. It can also support businesses' and group members' decision making, for example, when discussing information that had been shared with the group, the interviewee explained,

“We had a security guard at a business and one day he saw a female in the shop, thought I recognise her from somewhere, logged on [to Facewatch], realised he'd caught her before and went and kicked her out” [I18]

Once a picture is established the crime or incident may then get reported to the police or to the LA for them to take action. It was found that the important part in this activity is information gathering, so building up intelligence around an issue before they decide to formally report it. It could be that it never gets reported. As the police and LA are also in the group, they can view the information. So whilst it might not be in the police national computer (PNC), police can still become aware of issues in the community. It could be argued that alongside the formal information systems such as the PNC, an informal and unofficial database has emerged. A database that has become the responsibility of the group administrator (civilian) to manage and maintain, rather than the police.

For some interviewees, although a formal report was not sent, this provided a means of legitimising stepping up patrols in the area and holding the police accountable. For example,

“[Shop] can now report every time they kick someone out to us, and the police can't hide behind the fact that it's a different system because they can log in at the police station and see there's a problem. For us its supporting the businesses, it sounds like we're at loggerheads with the police but we're not, its basically just saying we've got issues here and its great because they can't hide behind it and they've got no excuse.” [I18]

Facewatch was also seen as a way for other 'policing' groups to negotiate collaborative working and move into traditional police roles. It was suggested that by getting the police (and other partners such as the LA) on side, they

would be more likely to help and deal with the issues that affect their areas. This was illustrated by one interviewee below,

“Facewatch has allowed me to sell a scheme to all these different partner agencies, including the police...there’s the restraints on police especially in the last few years so they tend not to look at shoplifters and retail crime is not a big thing to them, so I saw my job as, I’ve got to go out there to the police and say if I want them to work with us, then we can do this for you and that’s the selling point” [118]

“We used to have a police analyst that worked in one of the council offices and he used to analyse a lot of the begging data, but he got made redundant so now no one does it, so there’s the possibility we can step into that role” [118]

This transformation of the subject, the division of labour and the re-negotiation of policing will be discussed further in Chapter Five.

As well as sharing information with the group, the incident/crime could be formally reported to the police. This leads to the next three activities; report to the police, police investigation and police taking action. Each of these is highlighted below.

4.6.5 Activity 3: Report to police

As mentioned above, as well as being a social media platform, Facewatch also acts as an online reporting tool to the police. All interviewees commented that this provided an effective and efficient means of crime reporting. The previous activity of creating the report provides a package of information and evidence that can then be sent to the police for investigation. This was viewed by interviewees as a resource to save police time and also reduce costs associated with gathering information for low-level crime. For example,

“It’s a case of us saying to the police officer, you don’t want to come and pick this shoplifter up, but by the time you’ve got back to the police station everything is done for you, if its cutting down their workload then they’re more responsive to it”

However it was also viewed as saving the organisations and businesses time too. As one interviewee explained that previously when crime such as theft was reported, police would be reluctant to attend, so the security guards or retail

staff would need to visit the police station to give a statement. This was viewed as a waste of the individual's time as they were often required to do this in their own time (rather than working hours) due to the long waiting times at the police station. This re-enforces the findings above that in this instance Facewatch provided a way to renegotiate the role of policing. The main action in this activity was decision making.

4.6.5.1 Action 1: Decision making

The goal in this action was to decide whether to report to police or to just share the information within the group.



This action seemed to be influenced by the seriousness of the crime and the intended outcome (i.e. to catch the person responsible, identify the person, or to issue a banning order etc.), this signalled the formation of norms around reporting. For example,

"[We] only really report to police if someone has got away, so if someone has nicked some stock and got away, they'd report it" [18].

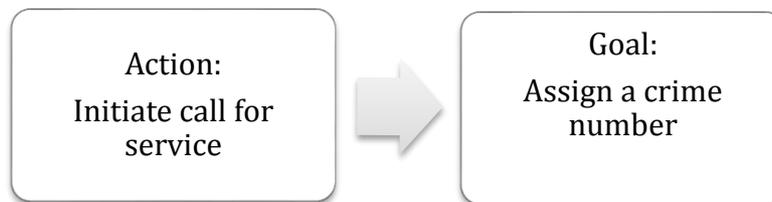
Therefore if there was CCTV evidence, but no way of identifying them i.e. the group members did not recognise them as a suspect of interest, then they would use official channels and report it to police so it could be processed through their database. However if the suspect was mainly engaging in anti-social behaviour, then they may decide to report it to the LA rather than the police (this will be addressed further below in activity 6).

4.6.6 Activity 4: Police investigate

Once the incident has been reported to the police, the police can begin their investigation. But first there are a series of actions that take place after the report has been sent.

4.6.6.1 Action 1: Initiate call for service

In this action the goal is to log the report through the 101 operators to generate a crime reference number.

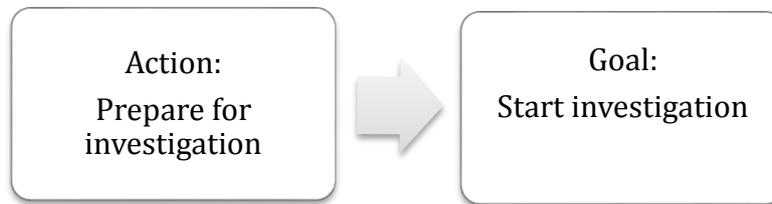


The 101 (non-emergency) police operators deal with incoming reports from the public. This is usually in the form of telephone or email reports, however in some forces, the contact centre staff have now been trained to also receive reports (calls for service) through Facewatch, which is now linked with the police information system. This was suggested to save the contact staff time as the majority of the report has already been completed before it enters the 101 system. Once it enters the system via 101, a crime number is generated. An officer explained,

“They [101 staff] should deal with those [reports] as if they were a call for service over the telephone. The time savings is tremendous because everything is already done” [115]

4.6.6.2 Action 2: Prepare for investigation

In this action the goal is to start the investigation process. Although the report is sent to the investigation team automatically, before the operator can send this they must go through the ‘investigation matrix’ to ensure the correct boxes are ticked. Here the rules dictate that the crime report should meet the minimum requirements to start the investigation i.e. evidence in the form of a witness statement and any supporting evidence such as CCTV images.



A police officer explained the process below,

“What we’ve got now is a fairly smooth flow, member of Facewatch reports a crime, it comes into 101, 101 do what they’ve got to do create a crime number, they give the crime number, investigation team have a record come through to them... there should be a key number of staff accessing Facewatch, then the investigation comes to them so they can immediately view the CCTV to start the investigation process” [115]

Part of the investigation might be to identify the offender if they have not yet been identified. If they can’t be identified through the police database, then the images will be sent out through other social media platforms such as Facebook, Twitter, Flickr and YouTube or through the Facewatch ID App. This links back to the first context (4.4) in which officer will decide which images to post and when.

Contradictions within the tool

Although this was suggested as being a good method to identify individuals, a contradiction in the tools was also highlighted. For example, images are released through the app and other social media simultaneously. The app is linked to the police system so if someone identifies an individual through there, then it will automatically be assigned to the correct report as every image has an ID associated with it. If however the individual is identified through other social media i.e. Twitter then it is much harder to connect the correct image with the crime report as there is no ID attached to those images. Therefore a contradiction was found in that whilst some social media tools i.e. the Facewatch App provided more efficient ways of working, other platforms such as Twitter could in some instances create more work for officers.

Engeström (1990) describes this as layers of tools whereby sometimes in the transformation of activities, old and new tools can coexist. In this case it was more a case of multiple new tools coexisting to create two separate information systems with the same object (i.e. identify the suspect). Although this was found

to be contradiction in the tools, the officer recognised this was a point for development, therefore the contradiction was used as a mechanism for improvement. For example,

“We are currently looking at a new system, partly driven by Facewatch and the way we use Facewatch, trying to improve the service. We’ve three levels of improvement; 101, investigation teams and the management of images within the force.” [115]

Once the investigation has started, the police can decide how to take action.

4.6.7 Activity 5: Police enforce action

Although in this study the type of action police take was not generally explored, in the analysis this was identified as the final activity for the outcome of tackling low level crime and anti-social behaviour. Examples of the outcome was mentioned by a few interviewees, for example,

“It’s led us to be able to get police to look at anti-social behaviour, we were able to find out that two individuals were causing something like 30% of our crime, so we reported it to the police and said you need to do something about these guys, there’s your evidence, which they did, and now they’ve both been issued with CRASBOs [Criminal Anti-Social behaviour Orders] and they can’t sit in the city centre anymore because they were beggars. Anyone that’s got a CRASBO through Facewatch hasn’t reoffended in the city centre but they are reoffending outside the city centre so its proved to us its worked for us.” [118]

“There was one instance when we had a theft, someone reported it to us and we checked the CCTV footage and me and my team identified him straight away, he’s known to us, we filed the report and we were able to send the information to the police. We could see on the CCTV what car he was in, our car park has ANPR so we gave the police his registration, they [police] tracked him as the owner of the car and were waiting for him at his house before he even got home. That was a massive win for us...and them [police].” [116]

Although this is just a few examples, it could be suggested that in this new model of policing, low level crime and anti-social behaviour are being tackled with the help of Facewatch, or at least within their geographical boundary limits.

4.6.8 Activity 6: Report to Local Authority

As well as reporting to the police, crimes can be reported to the LA. As with police reporting, this was generally dependant on the seriousness of the crime and in these instances it is usually anti-social behaviour that is reported to the LA. Again this was not necessarily expected, but was found to be a common method through which anti-social behaviour could be tackled. It seemed to emphasise the importance of community partnerships and provided another avenue to direct resources and the division of labour away from the police. An example of this was highlighted by interviewees,

“The university have a particular problem with skateboarders and when the security guards ask them to move they’re quite abusive and its stuff that’s not getting reported to the police and if it’s the same individual that’s causing an issue there’s a very good chance they may also be stealing the odd bit somewhere else, and then we’ve got a picture of this guy, he’s stealing, he’s causing ASB, if that happens we’d then go to the council and this is something we’ve brought in mid last year, we got the council on board and they agreed to look at civil intervention rather than going through the police, so trying to not take up police time and that’s around an anti-social behaviour order which the council can get.” [118]

In this example power has been devolved from the police to the local authority.

4.6.9 Activity 8: Local Authority take action

This final activity has the outcome of tackling anti-social behaviour. It was found that due to a change in the rules, new laws were introduced in the Anti-social Behaviour, Crime and Policing Act 2014. These new rules gave LAs the authority to issue bans such as the public space protection orders. This in turn facilitated the shift in the division of labour as highlighted above.

In this context there appeared to be few contradictions. It could be argued that contradictions in the previous activity system of policing such as, the need to drive efficiency, a lack of police resources, limited collaboration and improved technological capabilities, enabled the conditions in which transformation could take place, i.e. innovation (Engeström, 2001). The main contradictions that were found were the use of the tools (mentioned above) and a lack of training to use the Facewatch system. However this was already recognised and was viewed as a source of development (Foot, 2001). Another contradiction that was found

was between the division of labour and the tool, however this will be discussed in relation to information sharing in Chapter Six.

4.7 Conclusion

In this chapter, it was found that social media is influencing policing of low-level crime and anti-social behaviour in three different ways. The first context illustrated that ambiguity around the use of new tools, uncertainty of the rules and a slight shift in the division of labour produced a destabilisation in the activity system and a source for multiple contradictions. The second context highlighted that the use of the new tools could enhance existing work practices. Clear rules and regulations guided subjects in navigating the tool and incorporating it into the activity system. However a series of contradictions emerged regarding the management of information and the division of labour. In the third context the activity system became unstable and completely transformed the existing model of policing through innovations with the tool. In this context the transformation could be seen as the result of previous contradictions developed through socio, cultural and political conditions.

The next chapter will discuss these findings further, using the concepts of ambiguity (Weick, 1995), congruency (Allen *et al.*, 2008; Karanasios, 2017) and mycorrhizae (Engeström, 2005; 2007) to explain the transforming and emerging activity systems highlighted above and the influence this has on work practices in policing organisations.

Chapter Five Discussion: Changing Work Practices

5.1 Introduction

This chapter aims to address the first research question by discussing how social media use is influencing policing activities. It discusses the key findings highlighted in Chapter Four and draws upon the literature reviewed in Chapter Two. This chapter uses the three models of use identified in Chapter Four to structure the discussion and contribution to the current body of knowledge. Section 5.1.1 outlines the contribution. 5.2 sets the scene, whilst sections 5.3, 5.4 and 5.5 provide a more in-depth discussion of each context identified. Whilst this chapter addresses the wider activity systems, Chapters Six and Seven will provide a more nuanced discussion of social media and information behaviour, by exploring the actions of information sharing and decision making.

5.1.1 Ambiguity as a concept for understanding technology mediated change

As stated in Chapter Two, policing is undergoing significant organisational changes to working practices, which is driven by a number of contextual factors including major changes in governance structures, cuts to police funding, increasing accountability, and the drive for efficiency, effectiveness and 'value for money' (Manning, 2014; Millie, 2014). Ackroyd *et al.* (1992), suggest that the socio-political context of policing mean technological innovation has its own distinctiveness within the police service. This largely revolves around "*being seen to be doing something about crime*" (p.13). Research on social media use by police is emerging, but is still in its infancy and therefore lacks theoretical and empirical foundation within this context. Existing literature on technology and policing explores existing technologies in everyday policing such as the implementation and use of mobile devices (Allen *et al.*, 2008; Bouwman & Van de Wijngaert, 2009; Singh, 2017; Sørensen & Pica, 2005), very few studies explore emerging technologies such as social media, and the influence these technologies are having on policing of low-level crime and anti-social behaviour. With a few exceptions (i.e. Trottier, 2015), studies that do explore social media do this from an outside the organisation perspective, often exploring police use

of social media by analysing the external content posted by police on platforms such as Twitter and Facebook (e.g. Crump, 2011; Meijer & Torenvlied, 2016; Sakiyama *et al.*, 2010). Whilst these studies are useful in that they provide a foundation to understand how police are using social media in terms of how often they post content, what type of content they post, how many likes and shares they receive etc. (Crump, 2011), they do not enhance our understanding of how these emerging technologies influence change within the organisation or how they fit into the existing work practices of policing. These studies also view social media as if it were in isolation as merely a technological artefact, however it was found that social media is a tool amongst a set of other tools, within a socially organised collection of activities and in which actors understandings develop in various ways, based on their own knowledge and experiences.

This study provides a novel contribution to the literature on policing and technology mediated change. It is one of the first studies to take the officers' (often neglected) perspective into consideration and observes the use of social media in an everyday or low policing context. The use of activity theory provided an analytic lens to explore the interaction between actors, collective structures and tools as a means of understanding change in policing organisations (Karanasios & Allen, 2014). This allowed the nuances and complexities of social media use to become visible. The research revealed three distinct ways of working, with new and different activities being formed. This study puts forward the concept of ambiguity as enabling, enhancing and constraining activities through the use of social media (Figure 22).

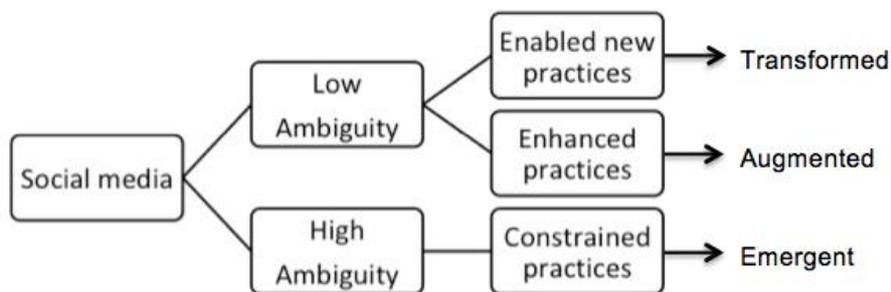


Figure 22 Social media, ambiguity and police work practices

This study highlights the importance of context in shaping social media use. Few studies (with the exception of Allen & Wilson, 2005) that have used the concept of ambiguity to explain technology mediated change. The model demonstrated in Figure 22 demonstrates the influence of social media on police work practices. The following discussion will explain and expand upon the contribution of ambiguity.

5.2 The influence of social media in a policing context

The findings suggest that social media is influencing policing by creating new and different ways of working. It was found that the same tool (social media) was used in multiple ways, which created new and different ways of policing low-level crime and anti-social behaviour. For example, as highlighted in Chapter Four, three contexts of policing were identified. 1) an *emergent* model of use, characterised by a high degree of ambiguity in work activities was mainly associated with neighbourhood teams; 2) an *augmented* model of use, where social media is enhancing policing activities was found in intelligence gathering activities; and 3) a *transformed* model of use, where a radical change in policing activities is taking place. This was found where public police and private sector organisations collaborate to tackle low-level crime and anti-social behaviour. A summary of the key findings from Chapter Four are presented below in table 6.

Model of use	Subject	Primary motive	Characteristics of use	Influence on work practices	Contextual factors
Emergent	NPT	Engagement	Ad-hoc, lack of continuity, restrained	Constrained	Rules, norms, work roles, structure, culture
Augmented	Intelligence officers (CID)	Intelligence	Enabler, embedded in daily work routines	Enhanced existing practices	Experience, task, rules, norms,
Transformed	Security, LA, Business	Collaboration	Innovative, transformed work processes	Enabled new practices	Structure, trust, relations

Table 6 Overview of the three models

Previous literature suggests that policing organisations, teams and individuals have implemented and used social media in an identical and coherent way and leading to similar outcomes (Crump, 2011; Williams *et al.*, 2013). However this was not found to be the case. Instead, it was found that social media have been interpreted, adapted and used in multiple, ad hoc ways by individuals, teams and organisations. Therefore in this study, technology is seen as having particular influences, in which activities are moving in different directions. This was surprising given that policing takes a modern bureaucratic organisational form (Manning, 2010) therefore it was expected that a more unified approach would have been taken. This is particularly so as policing is based on a high degree of regulation, formal legal rules, organisational norms and values, occupational culture, and police hierarchies (Chan, 2001). However instead, it was observed that social media elevated ambiguity and restrained practices for some; acted as an enabler and enhanced work practises for others; whilst for a few, transformed practices to allow a more innovative and collaborative approach to low-level crime and anti-social behaviour. Therefore as Manning (2008) would suggest, there appears to be not one rationality, but multiple rationalities found in the use and adoption of social media. This suggests policing is entwined in social, cultural and historical roots that provide the context for how police think, feel, and behave in practice (Ericson & Haggerty, 1997, p68).

This study, in line with others (Allen *et al.*, 2013; Allen & Karanasios, 2011) found that as new technologies are introduced into organisations, new tensions form around its use. However unlike other information technologies adopted by police, social media commands the additional challenge of having to develop ways to manage the interactive nature of such tools (Bertot *et al.*, 2012). This could explain why there appears to be multiple and sometimes conflicting understandings and uses of social media, as the potentially disruptive technology is situated and reconfigured within the context of police practice (Trottier, 2015). It is also important to point out that unlike other technologies such as mobile devices, information systems and databases, police organisations have no control or autonomy over the design and development of social media platforms. Social media platforms such as Facebook, Twitter, and Instagram etc. were not originally designed or intended to serve the purpose of police organisational use. We could therefore suggest that police use of social media demonstrates the sociality of the technology in that social media does not

have a fixed and permanent material character, but one that social actors can mould, shape, adapt, modify, and misuse, as they come to understand and experience social media use in practice (Ackroyd *et al.*, 1992).

It could be suggested that the fluid and continuously shifting nature of social media denote that some police practices function in a context situated in ambiguity and multiple interpretations as they try to make sense of social media (Lee & Liebenau, 2002). This gives rise to tensions and contradictions in activities, however the degree of ambiguity varied depending on the activities and the interpretation of how it resonates with the socially organised character of police work (Ackroyd *et al.*, 1992). Therefore this study provides new findings by highlighting the complexity and layers of police use of social media in practice. To the authors knowledge no other study has yet to dig below the surface of social media use and explore how police adopt social media in practice and how this adoption manifests in different and emerging work activities.

The next section puts forward the concept of ambiguity to unpack social media use in policing in relation to the three models presented in Chapter Four and the three points mentioned above. Whilst the notion of ambiguity has been utilised in studies of IT adoption in organisations (Allen & Wilson, 2004; Henfridsson, 2000; Mantovani & Spagnolli, 2001) this is a new finding in relation to social media adoption and use, both in policing and in organisational use more generally.

5.3 Social Media and the Introduction of Ambiguity: An Emergent Model of Use

Ambiguity is said to enact sense-making in organisations and refers to several different interpretations at the same time (Weick, 1995). In terms of technology adoption and use in organisations, it is suggested that the same technological tool can illicit different assumptions and attributions, which may in turn produce different outcomes (Orlikowski & Hofman, 1997). In this study the use of social media by police was largely influenced by their assumptions and interpretations of the tool in relation to their work. Orlikowski and Gash (1994) suggest that in an organisational context, when new technology is introduced, individuals have to make sense of it and “*develop particular assumptions, expectations and*

knowledge of the technology, which then serve to shape subsequent actions toward it" (p.175). In this study it was found that the interpretation of the nature of social media (officers understanding of *what* it was); the social media strategy (their understanding of *why* it was introduced); and the use of social media (the officers understanding of *how* it is to be used) within the context of work, depended on a variety of organisational, social and situational factors. These were represented as contradictions within and between activities in Chapter Four.

In activity theory there is the assumption that contradictions in the activity system influence subjects, the community, and the division of labour in the same way. However this study suggests that contradictions are more complex and manifest in different ways when there are multiple interpretations, and a lack of shared understanding in the organisation. This was a surprising finding, as mentioned above, due to the highly regulated nature of policing, we would have expected similar interpretations and understanding of the use of social media within an organisational context. It is argued that ambiguous situations such as those identified by McCaskey (1982) and also drawn upon by Weick (1995), could illuminate the contexts through which contradictions emerge, and these contradictions may lead to further ambiguous situations and in turn further contradictions. Therefore contradictions are distinct to ambiguity, but it could be suggested that the two are related. This seems to align with activity theory as scholars such as Ciborra and Lanzara (1994) propose that ambiguity (much like contradictions) stimulates innovation and learning and is necessary to make sense of new technologies in organisations, however unresolved contradictions may also restrain activities. In this case it is not clear whether ambiguity leads to contradictions or whether the unresolved contradictions led to ambiguity. However this study proposes that ambiguity may explain the diverse use and adoption of social media in policing, as individuals navigate the social media landscape and negotiate its use in relation to work practices. The concept of ambiguity could shed further light on the transformative nature of activities.

In the emergent model of use, a key finding was that the notion of social media is largely misaligned with the traditional notions of policing and was therefore operating within a context of conflict and contradictions. There were three main contextual factors found to be associated with the use of social media. Firstly, *rules* around the use of social media in policing organisations are ambiguous in

that whilst there are legal rules that are linked to sharing information about on-going investigations on social media, there are no formal rules around how to use it to engage with communities in their everyday work practices. Therefore organisational norms have not yet been established. Secondly, the traditional *division of labour* is disrupted as roles and responsibilities are reconfigured within this new context. Finally the traditional *structure* of policing as hierarchical centralised and top down is in contrast to the bottom-up, decentralised and democratic notion of social media (Treem & Leonardi, 2013).

5.3.1 Ambiguity surrounding the rules and norms

Ericson and Haggerty (1997) suggest that new communication technologies are primarily adopted to deal with particular problems or crisis, this could be said to be the case for social media adoption in this study. Nearly every participant referred to the UK riots in the summer of 2011 as being the catalyst to use social media within the organisation. This was a situation that could be characterised by a high degree of ambiguity and is likely to incorporate all 12 of McCaskey's characteristics. Police had to be seen to be 'doing something' in terms of both how they communicate with the public, and also gathering intelligence and information that would mean they are better equipped to deal with a similar situation should it arise. In this sense it could be that social media was embraced by police forces because it is important to be seen to be embracing it (Ericson & Haggerty, 1997) and to provide a social presence (Trottier, 2015). Or as Bittner (1990) would suggest, it was the kind of situation in which "*something-that-ought-not-to-be-happening-and-about-which-someone-had-better-do-something-NOW*" (p.249). Therefore the adoption of social media was a combination of a reaction to the emerging political environment, the need to renegotiate public relationships through engagement, and a tool to gather information and intelligence. In this study, interviews with chief constables and officers indicated that social media was introduced to create an "*online visibility, so the public feel like we're there and can see what we're doing, even if they can't physically see us*" (I3). It could be suggested then that social media was expected to resolve an existing contradiction that revolved around police visibility in a turbulent time of austerity measures.

However, participants suggested that this need to be seen to be engaging with social media meant that social media went from being something they *might*

engage with, to a tool they *had* to engage with in a very short space of time. This meant that officers were expected to use this new tool before any rules or norms had been established. In the emergent context new actions such as broadcasting, engaging in online discussions and monitoring social media emerged, and many officers reported a lack of national guidelines and limited training meant they were often unsure about how to use social media 'in the right way'. This was also found to be the case in a US study, which concluded that there was no clear policy or best practice on how police officers should use social media (Leiberman *et al.*, 2013). In this study it was found that the lack of training, multiple interpretations of the rules and norms and vagueness of roles created a series of contradictions.

In one organisation, social media adoption was ad-hoc, there was no formal training offered and many participants reported that guidelines were limited or non-existent, and so officers were left to interpret their own understanding, which led to ambiguity (Allen & Wilson, 2005). It was observed however, that although these police officers stated they had no formal training or guidance around social media use, they were aware of the legal rules around what information you can share when an individual has been arrested. This suggests that officers made a distinction between formal legal rules, which had the potential to seriously jeopardise an investigation and could lead to disciplinary action, and organisational norms, which revolved around guidelines of use for the purposes of engagement and dialogue. It could be that ambiguity around the rules and norms challenges the routines, roles and responsibilities in the organisation (i.e. police officer versus police support staff), and their interpretation of how social media fits into their existing work practices. It could be suggested that in order for work practices to stabilise, a shared understanding of the technological tool, the legal rules and organisational norms should be established. This may well happen in time, as current norms and rules are adjusted, reconfigured and even changed to respond to the social and political environment in which policing is situated.

5.3.2 Ambiguity in the division of labour

This study found that in the emergent context, whilst every NPT had a social media account, only a few officers per team were using social media. This was surprising due to the size and geographical coverage of the policing

organisations. Although many of the officers that were using social media did so voluntarily, some commented that it had now become an expected duty within their work. Therefore social media changed work practices for those officers in a numbers of ways. Firstly, officers were now tasked with updating social media and meeting new 'targets' in terms of the number of likes and shares they should be getting, this was determined by the corporate communications team who had contrasting notions of engagement. For officers, engagement was about communicating with the public, 'getting the message out', showing the 'human side of policing', talking from their own perspective (as opposed to a corporate perspective) and demonstrating transparency and (online) visibility within their community. As suggested in other studies, such as Copitch and Fox (2010), officers perceived that using social media in this way would demonstrate transparency and influence trust and public confidence. However for corporate communications, it was more about positive PR stories, and engagement was measured by how many people followed the account, shared posts, discussed the organisation and 'liked' the content that was posted. Therefore using social media to engage with the public not only had different meanings depending on the role of the individual, but was also driven by different motivations, which led to different outcomes.

This sometimes led to contradictions between the police and the community, as officers reported that after tweeting or posting a comment on social media, the public would often comment that "*police should be out doing 'real' police work*", rather than on social media. This suggests that rather than complementing police visibility as both the literature suggests and the police expected, it was sometimes perceived by the community as a 'waste of time' and challenged the notions of 'real' police work. This contradiction could be brought about by different value orientations (McCaskey, 1982) between the public and police. It is not certain if the public or police have a clear interpretation of why they are using social media, but it would appear that these interpretations are sometimes conflicting. Other studies have also suggested that whilst social media can provide opportunities to enhance police-public relations, it is also a double-edged sword with the potential to disrupt the legitimacy of police work (Goldsmith, 2010; Lee & McGovern, 2012; Mawby, 2010). This could be what Karanasios and Allen (2014) describe as a weak-temporal contradiction. As social media use for engagement with the public evolves, it is likely that

expectations will align and contradictions will be overcome as new norms and perceptions of police work are developed.

Support staff reported that they were now expected to use social media and this often created a contradiction when attempting to engage with the public and monitor social media. Although the social media accounts are under the name of the neighbourhood team, both police officers and support staff were using social media simultaneously. However their (both police and support staff) understanding of how to incorporate social media into their work practices varied depending on the officers' interpretation of the rules and norms. Therefore ambiguity in the division of labour in terms of how social media fits or supports existing work practices was also influenced by the rules. For example, in one organisation there were some guidelines and policies of use, but these were considered to be vague for some staff, particularly support staff. This could be attributed to the fact support staff are usually considered 'back-office' staff who do not usually have an operational front facing public role. As social media is bound up with the affordance of visibility (Treem & Leonardi, 2012), this disrupted the role of support staff in that they suddenly became visible to the public as they used social media to broadcast. It could be suggested that the experience and knowledge of policing influenced the interpretation of both the norms and actions in this case. Therefore, their interpretation of the guidelines and use of social media differed somewhat, and as one officer put it "*they're [support staff] not talking from the police perspective quite often*". This could have implications for the legitimacy of policing. This was also demonstrated when it was found that many of the support staff post messages on social media but do not answer questions from the public or monitor conversations as they perceived this to be the role of the police officer and not part of their work. Due to the vagueness surrounding the division of labour it was not clear who was responsible for monitoring social media.

Social media then, disrupted what were once clearly defined roles between police, support staff and corporate communications, by blurring the boundaries and creating inconsistencies in terms of who should be sharing information, and in what ways. It could be argued that in this context, social media is still in its infancy and its use within NPT is ad-hoc, rather than embedded within their work practices. Further guidance around how social media can be incorporated into work practices and who should take responsibility for it, may be necessary

to enhance its use. However it could be that with the numerous diverse tasks police already have to engage with, social media does not take priority within their work practices. Therefore whilst police are encouraged to use social media to engage with the public, the reality and practicality of doing that may be somewhat difficult to manage. It may be a task better suited to the corporate communications or the support staff, rather than reflecting multiple voices and perspectives.

5.3.3 Organisational structure

Social media is often portrayed as a bottom up approach that facilitates democratisation within an organisation (Schlagwein & Hu, 2016; Treem & Leonardi, 2013); however social media use in policing may challenge this notion. As stated in Chapter Four, incorporating social media in both the emergent and augmented contexts, was usually a top down process. Therefore it could be that the hierarchical structure and organisational culture within policing, has not yet adapted to fit with the decentralised and constantly evolving nature of social media technologies, or at least within these two contexts.

Mergel and Bretschneider (2013) suggest that for social media use to be successful, organisations may have to change and adapt by creating new organisational forms and structures. However Manning (2008) suggests that police are a *“conservative, reactive organization resistant to innovation and invested with trust from the public”* (p.251), which reinforces their traditional structure. This was mostly found to be the case in this study with the two policing organisations, however this differed when the private sector were involved in policing. The transformed context illustrates that when the structure is flat and decentralised, social media tools can be used in new and different ways, creating new activities and renegotiating traditional work roles. It would be unrealistic to suggest that all policing organisations should adopt this model, however they could enhance their use by initially utilising their existing organisational structures. It could be suggested that rather than policing structures changing, they could utilise the top down approach in two ways 1) to clearly define the role of police and support staff with regard to using social media 2) by providing clearer rules and organisational norms which support

officers that want to engage with it. This may reduce ambiguity and enable social media to become more embedded into work practices.

The concept of culture was also mentioned in almost every interview suggesting that the culture, as well as the structure of the organisation, constrains the extent to which technologies change police practices (Chan, 2001). However Ericson and Haggerty (1997) found that information technology enhanced transparency and created new cultures in policing. At the moment it is difficult to say if social media has had an impact on culture and it was beyond the scope of this thesis to explore that, however in contrast to Manning (2008) above, Bacon (2014) notes, "*policing is actually in a state of constant change*" (p.113), suggesting that police culture is "*constantly evolving as officers adapt to accommodate new structures, experiences and ideologies*" (p.113). It could be that social media is situated within this temporal state where it has not yet become part of policing culture. This may be because in this context it has not yet been embedded into accepted practices, due to ambiguity around the rules and norms, and the structure that underpins the core beliefs and values of policing (Manning, 1989). If social media does not fit with these core values, beliefs and assumptions, then the likelihood is that officers will not see it as having any practical benefit or meaning within their work practices (Manning, 2008). In this study it was found that both social media and policing organisations are in a state of flux and situated in ambiguity. This both enables change, for example, in the augmented and transformed contexts, and restricts change, for example when it comes to neighbourhood policing. It could therefore be suggested that the core characteristics and structures of policing co-exist amongst new ways of thinking and working (Bacon, 2014).

5.4 Congruency in Policing Activities: An Augmented Model of Social Media Use

As demonstrated in section 5.3 above, the use of social media in neighbourhood policing is situated within a context of ambiguity that is not yet resolved. In contrast, it was found that in the case of the augmented context, social media was used as a tool for intelligence gathering and enhanced their more traditional ways of collecting intelligence. Whilst these uses of social media were found to support previous literature, this study adds to the literature by uncovering how policing organisations adopt these new tools and develop new ways of working.

For example, whilst Barlett *et al.* (2013) warned that social media may present challenges due to the uncertainty around legal rules and the need to incorporate the Regulation of Investigatory Powers Act (RIPA) 2000 for intelligence use, in contrast, this study found that police were already utilising existing rules such as RIPA and it was this that facilitated their work practices. In other words, lower levels of ambiguity led to enhanced practices.

As noted in section 4.5 it was demonstrated that there were fewer contradictions in the augmented context (as opposed to the emergent context) and instead found that social media had created new work practices within the organisation, a new division of labour, and greater efficiency. This suggests congruence between the tool and existing elements of the system can reinforce existing actions but also enable changes, which support the existing object. Allen *et al.* (2013) and Karanasios (2018) suggest that as contradictions are resolved, the activity adapts to new tools and offers new ways of working, leading to congruency. However they also state that congruency may be short term and could lead to further contradictions as technology and practices develop. A possible explanation of why the two contexts differed could be associated with their use of social media and the rules and norms that govern use. In the emergent context social media was primarily used for engagement, rather than monitoring or gathering information, and so in this context information was only flowing in one direction rather than two. As discussed above, police officers found the two way flow of information difficult to negotiate through ambiguity, meaning that it was not yet embedded into work practices. The difference in expectation of managing information flow (one way, as opposed to two) may help to explain the reduced ambiguity in the augmented context. If use is less complex and has a clear expectation and motivation, then it is more likely to fit into existing work practices.

Policing organisations are based on strict legal rules and regulations. It has been noted in previous literature that although these rules exist, officers have an element of discretion when it comes to operating within them, which allows them to carry out their tasks and activities (Ackroyd *et al.*, 1992; Manning, 2008). However the important point is that there is a clear understanding of the rules and norms amongst officers and how to operate within them. What was found in the emergent context was that if there are perceived ambiguity surrounding the rules, or indeed a lack of rules, then the activity becomes divergent and begins

to move in different directions as the subject has multiple meanings and understandings. For officers in the augmented context however, existing rules and regulations such as RIPA facilitated their understanding of social media leading to greater congruency and enhancement of their work practices. Social media complemented their existing practices by facilitating greater information flows and allowed faster decision making (this will be discussed in more detail in Chapters Six and Seven. Therefore in support of Allen and Wilson (2005), it is suggested that the lack of ambiguity in the rules augmented their existing work practices. A series of congruencies and contradictions are discussed in the sections below.

5.4.1 Congruency in work practices

This study found that in the augmented context, although activities remained the same, new actions emerged that enabled more efficient ways of working. When the study was conducted, officers within the intelligence department had been using social media for some time and were now starting to experiment using social media analytics tools to further enhance their information gathering. As was described in Chapter Two, due to the austerity measures, political events such as the riots in 2011 and the development of technology, social media was now an integral tool to gather information and intelligence. However what was surprising was that the lack of sophisticated analytics tools that were being utilised. The new 'tools of trade' such as TweetDeck, Echosec, Repknight and Buzzbar are the same tools that are commercially available and are usually either free to use, or available for a low monthly fee. Previous literature would suggest that policing organisations were using specially built tools (Williams *et al.*, 2013), but this was not found to be the case. However it could be that due to the nature of the study focusing on low-level crime and anti-social behaviour, specially adapted tools are reserved for higher-level crime and covert operations, which require access to closed information using covert and specialised techniques. It may also reflect the fast-paced nature of social media and technology in general. Tools change and advance quickly and although these were the tools officers were using at the time, officers described how they frequently attended training courses to stay up to date with the latest trends and technology so they could adapt their skills to new tools as and when they are developed. However they also explained how organisational budgets also restrict the use of some tools. Therefore it is likely that for low-level crime they

do not invest heavily in analytics tools that may change or even cease to exist in the coming months, or even days. This reflects the plastic concept of technology (Orlikowski, 2000) and the fast paced environment in which police endeavour to keep up with. It also demonstrates the lack of agency policing organisations have when it comes to the design and functionality of such tools. On the other hand it also shows the ability of officers to adapt the technology to their own ways of working (Ackroyd *et al.*, 1992).

In this context social media aligned with the core values of policing in that it facilitated what they were already doing (gathering information), rather than threaten their existing work practices. Officers talked about the volume of information they could now access at their fingertips, rather than potentially taking days or even weeks to obtain the same information. Social media did not replace traditional activities but it enhanced them, with the tool providing a new source of information. As Innes (2014) points out, police previously had the issue of how to uncover information that people do not want police to access; now new contradictions have emerged in how to deal with vast amounts of information and how to determine what is relevant and important from what is just 'noise' (p.70). In these situations officers enact sense making, drawing on their experience and using the rules to guide them. Innes goes on to suggest that whilst social media has opened up new ways to access information, it has also created new online crimes that police are tasked with dealing with. This could be what Engeström (2008) labels 'runaway objects'. Engeström suggests these could be large-scale objects such as climate change, but can also be social innovations such as crowdsourcing and co-created platforms like Wikipedia. We could argue that although social media is thought of as a tool (in this study), it could also take the form of a 'runaway object' in that it is unbounded and ambiguous, fluid and constantly developing. Although in this context congruency was found as social media aligned with work practices, contradictions are starting to emerge regarding the vastness and uncontrollable nature of social media, suggesting this may in future develop into a runaway object (Spinuzzi, 2011).

5.4.2 Creating new norms and work roles

As social media became embedded into work practices, it was found that officers were beginning to establish new norms. For example, whilst the legal

rules dictate how to use social media, they do not dictate how to interpret social media or the information within it. This is purely an action determined by the subject. An interesting finding here was that the formal rules guided the officers' behaviour, but in order to make sense of the information presented on social media, officers began to establish new norms. Officers in two separate organisations described similar contexts such as public events, in which these new norms were applied. For example (as described in Chapter Four) officers usually interpreted the number of attendees listed on Facebook pages, such as EDL events, with caution and as a general rule divided that number by three, as this reflected a more accurate representation of the number of people that were likely to turn up to the event. These norms were established through the officers' experience to help them make sense of information. This appeared to be one way to determine the number of operational resources needed on the day, for example *"it means that rather than sending 10 officers, we can just send two"*. Officers described how they continuously assess this information using social media to aid their decision. Therefore these new norms have become embedded into the social context of work.

It was found that the use of social media in policing also created new roles. For example, a dedicated social media team was set up consisting of both former detectives and technical civilian staff. This team did not exist before the adoption of social media and demonstrates how new roles are configured to incorporate a multi-professional approach, drawing on police experience with investigative skills, and technical expertise. However the team explained now the challenge is that staff change frequently and this influences how they are perceived within the department. This perception seemed to be related to the hierarchical structure of the organisation and highlighted that although social media was embedded into these officers work practices; it did not fit with others. Therefore in order for social media to be fully utilised, it must be valued by the whole organisation, not just the dedicated staff that are tasked with using.

Although in this context social media has enhanced work practices, it has also created contradictions and increased workload in other ways. For example, officers talked about how much faster they are working, with the ability to now manage multiple tasks simultaneously, but this also meant that their workloads were increasing. As their work became visible to other departments within the organisation through positive word of mouth, they were sent more requests for

help with information gathering. This disrupted the division of labour in that intelligence officers were now becoming overloaded with duties. Therefore this congruency was found to be temporary as increased workloads impacted their ability to work effectively and multiplied their volume of tasks. To resolve this, a senior officer explained that they were in the process of training detectives and other investigation officers on how to use social media to gathering information. This would eventually take the pressure from the team and it may also help to align organisational values and attitudes towards social media.

5.5 New Police Activities: A transformed Model of Social Media Use

As described in Chapter Four, a third context of the use of social media in policing was also found in this study. In this context social media was used as a tool for collaboration between the police and the wider policing family or what Crawford (2014) labels "*plural policing providers*" (p.174). The outsourcing of certain police functions to the private sector is not new, indeed Manning (2014) suggests that policing has been shifting in that direction since the change in the economic climate post-2008 (p.24). Similarly Crawford and L'Hoiry (2017) suggest that given the multifaceted nature of crime, an assemblage of inter-agency organisation is needed to work towards a more holistic approach to crime. What was found to be interesting here was that social media facilitated a transformation in activities creating a new model of policing, shifting the division of labour from the police and to the community. In this context ambiguity was reduced as the new activities were operating outside of the traditional police and could therefore be interpreted and reconfigured through new actors. The lack of police rules and regulation and in turn ambiguity involved in making sense of the rules disappeared. In this sense it enabled new practices to be formed through innovation.

Manning (2014) suggests there are several different types of policing including *public policing*; *private policing*; *policing carrying out previously public police functions*; and *hybrid policing*. Public police are the traditional police service and have a mandate to carry out a range of functions (such as those discussed in Chapter Two). Private police are classed as carrying out paid for actions to serve private interests, but often operating in quasi-public space i.e. non-state

agents such as security guards in shopping malls. Policing previously carried out by public police is defined as “*using public funds to pay for agents to carry out functions connected to public good*” (Manning 2014, p.29). This is considered outsourcing with the aim to reduce costs by contracting out some functions. These include traffic wardens and traffic officers patrolling the highways. Hybrid policing includes all varieties of policing functions with varying degrees, for example PCs, PCSOs with no powers of arrest, but with a mandate to carry out other police functions as the public police, and civilian staff such as custody officers, call handlers etc. Whilst Manning discusses these policing types as being separate, he also agrees with Crawford (2014) that the distinction between these types is becoming increasingly complex and blurred, making it difficult to differentiate between them. This was particularly found to be the case in this study. A new model of policing was established based on the blurring of traditional police activities with the community, and facilitated by the use of social media. This suggests a move to a blended model of policing low-level crime and anti-social behaviour.

5.5.1 Re-organisation of policing activities

As described in Chapter Four, this new blended model of policing was found where there was collaboration between the public police, private sector and also the local authority. It was found that this change originated in the community taking action, and moving towards self-organising activities. That is, change developed as a response to contradictions in the previous activity system such as, the need to drive efficiency, a lack of police resources, limited collaboration and improved technological capabilities, enabled the conditions in which transformation could take place, i.e. innovation (Engeström, 2001). Therefore change in the activity emerged from external sources (including the community but also those outside of it, i.e. the private sector), and not from the subject as was expected. This transformation was motivated by the community’s perception that low-level crime was becoming more of a problem and that the police had little time and resources spare to tackle it. This supports Garland’s (2001) notion of what he terms as the ‘responsibilization strategy’. The task of crime control is redistributed to other non-state actors through the co-production of policing activities. Although the community were already working in partnership with the police, they found that by investing in and constructing a privately run social media platform – Facewatch, they were able to use the tool

as a repository to store and share information between businesses and agencies with an interest in tackling crime. This was not only a new way of implementing the tool (in the context of policing); it was also a new way of organising activities. Engeström (2007) refers to this as 'breaking away'. He suggests that breaking away is about moving out of something (a previous activity) and into something else (creating a new activity).

It is suggested; social media facilitated 'breaking away' from the traditional, hierarchical forms of work and into a flat, collaborative form of work organisation. This self-organising collaborative approach created knowledge beyond the boundaries of the policing organisation (Lee & Cole, 2003) and could be an example of what Engeström (2007) refers to as "knotworking in mychorrhizae-like activities" (p.11).

"In knotworking, collaboration between the partners is of vital importance, yet takes shape without rigid predetermined rules or a fixed central authority" (Engeström, 2007, p.5).

"A mychorrhizae formation is simultaneously a living, expanding process (or bundle of developing connection) and a relatively durable, stabilized structure" (Engeström, 2007, p.11).

In this context, subjects from different agencies and organisations continued with their own existing work activities, but collaborated in a virtual social media space to contribute to community safety outcomes. In contrast to the emergent context discussed above, the lack of strict rules or central authority enabled innovation and transformation. This may be because in the same way as the augmented context, congruency was developed through the alignment of existing values. There appeared to be a mutual interpretation of the issues and a shared understanding of the goals. Therefore actors were bound together by a shared object, which created new forms of coordinated agency (Engeström, 2005). In this context, policing is carried out not just by the public police but by a range of actors situated within novel collaborative spaces beyond traditional organisational forms, in new and evolving structures. This suggests a move beyond what Crawford (2014) has described as 'plural policing' and Garland's (2001) 'responsibilisation strategy', where the community is not just responsible for crime prevention, but is actively carrying out traditional police work such as gathering and storing evidence, taking witness statements, liaising with victims,

and enforcing social control. Hence police work is reconfigured and new mychorrizae formations are taking shape across traditional boundaries. Despite the concept of mychorrizae being introduced over a decade ago it is still undeveloped and remains a partly finished framework. However along with ambiguity, it may help to explain the move into new models of policing from what are considered to be stable and well-bounded organisations.

5.5.2 Accountability and legitimacy

Whilst it was clear to see the opportunities that social media provided in this context. It also raises questions and tensions around accountability and legitimacy. Manning (2008) suggests policing has three primary elements across cultures, their structure; their function and routines; and their legitimacy (p.47). Legitimacy is based on mutual trust and a negotiated contract between the public police and the public, which serves as a mandate and distinguishes them from other policing organisations. For example, it is only the public police that can enter a case into the criminal justice system and therefore apply criminal law to sanction behaviour (Bradford, Jackson & Hough, 2014; Manning, 2008). Indeed, this was found to be the case in this context. The police role was solely to arrest and where information and evidence of crimes were collected, it was only when it was reported to police, that it was entered into the police systems and officially recorded. Therefore it was found that civil law, as opposed to criminal law was often enacted to sanction behaviour such as banning suspects and people of interest from entering business premises or areas of the town.

As the social contract between the public and police reduces and expands over time, due to the shifting expectations of society, it is subject to multiple contradictions (Manning, 2014). Although this new blended model of policing is still new and emerging, it could raise questions of accountability as power and authority is shifted from just being the remit of the public police and into new organisational forms, where security guards and business owners become agents of social control. While the public police have a mandate to store and share information on individuals, suspects and people of interest, we could question the validity of this within a private social media platform. As stated above, with regard to the use of social media for activities such as gathering information and surveillance on individuals, police operate within strict

guidelines of RIPA. In this context there was no evidence to suggest that these rules were implemented or what formal mechanisms were in place to ensure that information was not misused. Indeed a local authority officer described how they frequently needed to change passwords to the account to ensure that when staff that was using the system changed employment, they could not gain access to the system. At the time of data collection, he also described they were developing a new feature whereby log in details such as, who was logging into system and when, could be recorded and monitored. This was to ensure that current staff that use the system, were not using it outside of work or for other purposes, however it was not clear how this would be enforced and who would be monitoring this. If it were found that the social media platform was misused in this way, this could have serious implications that undermine the legitimacy of policing and threaten public trust. Therefore it could be argued that although the flat, decentralised and informal structure, and the lack of informal rules and norms facilitated innovation and transformed work activities in this context, it may also contradict accountability and legitimacy in policing.

5.6 Conclusion

In answer to the research question, how is social media influencing policing of low-level crime and anti-social behaviour. This study found that social media is influencing police work practices in multiple ways. This study identified three models in which social media was adopted and used by policing organisations, which led to different ways of working. The literature suggests that social media is used in two main ways; externally to engage with the public and internally to gathering information and intelligence (Crump, 2011). Williams *et al.* (2013) suggested social media can be used by NPT to monitor conversations on social media to enhance community intelligence, however this was not found to be the case within the emergent model of use, which was predominately made up of NPT. Instead, social media monitoring or information gathering manifested within the intelligence team and was predominantly used during major events rather than everyday policing. Therefore the suggestion by Williams *et al.* (2013) that social media could help to solve problems in the community through the co-production of order, either directly through dialogue with the public or indirectly through monitoring conversations on social media, was only found to be the case in one model of use (i.e. augmented model). Surprisingly a third model of use was established where social media was utilised for collaboration and

information sharing amongst police, businesses, local authorities and other stakeholders. These findings demonstrate that social media use is shifting beyond its primary police functions of engagement with the public and information gathering, and moving into a tool to facilitate new ways of working between agencies and organisations. This highlights the plasticity and evolving nature of social media within a policing context.

These three models of social media use demonstrate that social media use must be interpreted as relevant to the core values of policing if it is to be embedded in work practices. Previous research has demonstrated that where technology conflicts with the core values, work roles, structure and culture of police, the technology will not facilitate change (Ackroyd *et al.*, 1992; Manning, 2008). Whilst a certain degree of ambiguity may be necessary to enact sense-making and stimulate innovation (Allen & Wilson, 2004), it would appear that high levels of ambiguity create contradictions within and between activities. Where lower levels of ambiguity exist, social media became embedded into existing work practices by aligning congruency and enhancing practices, and also enabling and transforming new activities.

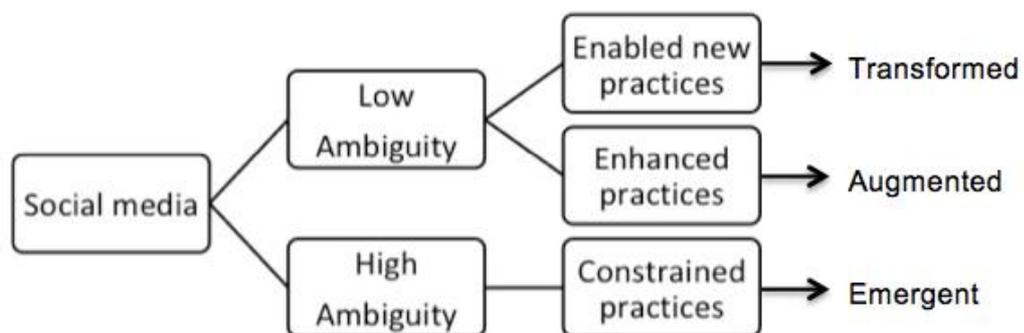


Figure 21 Social media, ambiguity and police work practices

The next chapter builds on the discussion here and takes a closer look at the findings on the influence of information behaviour through the use of social media. It explores these contexts in further detail and in relation to behaviours such as information sharing, decision making and information use.

Chapter Six Findings: Information Behaviour

6.1 Introduction

Chapter Four described how social media was used in terms of work practices and identified actions, which could be viewed as information behaviours in each context of use. Chapters Four and Five identified and discussed the contradictions that were found using activity theory. This chapter aims to shed further light on how information behaviour is changing and developing with the use of social media. Table 7 below summarises the primary information behaviours that were found in each context.

Model of Use	Key Information behaviours
Emergent	Sharing; Avoidance and blunting
Augmented	Seeking and gathering; Monitoring; Assessing; Decision making
Transformed	Collaborative sharing; Decision making; Information use

Table 7 Summary of information behaviour in policing

6.2 Information Behaviour in the Emergent Model of Use

6.2.1 Social media and information behaviour

In Chapter Four it was found that information behaviour such as information sharing, was prevalent through the use of social media. However ambiguity and contradictions highlighted numerous contextual factors that constrained information sharing behaviour in this context, which led to other related information behaviour concepts such as information avoidance and blunting. It is important to explore these information behaviours in more detail.

6.2.2 Information sharing

As presented in Chapter Four, policing organisations were found use to social media to engage in information sharing behaviours with the public. These were enacted through actions such as broadcasting information, engaging in dialogue, and monitoring information. It was found that broadcasting, or unidirectional sharing was the most common form of sharing information within NPT. Although dialogue and monitoring did take place, ambiguity and other factors (explained below) led to information avoidance behaviours.

6.2.2.1 Sharing information with the public

Broadcasting included sharing information about local news and events, updates on crime, arrests and sentencing, photographs of police dogs, horse, cars, and crime prevention advice. In this sense information sharing behaviours were one-way flows of information. The intention was to spread information as far as possible. Sometimes the public would comment on the content shared, which may then lead to dialogue. An officer gives an example of what he shares through social media,

“Name and shame, big fan of that and I work closely with the [local newspaper] on maximising those opportunities, so if someone is charged and its in the public interest we will name, date of birth, address and other details on Twitter, we’ll nudge the media when they’re going to go to court and then when we get the conviction we’ll Tweet about it and retweet the newspaper articles so we do cross media stuff as well.” [11]

They had also learnt what not to share.

“I’m always really careful particularly when you look at vulnerabilities, you know a lad fell off a balcony in a nightclub this weekend, we didn’t tweet about that because we wasn’t sure what the score was with next of kin, so you’re enthusiastic and want to give the live updates and the live ones with pictures are the ones that generate big traffic for us but you just need to remember we’re not the [local] News, we’re [names force] Police.” [12]

Dialogue included posting content with the aim of generating discussion and debate and the goal of understanding public perception. This would include asking for options, information on issues in the community, content that they thought would get a reaction etc. Sometimes this meant having challenging conversations.

“There’s a big negative public perception about the work we’re doing and I try not to take that personally. I say to people and I’m dead honest, we can’t be there 24/7, we’re a force that’s going from 8,000 to 6,000 cops in a three year period, I don’t sit in my office thinking do you know what I can’t be arsed about [name of location] Gardens I won’t bother today, it’s literally that I haven’t got the staff to throw at it and certainly not at 4 or 5 in the morning, so I’m actually quite blunt without being rude and I’ll just have those conversations with people”[11]

Other times it also had the purpose of sharing what police deal with or where their resources were going.

“We had one [999 call] last week that someone rang at 5am to say there’s a cherry picker outside, they’re changing a poster and they’re flashing lights and there’s noises keeping me awake, so again, all I said is, I described it [on Twitter] and said ‘I understand sleep is precious, is this for cops?, you should have seen the debate that raged on that.” [11]

As mentioned in Chapter Four and Discussed in Chapter Five, there were contradictions associated with the rules, division of labour and the ambiguity around understanding what, when and how to share information through social media. When exploring these contradictions in more detail it was also found that organisational culture was related to information sharing through social media.

Culture

Both police officers and support staff suggested that the use of social media and in turn, its influence on information behaviour was related to culture. It was suggested that there were new cultures emerging within policing organisations and many suggested that as social media becomes more prevalent, it will be more likely that social media is used to share information. This is reflected below.

“I think it is generational, it’s [sharing information through social media] still in its infancy for the police, so more officers coming through who are younger will be more used to using it” [120]

“I think there is an age gap in attitudes within the force on social media. Older PCs don’t really see the benefits because they don’t use it, where as the younger ones all have personal accounts so they use it more and are more comfortable with” [19]

Perception of risk

It was also found that the risk averse culture of policing constrained information sharing through social media. The reason why PCs, PCSOs and support staff do not always share information is associated with their need to be accountable to the public and the need to ensure the 'right' information was shared so as not to get in trouble. This is associated with the rules and the ambiguity that surrounds them. It would appear that risk aversion was internalised in the individual and ingrained the culture of the organisation and this played a role in mediating their information sharing behaviour

"I think we were quite risk averse so we wouldn't put messages on that we thought would, upset is the wrong word, provoke a strong reaction" [2]

"It is a bit of a minefield, how you have to do it, so I think a lot of people say I don't want to do it. Cause they sit there and go I might make a silly mistake and end up in trouble, so I think it's put a lot of people off" [120]

"It's keeping it corporate, so you see stuff on the [force] site you know you're safe to put it on. You just share it off there, because you know it's obviously been through press office, and it's ok" [126]

"You've to think about what you're putting on there, I know people that have got in trouble, it's just not worth it" [123]

Role and experience

The interpretation of the rules influenced the officers information behaviour in terms of what information to share and when, and was associated with the role of the officer and their experience. For example,

"You've got to be careful then because news reporting is one thing but you have to remember however that you are a police organisation and there are things like chain of evidence, so I have seen tweets where, not from our account, where people have taken a picture of, lets say someone has been arrested for possession of cannabis dealing and then they show a picture of what we seized you know two big bags and I've seen that go out immediately after arrest and that would have happened before a solicitor has gone to see their client...there is a danger that you are compromising that investigative process" [12]

Whilst police officers had some understanding of the legal rules in terms of what types of information they could share, what was legal and wouldn't jeopardise an investigation, support staff often struggled with understanding what they could share. One reported...

“You always do feel a bit hesitant with should I put that out should I not, and you always think well no, to cover yourself, whereas at headquarters, the official [force] one, that'd be media and marketing that they're feeding into that, so they know, to them it's easier, they know what they're doing” [I26]

The factors found to influence information sharing in this context are presented in Figure 23 below.

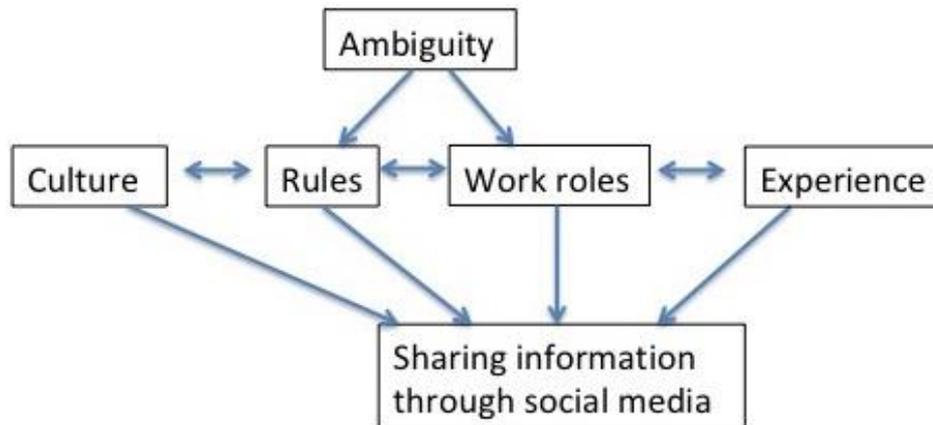


Figure 23 Influencing factors on information sharing through social media

6.2.3 Information avoidance and blunting

As highlighted in Chapter Four, although using social media allowed information to be shared with the public quickly, ambiguity led to other information behaviours such as information avoidance. Information avoidance was found in two actions – dialogue, and monitoring. It would appear that information seeking and sharing through social media were influenced by numerous factors, which varied depending on the role, experience of staff and the task/action. These are presented below.

6.2.3.1 Managing conflict

As social media was used to engage with the public through dialogue in order to understand public perception, it was surprising that some officers, particularly support staff exercised caution when engaging with the public. Many explained that the public will react to certain information posted in a negative way and that could lead to negative comments being left on the page. Staff explained that in

order to avoid conflict they were very careful about what they shared with the public, this created new norms in information sharing behaviour. For example,

“I’ve learnt the mistake you don’t put on ‘if you think there’s any areas we should tackle’ because you get people just coming out with rubbish, and they start all moaning and carrying on” [120]

“We don’t put speeding ops on, cause one PC was wanting to do it, and said I want to do operations in this area let me know, and even if you said it was a specific area you get them [the public] from all over starting to comment, and some of them were starting to make comments that you could have as borderline racial” [123]

It could be that due to support staff being office based, rather than front line, they were not as experienced at dealing with confrontation with the public, so did their best to avoid it. However for some police officers, this was seen as a normal part of their role and they would occasionally engage in debates and discussion, even if this led to conflict. This was also linked to confidence and the role of the officer.

“Then they came back with some abuse, and then I just went back and said “if you don’t tell us about it how can we deal with it, if you’d have told us we might have caught them” and they kind of had it. So that was very much borderline for me, whether I engage with that person or not and I’m quite happy to do that because you know 20 years experience and I’ve been doing Twitter now for 3, 4, 5 years and I have a little bit of degree of protection as an inspector that I can engage if I want to, and probably my PCSOs might not have that confidence” [12]

6.2.3.2 Self preservation and maintaining control

However some police officers reported that they sometimes found it difficult to deal with criticism on social media.

“You’ve also got to be mindful of some of the negative comments you get because ultimately it can be quite destructive as a bobby I think. From my point of view I work really hard, I work long hours, I do a lot of stuff in my own time, so when you get people criticising what you’re doing, you just get to a stage where you think government doesn’t like us, public doesn’t like us, Facebook doesn’t like us and it can be quite destructive so I think you’ve got to be mindful about getting into arguments with people” [123]

It could be that they avoided information exchanges and sharing in order to protect themselves from what they deemed as a personal attack.

Whereas support staff would ignore or avoid confrontation on social media, police reported that they preferred to take conversations that were particularly confrontational offline. This was either email, telephone or on occasion they would invite them to come to the station.

“On one occasion, I put my email for work because we post as [names account] NTP we don’t post as us but on occasions I put my details and my email and said you can contact me directly if you’ve got something to tell me, you know come and speak to me and they don’t” [I24]

It seemed important for police officers to feel in control of the situation and the exchange, however social media challenged that.

6.2.3.1 Deleting, blocking and ignoring

Although it was not common, it was explained that sometimes information posted by the public had to be deleted. In some instances the public would be blocked from the account, meaning they could no longer communicate with police on that platform. This was only when people made inappropriate posts or comments that were considered offensive. Both police and support staff explained that posts relating to speeding were usually the cause of negative comments.

“Then we had to see that the warning goes out, that we will not tolerate any kind of racial abusive messages on here, and we delete them” [I20]

“It gets difficult cause you sit there and go well what do I say when they’re getting silly, you know how do I tackle this, what’s the official way you tackle it and stuff like that, can you bar them and I know people have been barred before” [I23]

“There are people who troll for England out there, you know, downright abusive, people who use the C word, ignore, never engage with them whatsoever, people who put links to stuff that’s quite horrible and fowl, very occasionally I’ll ask the web manager just to block them off our account and I know he’s not keen to do that but there’s probably about three people in two years who I’m just fed up with wading through their garbage, so get rid of that” [I2]

Ignoring information was also found as a type of avoidance. This type of avoidance was mainly related to monitoring what the public were sharing with police. As found in Chapter Four, there were different views and perspectives on monitoring information depending on the role of the staff. For example police officers understood the importance of responding to the public. They suggested that if information is shared with the public then someone should be monitoring the responses.

“Ultimately it’s pointless putting something on there without someone monitoring it, it’s ridiculous” [I23].

“You can’t just chuck stuff on twitter and then go away and do something for 5 hours, if you know they are going to generate the interest you’ve got to be in a position to manage it, so you can’t send a controversial or a highly interesting tweet at nine o clock at night and then log off and go home” [I2]

For support staff, whilst they shared information through social media, many seemed to ignore responses from the public. This was because (as mentioned previously) some lacked confidence and experience to respond, where as others simply didn’t think it was their job. This meant that information was often ignored on the assumption that someone else would do it.

“I pity the poor person who’d have to sit there and go through the amount of stuff, because it’d just be an endless trail, you’d start off one then it’s been shared and shared and commented and shared, and it can go forever, and where does it end?” [I20]

“I don’t do that [monitoring], I’m sure it gets picked up elsewhere” [I26].

“I mean I get notification on my Galaxy but I don’t look at them anymore, I haven’t got enough time to look at them” [I21]

One support staff even spoke of turning off her notifications so she would not be alerted if someone commented on the post. This was echoed by an inspector who recognised the importance of monitoring information but also admitted that he simply didn’t have the time.

“They wanted all the sergeants, but then there’s a lot of demand on the sergeants for other things, so they say Facebook’s the least of my worries, I haven’t got time to be doing that, chatting to public, I’m trying to keep the district going” [I20]

“The hard bit is about keeping on responding to people because you get messages at a funny times saying can you do this, can you do that, so it is time consuming” [13]

6.2.4 Summary of information behaviour in the emergent context

In this context it was found that the use of social media influenced numerous information behaviours such as information sharing, information avoidance, and blunting. Factors such as organisational culture, ambiguity around the rules and the role of the individual, experience, time and resources also played a role in information behaviour. These behaviours and factors will be discussed further in Chapter Seven.

6.3 Information Behaviour in the Augmented Model of Use

6.3.1 Social media and information behaviour

Chapter Four demonstrated the range of information behaviour found within the context of intelligence gathering. It was found that social media influenced behaviours such as information seeking and gathering, monitoring, assessing, sharing and decision making. Details around how these behaviours manifest and were embedded into work practices were described and discussed in Chapters Four and Five. This section will take a more in-depth look at the information behaviours, particularly those related to decision making, and highlight some of the related concepts that played a role.

6.3.2 Information seeking and gathering

Social media provided a new information source that enabled wider and faster information seeking and gathering. Officers described how social media had become invaluable when gathering information and intelligence. They all stressed however the importance of the rules when using social media.

Rules played a significant role in intelligence officers' information behaviour. It guided every action and formed the basis of their decision making.

“The consideration we have is obviously the legality of what we do, and the necessity and proportionality of what we do, and also collateral

intrusion...everything we do must be lawful, we must be willing to defend it as necessary, proportionate means that actually as a method of gaining intelligence information, it's not a sledge hammer to crack a nut. And then collateral intrusion is about making sure that we don't seek out stuff that we're not supposed to have, and if we inadvertently collect it, we don't use it improperly and we safeguard it and we delete it as soon as we can. So all of those are considerations, and they go on the whole time" [I27]

Although the information seeking and gathering behaviours are new, they are situated within the existing rules of the organisation, particularly RIPA. As discussed in Chapter Five, this meant officers were able to adapt their behaviours to social media with relative ease. As one officer put it,

"Its new processes, its new systems, but the principles are the same" [I28]

It was described as being a source to "build a picture" of what is going on, particularly in the lead up to and during major events.

"It's not hard and fast intelligence in its own right but it's a really good indicator that you then add to snippets of firm information or firm intelligence that you're getting from all your sources – and when I say sources I don't mean about people, but everything. And it all adds to a bigger picture so it's very much a fine art putting together the picture surrounding any major event" [I27]

In this sense, social media was one source of information, when combined with others, provided intelligence.

However it was also noted that this activity of information seeking was becoming more difficult as people become more aware that their online actions can be viewed by anyone, including the police. An officer used the analogy of speaking in public versus speaking in private.

"The information we seek is not necessarily there any longer because the people who have put it out as open source also realise that we're very interested in what they have to shout out of their window, so they shut their windows, or they start making metaphorical telephone calls to each other so we can't hear it any longer, and that's where we have to work with what we've got, because the law doesn't change" [I29]

Here the issue is that as more people choose to share information in private networks such as WhatsApp and Facebook Messenger which police are not

able to view without a warrant, this could constrain information seeking behaviour. Therefore although social media has enabled new information seeking behaviours through social media, this has the potential to change again in the future, as police may need to develop different information seeking behaviours, or develop new rules to deal with the changing public behaviours.

6.3.3 Decision making

As highlighted in Chapter Four decision making was prevalent through different activities and actions. Police were found to make decisions on how to search (as demonstrated above), how to make sense of information and judge its relevance, and when to check or corroborate information. These then informed their operational decision making such as when and how to act on information, what resources would be needed etc. Social media was found to influence information behaviour in this context in numerous ways. What was perhaps surprising was that social media was mainly used to inform decisions on pre-planning and live events, rather than on an everyday basis. This was due to priorities and resources.

In major events, police were found to make decisions using both analytic and intuitive modes depending on the context. In this case the build up to events versus live events. These behaviours were bound up with other information behaviours, which are presented in the sections below.

6.3.3.1 Analytic models of decision making

It was found that when asked how they make decisions leading up to events, police stated they used the National Decision Making model as a framework on which to base decision making.

“There is the National Decision Making Model which is used on a long term operation over the days of pre-planning and during the operation I’m auditing my decisions and monitoring it” [129]

“The National Decision Making model, one of the key things of that is what information have you got to hand around the issue, this now is one of the primary things that any investigator, event commander, senior officer, community police officer would want to know about, so these are the facts that’s presented to me, this is what I think but what’s social media saying? And it’s I don’t know, depending on who the individual might be, it might be number 3 or 4

on the list of things they want to know, you know what does social media say and the importance that's being placed on that to make the decision on either the resources your putting out, how you respond to this, can you prioritise where your resources will go say to an incident, that's playing a major factor in it" [14]

That is, they relied on the prescribed analytic models of behaviour to make decisions, which would inform the planning of operations on the ground. Social media enacted information seeking behaviours but was not used as a single source and instead in combination with other sources of information and knowledge of past events.

"We don't just use it on its own. We'd look at identifying groups and look at what have they done historically, so we do some research around it. What sort of numbers – or how many similar events have there been either locally or nationally, how many people turned up last time, who turned up, and what happened" [127]

"In terms of where social media fits with my information to assist me with the National Decision Making model, the way I make my decisions is another source of information, it may confirm or refute other information, and I need to look at it in the context of other information so it helps me to build a richer picture" [128]

Monitoring, assessing and checking information

It was explained that information on social media is constantly monitored, and information is assessed and verified in the same way as any piece of intelligence would be. This appeared to be a cyclical and continuous process, both leading up to an event and during an event. The excerpts below demonstrate how officers make sense of information on social media, which then supports their decision making.

"Well you look at it – what does it say? When was it sent? When was it first sent? Is it a re-tweet? Is it fresh? Where's it come from? Who's saying it? And you look at all of those and you just form...it becomes a common-sense decision" [128]

They use the already established norms for assessing information and apply them to social media. An officer explained this below.

“That you’ve got it from social media really makes no difference – you wouldn’t ignore it. What makes it more difficult as social media intelligence is finding out who to go and speak to about it, if indeed you should, because you might not want to disclose the fact that we’re quite lawfully listening to people, same as we send plain clothed police officers with their warrant cards tucked in their pockets because we want to be unobtrusive and gather more information intelligence legitimately – and there are numerous cases where that has happened, and in each and every one we have to either prove that its [information on social media] false or show the bosses that is, that there is nothing to suggest that it is true, and it is unlikely to be true – or that actually there’s something to it and it needs dealing with. And I’ve had all of those outcomes in different pieces of intelligence” [127]

Experience and sense-making

It was found that experience was important when trying to make sense of information gathered through social media in the planning stage. Using automated tools was useful for seeking information, but it was explained by intelligence officers that it still needed a human to make sense of the information.

“this is where the machines, the systems, can’t – they can only tell you what’s being said – this is where the human touch comes in, and this is where people that are experienced in reading the product [social media] as we call it, and deciding ‘what’s it actually telling me’ and touch wood by and large we do that very well” [127]

“we can gauge by the demeanour of people, what we feel that their intention is – what are they really trying to do –and the reason that that’s important is that our police commanders have to make a decision on deploying, not just the right number of staff, but the right type of staff” [129]

“so we’re confident now after a number of years of doing this, that if we know about an event, and quite often we pick up on it from social media, what’s it actually going to look like, how big’s it going to be” [128]

In this context, officers have the time to make sense of information and formulate a judgement based on their assessment of the information. They used their own expertise to analyse the options and make their decision. It would suggest an analytic mode of decision making is used. However this is also based on past experience and knowledge of past events. In the planning stage decision making takes place throughout the process and in combination with other information behaviours. This will lead to an operational decision on the day such as how many officers to deploy and where, but as officers explained,

this decision can also be modified on the day or during a live event. Figure 24 demonstrates the information behaviour process.

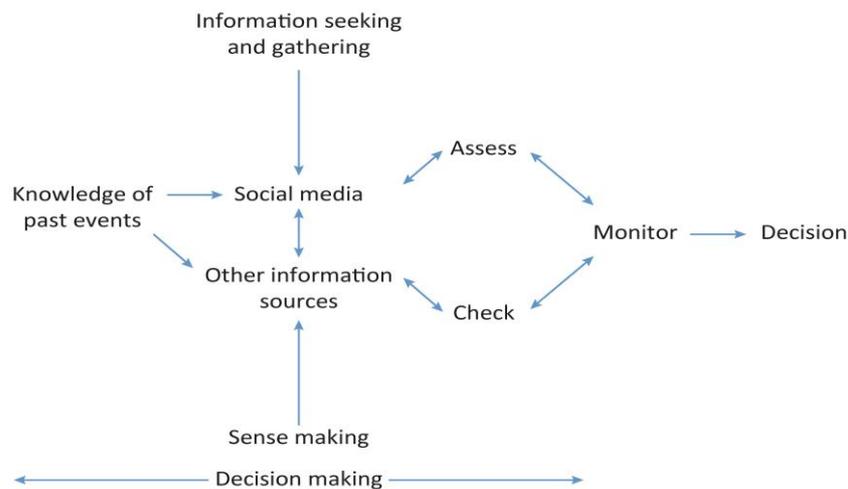


Figure 24 Information behaviour and analytic decision making

6.3.3.2 The use of intuition

Although an analytic mode of decision making was found to be more prevalent in the planning and lead up to the event. Once the event or operation became 'live', the mode of decision making changed and relied more on experience, gut feeling and intuition. The change in mode seemed to be related to time pressure. A gold commander explained,

“there becomes a point when its time critical...there is that element of although you’ve got your information, you’ve got your intelligence, you’re at that point where you have to just make that, not necessarily intuitive, but that professional judgement that says knowing what I know and the belief that I honestly hold...I would articulate it like that I, I would put it in my policy log, I’d direct the officers on the ground, and then I’d just – it’s not a leap of blind faith, but there’s an element of trust in my decision” [129]

This was also observed during the football derby. The gold commander used the intelligence from social media and other sources, which were continuously monitored as the event evolved. Decisions were based on this previous intelligence and prior knowledge, which enabled them to “trust their gut”.

Officers described using “professional judgement” when time was limited.

“it is also professional assumption and I think I, as an experienced public order and firearms commander can make certain professional assumptions based on my experience. I don’t think that’s a bad thing, I think it can add to it. I as a novice PC, however many years ago I don’t think that assumption would be as valid. And so it’s a qualified assumption” [I28]

This was supported in observations where intelligence officers were reluctant to state they used intuition but also admitted that when information on social media is coming through quickly and there needs to be a decision on which pieces of information to use, “*you just get a feel for it*”. In reference to an officer’s experience of making decisions in time pressured environments he stated;

“so far in my career, touch wood, I’ve not got my fingers burnt. And that’s over a long, long time of commanding football, firearms, public order, but yes, it can be a testing moment” [I29]

It would appear that intuition was when the officer was experienced and the situation was under time pressure.

6.3.3.3 Hybrid modes

It was also suggested that decision making was a combination of both analytic and intuition and this was aided by their experience and knowledge of the context. Although this particular example was not related to social media

“And what I do as a hybrid, in my decision making. Yeah I’ve got the National Decision Making Model, yes as a purist, as much information intelligence as I can that’s validated, that gives me a good threat assessment, so I can work out who’s at threat, from what and to what extent they’re a threat, have a really clear working strategy, here are my powers and my policies, this is what’s lawful, this is what I’m trying to achieve, everything measured against my ethics, and amongst the options I’ve got, this is the favourite option cause its proportionate and will meet the strategy” [I29]

The officer goes on to explain an example where although intelligence was pointing him in the direction of making a decision to arrest a group of men that had previously committed robbery on a series of pubs and were supposedly

about to commit another, he decided at the last minute not to intervene and arrest them – he enacted his own expertise and intuition...

“In the cold light of day you can do that, but at that time, for example when I spoke about the holdall, these guys, everything said, these guys are gonna do a very violent robbery, because it was their style, their MO, the intelligence was right, and they have all come together, it was late at night, they were outside the exact kind of target pub, and they’re just about...it appeared they were just about to walk in, and I, in my strategy we had a parameter where the robbery does not take place, because we knew if they do, someone’s hand could get cut off with a machete, and they’re almost at the door, about 10 yards away from the door, in a car park, its dark and my people are really close and they could have done them like that. And partly an assessment of the intelligence, they’ve not got the bag with them therefore....but also partly my experience of what I knew of their offending...it’s not happening. Stand down. But I had my heart in my mouth for a few seconds until they re-grouped and went back to the car. And that’s that combination” [I29]

Therefore it was found that although officers used analytic decision making, when under time pressure, they relied on their experience to make an intuitive or professional judgement.

6.3.3.4 Changing the decision

An officer relayed an example where viewing social media enabled him to change the decision during a live event. The officer explained that he was responsible for ensuring the Prime Minister’s safe arrival and exit at a town hall. The officer said that he felt the area around the building was too exposed and suggested another entrance that could not be seen by the public. However the Prime Minister’s protection team disagreed. The excerpt below describes how social media played a role in the operation.

“We were monitoring social media throughout the morning and by this time now, it’s in the public domain, it’s on TV, it’s on local radio, and there’s a buzz about the place, we’re then picking up stuff on Twitter ‘lets give Cameron a pancake’ ‘lets egg the PM’ and all this stuff is appearing on Twitter open source, and I cannot stop Morrison’s selling eggs and flour to people, but we knew it was happening, we knew that they [students] were equipping themselves, arming themselves with eggs and flour, we knew it. So I then feed this through to the protection team and say I don’t want to say I told you so, but monitoring social media shows that people aren’t that happy that the Prime Minister is in a building right next to the art college, and that within the community people are getting eggs and flour. So my advice is put him at another door, and get him out

of here. So that was fed through...people were assembling there but I knew that in close proximity were people with eggs and flour, and then through a side door we had a range rover that whisked him away. OK, for me as the commander of that operation, it was a success cause my strategic objective was the safety of the Prime Minister. Right up there in the working strategy, and he was safe, he wasn't subject to any attack, he wasn't subject to any embarrassment etc. so we achieved the objective. Social media helped me make a better decision" [I28]

6.3.3.5 Reviewing the decision

It was stated that social media could also be used to review or monitor decision made on the ground during live events and act as a temperature gauge to determine if they made the right decision.

"So the EDL, they use social media during the operation and they will feed things out and make reference to the police operation, make reference to the rivals, and equally the rivals will make reference to it, so it's important that we have monitoring of that, because that gives you a flavour, and if we put in a police intervention that's low-key and there's no ripples in social media you know that you've achieved. If you put in a police intervention to arrest some hot heads and take them out of the crowd, and then the social media reaction is hostile, then perhaps that intervention didn't work, so if you go back to the National Decision Making model, we had some information, assessment etc., we worked our way to an action, arrest somebody, now it's the social media, what happens as a result of our action." [I29]

The use of social media to support decision making is presenting in Figure 25 below.

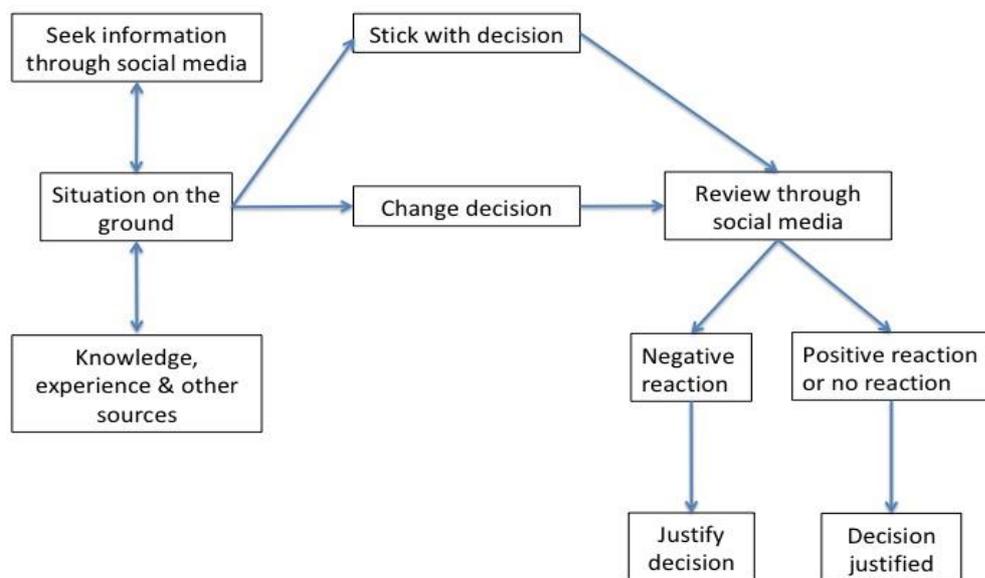


Figure 25 A model of social media use for decision making in time pressured environments

6.3.3.6 Issues in social media and decision making

It was found that although social media was described by many officers as enhancing their decision making, there were also found to be a number of issues that they had to manage.

Trusting information

Being able to trust the information was important. It was found that officers sometimes found it difficult to decipher what was real or relevant and having to make the decision on what to act on and what to ignore.

“One of the things about social media is having to try and discern what is an ill-advised comment and what’s a real threat. The vast majority touch wood, are ill advised comments.” [127]

“If there was a comment that was actually real, and we didn’t do anything about it then we would be absolutely crucified because guess what it was out there in ‘Twitterland’ and the police didn’t do anything about it, so we haven’t got that luxury of saying ‘that’ll be an idiot, we’re not going to deal with that one’, we have to really be certain that, like I said before, either we can prove that it’s an idiot, which is a technical term by the way, or there’s nothing to suggest, despite us having looked, that it is anything other than an ill-advised comment” [127]

Another officer stated because information on social media was out there for all to see, it was not an option to ignore information.

“So when its scrutinized and perhaps a firearms incident’s not a good example, but when a decision is scrutinized – well Superintendent this atrocious decision you’ve made, with a dreadful outcome, was based on these five factors, and that would be my explanation – I was aware of these 5 factors which lead me to see that the appropriate action to take was this, and they would say yes but there was another 6 factors that you weren’t aware of or you’d chosen to ignore, now look at this post on social media saying that there was a group of students going to do a bit of an April Fool’s trick with toy guns and a little bit of a spoof outside the NatWest Bank – and you’ve turned up with armed officers and shot them...answer that one” [I29]

The officer went on to further illustrate the risks faced. If a wrong decision is made, then they are accountable to the public.

“The risk for us now, is that because there’s more and more sources of information, which bit do you choose, and you can grade it, and you can be monitoring stuff, and you can look at the timing and look at the source, and give it some validity. But when you have to make those fairly tight, time constrained decisions, you know that there’s a risk that there’s something lurking that would help you make a better decision and if this decision is deemed to be inappropriate, that’ll come out in the public enquiry” [I29]

Another confirmed this.

“We’ve got a couple of acid tests, firstly, what would the public expect us to do, and secondly, the flip side of this, how does this look in the Daily Mail if we don’t do it. I unashamedly mention the Daily Mail because the Daily Mail does set itself up to be the rather intrusive and judgemental side of the establishment when it comes to the police, and if we didn’t do something then the Daily Mail would have a field day because we hadn’t done it, and actually its something that we’d be well advised to consider” [I28]

Contradictory information

It was found that although social media was able to provide information to make “better informed decisions” through situational awareness, it could also provide contradictory information.

“When its contradictory, and I’ve been in that situation when it’s like....do I or don’t I? and in collapsing timeframes you know...and I’ve got some information

that suggests that they are, and some information that perhaps there isn't quite enough to say that...so there's a little bit of pressure there" [I28]

Too much information

As observed and mentioned in Chapter Four, although social media enabled faster information seeking and decision making across multiple sources, it also had the potential to create too much information and information overload.

"I want to make the best decision I can. The better the information I get, the more comprehensive information that I get, the better my decision will be. But if the information is so overwhelming, I'm time critical, how am I going to do it?" [I28]

If search terms were too wide or not targeted in the right geographic area, then officers were tasked with too much "noise". Expertise are needed in order for information seeking and decision making to be effective.

"if you set your search terms too wide you get too much information, most of which is not relevant, and therefore you've made life difficult for yourself. If you set it too narrow you might miss a crucial piece of intelligence or information that has just one of those terms, that you actually want to see, because you haven't got that term in there. It's a fine art" [I27]

Officers explained that this was difficult and that they were constantly having to develop new strategies to overcome it. As one officer explained,

"basically the amount of information goes up in a straight line, and we go along with our existing methods at any one time, we sort of more or less flat-line then we find another way of doing something and we take a big leap up. So we're going up in steps, as the amount of 'noise' goes up in a nice straight line, we'll be overwhelmed, then we're fine, we're on top of it, and then it creeps up and it outstrips our ability until we find something else. So yeah, volume has been a real problem" [I29]

6.3.4 Summary of information behaviour in the augmented context

In this context it was found that social media influenced numerous information behaviours such as information seeking and gathering, assessing, monitoring and checking, and decision making. Different modes of decision making were found. This seemed to be related to time pressure. Where officers had time, an

analytic mode was used, when time became constrained, officers relied on their experience and prior knowledge to make an intuitive decision. Social media was found to provide more information that aided officers in decision making. However it also provided some challenges such as information overload, contradictory information, and trusting the information. These behaviours and factors will be discussed further in Chapter Seven.

6.4 Information Behaviour in the Transformed Model of Use

6.4.1 Social media and information behaviour

Due to this model still being at an early stage there are less detailed findings on information behaviour. However those that were found are presented below. Chapter Four highlighted the main information behaviour in this context was information sharing. It was found that a new social media platform enabled information sharing to take place across multiple organisational boundaries.

6.4.2 Information sharing

The primary information behaviour found within this context was collaborative information sharing. As explained in Chapter Four the Facewatch platform enabled sharing between organisations such as businesses, local authority, security and police. The main focus in this section will be on the organisational platform and how it influenced information behaviour in this context.

6.4.2.1 The need for sharing

It was found that collaborative information sharing emerged out of a need to tackle crime in the local area and take the strain from police resources and help businesses. For example,

“On taking the lead in the project [implementing the social media platform], it was clear that there was so much more to offer to try and take the strain off police and businesses to combat the risk of business crime” [17].

It was explained that information wasn't always shared with police as it wasn't always officially reported.

“Previously information had been collected by businesses reporting incidents to BID [Business Improvement District] officers via hand written incident report forms...it was stored in the BID office and so information was only shared at specific times...so information just sat there, idle.” [117]

The participants went on to state,

“Because it was written by hand, you had to type it out and it was so time consuming, at times it meant that very little information was getting shared...with Facewatch we've been able to modernise the way we work.” [117].

6.4.2.2 Inter-organisational sharing

It was found that the introduction of the Facewatch platform acted as a repository for different organisations to share information about crime and anti-social behaviour in their local area. It was a virtual space where information is collected, stored, viewed, commented on and shared amongst members of the group. Sharing information in this way enabled each member to get a better idea what was happening in their local areas, which enabled them to make better informed and collaborative decisions on how to tackle problems and issues.

“that's the main thing about it, you can share it and so many different people can see it...For example one of our offenders was begging but the Salvation Army were also having problems with him abusing staff and it wasn't until we spoke to each other like that that we realised we had the information so the police could then do something about it. It's stopping that previous issues that were hidden or not related, its linking it all together” [118].

“Our ambassadors have got tablets now so we can report and share incidents and stuff on offenders as and when we need to...businesses can view it [information] in real-time” [117]

6.4.2.3 Information gatekeepers

Interestingly one of the admins (who was from the local authority) for the groups commented that although information is shared within the group, it is firstly vetted.

“we don’t share all of the information, we vet it, so basically its down to us what gets shared to the businesses, we see everything as admin but the businesses only see certain things” [I18]

This suggests that although a collaborative approach was emerging, there was still an information gatekeeper who decided what to share and when. It was stated this was to ensure security of information and that they (the businesses) were not overloaded with information. It was also to ensure the information shared was relevant to that particular group.

“We (admins) can see everything and there was talk at one point of us creating a group with [names city], the idea was myself and their retail crime guy would act as admin so we would see the information coming from both areas and if we recognised something we could then share it, but the businesses only see what’s in their group. I did a report at Christmas and I think, we had about 750 individuals on it and I think there was only 30 that the businesses could see, so the groups are quite well controlled” [I18]

6.4.2.4 Building relationships

Participants reported better working relationships since the implementation of Facewatch. This suggests that increased information sharing could lead to trust and more collaborative information behaviour.

“the way we’ve used Facewatch and developed the system to suit our needs has played a huge role in improving working relations between ourselves, businesses and the local neighbourhood policing team” [I17]

Participants were keen to demonstrate that their new partnerships had led to more incidents being reported and stakeholders being more likely to work with others. For example,

“In the three meetings I’ve held the numbers [at meetings] are starting to build up, including attendance and interest from the city centre inspector who’s now on board. I think it means people are getting more confidence in it [social media platform]” [I18].

6.4.2.5 Making joint decisions

It was found the use of social media in this model was enabling collaborative decision making. Where as previously the police would either decide to

prosecute or not, through stronger partnership working decisions were being made to take civil action as opposed to criminal. For example it was explained that in working together the known serial offenders could be managed through civil actions such as exclusion schemes where individuals were refused entry to business and leisure premises by security guards, which led to offenders being “talked around the city” via security radio. This was a joined up approach involving multiple subjects working together. If offenders were denied access to stores and restaurants, then they couldn’t commit crime.

6.5 Conclusion

In this chapter it was found that social media is also influencing information behaviour, but that each model of use had unique information behaviours. For example in the emergent model of use, information sharing and avoidance were prevalent, in the augmented model, police used social media for information seeking and use – decision making. In the transformed model information behaviours are still emerging but it would appear that more collaborative information behaviours are taking place through the use of Facewatch. This would suggest that context is important. These findings are discussed further in Chapter Seven.

Chapter Seven Discussion: Information Behaviour

7.1 Introduction

This chapter aims to address the second research question by discussing how police information behaviour changes and develops with the use of social media. The three models of use identified in Chapter Four and discussed in Chapter Five are used to structure the discussion on information behaviour in different contexts.

7.1.1 Understand information behaviour in work contexts

In Chapter Two it was suggested that despite context being recognised in the literature as important for studying information behaviour, it is often lacking in focus (Courtright, 2007; Fidel *et al.*, 2004; Hansen & Järvelin, 2005). The notion that understanding the ways context influences information behaviour has been acknowledged by a range of scholars. For example, Wilson (2010) states, *“the probability of information sharing taking place between individuals depends upon the context and the nature of the information.”* (p.7). Similarly Jaegar and Burnett (2010) and Burnett (2015) developed their theory of information worlds to understand the social context of information use. While Fisher *et al.* (2005) put forward the concept of information grounds to understand information flow and human interaction in everyday settings. However Allen *et al.* (2011) suggests although many scholars agree that context should be addressed, very few explore how it influences information behaviour and how information behaviour in turn shapes context.

Similarly with the increasing use of technologies to seek, share and use information it is important to understand how these tools mediate information behaviour. As Courtright (2007 p.285) states, *“IT plays a dual role in context, as it is both a shaper of information practices and the object of shaping by other contextual factors and by users themselves”*. In Chapter Two it was highlighted that policing is a dynamic work context which can be characterised by both routine tasks and activities (Manning, 2014) but also complex, uncertain and time pressured tasks (Allen, 2011). This has made for interesting research when exploring information behaviour.

Nardi (1996) demonstrates that it is difficult to fully understand organisational and individual work practices if the study does not explore these in relation to the tools used and the social world they are a part of. In this study, context has been essential in understanding not just work practices and information behaviour in policing, but its relation to the technological tools, cultures, structures (both societal and organisational), rules and norms, the communities they are part of and the division of labour. In this research activity theory was used as an analytic framework to study the context of policing as it provides a holistic perspective to explore the various elements and dimensions associated with information behaviour. This research contributes to the growing literature on information behaviour in the context of work. It demonstrates that context is essential in understanding the use of new tools such as social media in policing organisations.

The information studies literature tends to focus on everyday information use in 'stable' organisational contexts. Information use in dynamic organisations where actors engage in both routine and structured, and uncertain, complex tasks is under theorised. In this study of social media use, the findings revealed that information behaviour differed between routine tasks in neighbourhood policing, and uncertain, time pressured tasks in intelligence. The study found that rather than social media having the same influence on all activities of policing there were different models of use (emergent, augmented, transformed) and different information behaviours. For example, in the emergent model of use, information sharing and information avoidance were found, while in the augmented model of use information seeking and use were more prevalent. Information behaviour moved from the individual and to collaborative information behaviour in the transformed model of use.

The findings of this study illuminate information sharing behaviours on social media and highlight some of the intervening factors in police information behaviour, such as, culture, experience, work roles etc. It was found that in the emergent model of use these factors were related to ambiguity and led to some police officers engaging in information sharing, where as others engaged in information avoidance. While much of the literature on information avoidance has been conducted primarily within a healthcare context (Case, 2012), these findings suggest that ambiguity can influence information avoidance in policing.

In this study, information avoidance was not associated with anxiety or stressful situations as others have found (Goleman *et al.*, 2017), it was associated with ambiguity in the rules and norms and the redistributed division of labour. These findings shed light on the complexity and nuances of information sharing through social media in dynamic organisations.

In the augmented model of use information was used to make decisions. This study builds on the work of Allen (2011) and further illuminates information use and modes of decision making in a policing context. It provides further support for the role of intuition in decision making in time pressured environments, suggesting a dual processing model of decision making. These findings suggest that decision makers with experience are able to make intuitive decisions (Kahneman & Klein, 2009). As different modes of decision making were found in this study, this would suggest that context is important when exploring information behaviour.

This research further demonstrates that social media technologies are being used and implemented in new innovative ways. This enables collaboration not just within organisations but across organisational boundaries. This study illuminates some of the ways information behaviour changes and adapts from individual behaviours to collaborative information behaviour. This contribution is demonstrated in the sections below.

7.2 Context and organisational information behaviour

The key findings from Chapters Four and Five found that social media was adopted and used in different ways depending on the context. It found three models of use where work practices were emergent, augmented and transformed. This chapter builds on this by taking a more in-depth look at the specific information behaviours that were found in each model. As it was found that social media was used in multiple ways, it was also found that different information behaviours developed. Therefore it is suggested that the context in which the tool is deployed, influences social media use and the information behaviour of police. Table 8 below summarises the related concepts.

Model of use	Key Information behaviours
Emergent	Sharing; Avoidance and blunting
Augmented	Seeking and gathering; Monitoring; Assessing; Decision making
Transformed	Collaborative sharing and decision making;

Table 8 Summary of information behaviours in policing

The remainder of this chapter discusses the three models of use and the key information behaviours found.

7.3 Information Behaviour in the Emergent Model of Use

As presented in Chapter Six the key information behaviours found in this environment were information sharing and information avoidance. Ambiguity was found to have an influencing role on the use of social media and in turn information behaviour in policing organisations. In Chapter Five it was discussed that the introduction of social media was situated in a context of ambiguity which led to multiple interpretations of how, when and what to use social media for. This led to contradictions around the rules and division of labour as new actions in the activity system developed. As well as sharing information through traditional methods such as new media, face to face, local meetings, etc., NPT were now tasked with also using social media for these purposes. Therefore these information behaviours were now also taking place through social media.

The literature suggests that social media is a tool that can be used for sharing information with the public (broadcasting), engaging in dialogue and discussion, monitoring people's responses and using this information to inform policing (Burnap *et al.*, 2015; Williams *et al.*, 2013). Whilst this may be the case, indeed in this research some of these actions (broadcasting, dialogue and monitoring) were found to varying degrees, much of the literature has not explored the factors that may support or hinder information sharing and use. In the emergent model, a duality in social media use was observed. While the use of social

media was found to support information sharing, information avoidance behaviours were also found. This duality was related to ambiguity.

7.3.1. Ambiguity and agency

A surprising finding was that ambiguity enabled agency. As discussed in section 5.3, the lack of organisational rules led to contradictions in the activity which allowed for varying degrees of agency. For example, some individuals saw this as an opportunity to innovate and use social media to share information with the public. They would engage in conversation and discussion with their communities and use social media as a tool to support neighbourhood policing.

“using it as a neighbourhood tool, as a way of our neighbourhood teams increasing their visibility, getting feedback from people and starting to put messages out about crime prevention, requesting information from the public.”
[14]

They interpreted the norms within existing legal frameworks and used their own experience as police officers offline to support their information sharing behaviour through social media. Weick (1995) describes this as a belief driven process. He suggests that where there is ambiguity, people use an initial set of beliefs to act as nodes guiding and connecting to larger structures of meaning. Here police officers were able to draw upon their wider organisational beliefs and values about neighbourhood policing and reconstruct these without the presence of rules to fit an online sharing environment. These officers were more likely to engage in both broadcasting and information exchange – dialogue on social media. They were also found to be more confident in their online sharing behaviours and their interactions with the public.

“I’m quite happy to do that [engage in dialogue] because you know 20 years experience and I’ve been doing Twitter now for 3, 4, 5 years and I have a little bit of degree of protection as an inspector that I can engage if I want to, and probably my PCSOs might not have that confidence” [12]

For these officers, although there was a lack of rules, this meant they were able to use this ambiguity to improvise and use social media in a way that fit with their existing norms, values and experience. This is in line with Leonardi and Vaast (2017) who suggest that individuals exercise their human agency by deciding how to use new technologies, which manifests through their actions.

Taking an affordance perspective, they argue that, “*social media are technologies that are constructed out of certain material properties that enable the presentation, storage, and flow of information in ways that are difficult or impossible in other media.*” (p.152). In this study multiple interpretations of social media led to distributed agency as individuals used and adapted social media through their information behaviour. For some this supported information exchange in that they felt confident engaging with the public through dialogue. However for others (usually less experienced officers and support staff), ambiguity constrained information sharing and exchange and led to information avoidance and blunting. This was because the lack of rules challenged their existing behaviours and it could be suggested that they had less experience and knowledge to transfer their behaviour into an online environment. Without the rules to guide their behaviour, it was found that rather than engage in discussion and dialogue, they mainly engaged in one way sharing – broadcasting, and avoided other information. These two behaviours will be discussed in more detail. Information sharing will be discussed in the section below and avoidance will be discussed in section 7.3.2.

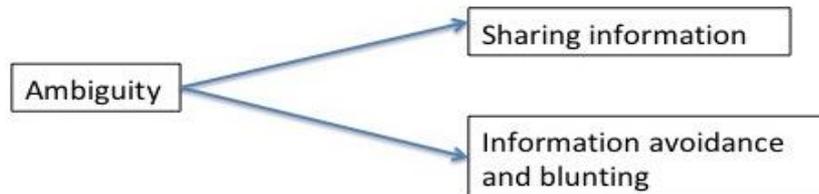


Figure 26 Ambiguity and information behaviour

7.3.2 Information sharing and information exchange

In the literature Yang and Maxwell (2011) identify three areas of information sharing in public sector organisations, interpersonal, intra-organisational and inter-organisational. Whilst there is no real doubt that policing organisations are no different in that they engage in all of these areas of information sharing (Allen *et al.*, 2014), as stated in Chapter Two, they are different in that they also share and receive information with the public. As Yang and Maxwell (2011) suggest, information sharing within and between organisations is complex and influenced by numerous factors such as organisational, cultural, incentives and reward

versus risk, political and technological. This seems to be more complex when also sharing information with the public.

Whilst in this research a clear distinction between different types of information sharing was not made explicit, it found that information sharing could be conceptualised in different ways. In the information science literature Herberger *et al.*, 2007 distinguishes between “information exchange” as reciprocal and multidirectional and “information sharing” as uni-direction, one-way information flows (Herberger *et al.*, 2007). Whilst initially these distinctions were not considered relevant, as Pilerot (2011) suggests information sharing can act as an umbrella term for several related actions, the findings in this research suggest that these nuances existed through the use of social media. Social media then was used for broadcasting information (information sharing) and also dialogue (information exchange).

It was found that these two actions (broadcasting and dialogue) enacted sense-making in different ways. For example, before broadcasting information to the public, police would consider things such as what to share and when, does it fit within existing legal frameworks, what are the organisational rules, how will the public react or respond. Similarly for the purposes of information exchange, police stated they consider what would the public be interested in, will they react positively or negatively, will it generate a discussion, can this be monitored or controlled etc. This sense-making was enacted from ambiguity surrounding the rules and work roles which led to multiple interpretations of how and when to use social media that in turn influenced their information behaviour.

As presented in Chapter Six broadcasting included sharing news and updates about local issues, events and crime related topics. Police would also share news stories from the local media and from the wider force area. Some officers had developed an understanding of what their communities wanted from social media so shared information that fit these norms.

“We promote crime prevention but it’s got to be interesting...because they were artistic posters I knew that would appeal to that kind of [names area] audience, so you’ve got to be a little bit interesting.” [11]

“We started to learn new things, like for example anything to do with kids and pets people had a lot of interest in so one of things I would do is contact our dog

section and the horses section and ask them to send me photographs and then on a Friday we'll put a feel good photo out of a [police] dog." [I2]

Dialogue or information exchange was about engaging in discussion with the community through social media. As reported in section 4.4.6 the aim was to understand the public perception. While there was evidence that this type of sharing occurred, this was also the most problematic for police and it was this type of sharing that enacted information avoidance. This study provides some support for the findings by Crump (2011), Heverin and Zach (2010), Lieberman *et al.* (2013) and Sakiyama *et al.* (2010), who found that police tend to largely broadcast information through social media rather than engage in two-way conversation. In this study information exchange and two-way conversation were found, but this was not as common and tended to be mainly police officers rather than support staff that engaged in these information sharing behaviours.

There was a clear distinction between those officers that engaged in information sharing and exchange and those that only engaged in broadcasting. The factors related to this are presented in Figure 23 below.

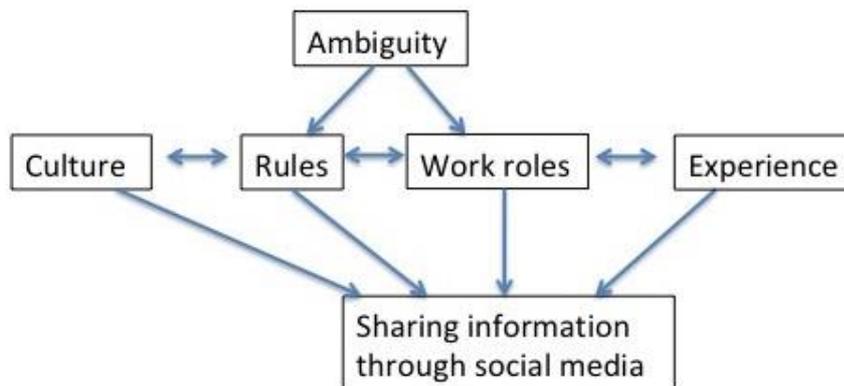


Figure 23 Intervening factors on information sharing through social media

Yang and Maxwell's (2011) study found a series of factors in relation to inter and intra-organisational sharing in public sector organisations, some of these were also found to influence sharing and exchange with the public in this context. In this study it was found that although social media as a technological tool allowed information sharing to take place, it was ambiguity and other related

factors that also constrained use. These factors were found to interact in complex ways with each influencing and informing the other. In this sense it was not just the technological tool that influenced behaviour, it was the contradictions that manifest around its use that influenced behaviour. In activity theory terms this demonstrated the interaction between and within different elements of the activity system.

7.3.2.1 Culture

As discussed in section 2.3.1, literature in information sharing has explored risk in relation to trust and relationship building for inter-organisational sharing (Gil-Garcia *et al.*, 2007; Yang & Maxwell, 2011). Scholars exploring risk within a public sector context have also suggested that risk is related to laws and regulations in that they may hinder information sharing as information in a public safety context is often deemed sensitive (Gil-Garcia *et al.*, 2007). Although research by Yang & Maxwell (2011) was in the context of inter-organisational sharing, in this research the perception of risk was found to be embedded in the culture of the organisation and associated with the lack of rules and regulations around sharing information with the public. This was demonstrated in the excerpt below.

“it is a bit of a minefield, how you have to do it, so I think a lot of people say I don’t want to do it. Cause they sit there and go I might make a silly mistake and end up in trouble, so I think it’s put a lot of people off” [I20]

This was not surprising given the police concern about their public image (Goldsmith, 2015; Lee & McGovern, 2012; Mawby, 2010) and the ambiguity surrounding the rules. Without clear rules and regulations support staff (and in some cases PCSOs), found it difficult negotiating what to share and when. In information behaviour, risk has usually been discussed in relation to risk/reward in information seeking. For example Wilson (1999) proposed the use of risk/reward theory in his model of information behaviour, but this was used to determine information seeking rather than sharing. In this study it could be that for some staff, the risks outweighed the rewards of sharing information which led to avoidance.

Widén and Hansen (2012) state that information culture is part of organisational culture. In this study information sharing was operating within a culture of

policing that is considered risk averse (Chan, 2001, Manning, 2008). It could be argued that the police in particular are under scrutiny more than any other organisation, due to their role in maintaining order in society (Bacon, 2014; Manning, 2008). Culture is therefore important in influencing how, when and what police share and exchange with the public. As studies have shown, in information intensive organisations, information is highly valued (Choo, 2016; Widén-Wulff, 2005; Widén & Hansen, 2012). In policing organisations this is particularly the case. This study found that police officers and support staff sometimes found it difficult to navigate information sharing through social media because it contradicted with their risk averse and tightly controlled information culture.

“you’ve got to change some culture within the departments of the force about actually why you’re putting stuff out there” [I21]

Therefore the culture of the organisation also constrained information behaviour. These findings suggest that if neighbourhood police and support staff are to use social media for information sharing and exchange, then the ambiguity around the rules must first be reduced to provide clear guidelines for the less experienced staff. Having said that, research in the field of criminology has found that as policing is in a constant state of change, their culture (and hence information culture) is also evolving to adapt to new working environments (Bacon, 2014). It could be that for the moment policing organisations are still learning how to use social media through a process of on-the-job socialisation that will gradually alter the beliefs and values (Bacon, 2014, p.115). It could be suggested that this is already taking place, as demonstrated by some police officers in this model and also in the augmented and transformed models where information behaviours are evolving. However in this model of use, social media did appear to differ in different work roles and through experience, suggesting that it has not yet developed into stable patterns of information behaviour. Therefore multiple information behaviours emerged.

Experience was found to be a factor in information sharing and exchange. This was not just experience of using social media, although this did seem to help, it was also experience and knowledge of applying the legal rules (as opposed to organisational rules) which were embedded in organisational culture within their work role. For example, as mentioned previously NPT are made up of different

roles such as PCs, PCSOs, support staff, sergeants, inspectors etc. It was found that work role and experience was related to their information behaviour. Or in other words information behaviour was related to the individuals' tacit knowledge (Choo, 2016; Holste & Fields, 2010). For example police officers have public facing roles in which they are experienced in interacting with the public. In their role, information sharing and exchange with the public is bound up with the notion of policing. Policing exists through these interactions and this is what affords the police legitimacy and accountability (Manning, 2014). They were able to draw on their experience when sharing information because they were tweeting about their daily actions and tasks such as arrests, incidents, events etc. Essentially they were able to share information because they had the knowledge and experience of policing to do so.

Meijer and Torenvlied (2016) had similar findings that Dutch police officers mainly shared information that was directly related to their tasks. This could be the reason why support staff and less experienced PCSOs reported difficulty in knowing what to share. As mentioned previously support staff have a back office function and are not public facing. They do not engage in traditional police tasks such as patrol, arrests, community work etc. (Millie, 2014). Therefore they have limited experience of interacting with the public (because it was not previously part of their role) and less knowledge about the day to day work of police officers. This is because they largely engage in intra and inter-organisational sharing and exchange. They rely on police officers sharing updates and stories about their work in order to then share with the public. It was suggested by support staff that if conversations with police officers do not take place offline, then it was more difficult for them to share information with the public online. This may also explain avoidance behaviours – support staff simply didn't have the knowledge or experience to engage in conversations about policing on social media. For example a member of the support staff explained that she would often get a police officer to write the post before sharing it to ensure it was worded correctly.

“it can be quite daunting, I'm not journalist trained, I'm not media trained, and it is difficult to make sure you're putting things out exactly how they [police] want it, half the time I'll do it if a sergeant asks me to put something on, I will ask them to write it, and it's a case of well if you write it I will then cut and paste it on, because you are aware that it could come under criticism.” [I21]

In the information studies literature the role of experience has been demonstrated with relation to information needs and tasks (Byström & Jarvelin, 1995) and information seeking (Johnson & Meischke, 1993; Wilson, 1997). However with the exception of a few (e.g. Constant *et al.*, 1994; Mishra, 2012) there have been limited studies that have explored experience as a factor in information sharing and exchange. Constant *et al.* (1994) suggest that experience has a positive influence on information sharing as it is linked to training and organisational norms. However Mishra (2012) found that if an individual is experienced then it may have a negative impact on information sharing. From an organisational perspective Lam (2005) found that government agencies that lack experience in cross-boundary information sharing may not perceive the benefits and therefore may not be aware of what is appropriate to share with other agencies. In this study it was found that for police officers with more knowledge and experience in interacting with the public, this influenced the use of social media in a positive way. For those with less experience (support staff and in some instances PCSOs), the use of social media presented a challenge. This was because their work roles provided different tasks, priorities and assumptions for engaging with the public. Albeit in a different context, this could be said to provide some support for Lam (2005).

7.3.3 Information avoidance

As presented in section 6.2.3, although ambiguity led to some police officers utilising social media for information sharing and exchange, for others, it also led to information avoidance behaviours. This was surprising given that in neighbourhood policing it is important to gather and acquire information in order to understand the communities they serve. This could mean that potentially relevant information is being missed or ignored.

Studies on information behaviour have drawn on the field of psychology to explore avoidance behaviours in information seeking and particularly in the context of healthcare (Case, 2012; Case *et al.*, 2005). In the context of healthcare there is now vast literature on monitoring (information seeking) and blunting (information avoidance) with the suggestion that people engage in either monitoring or blunting behaviour (Case *et al.*, 2005). The findings in

relation to healthcare are that when faced with difficult news or situations, people either seek out more information or avoid it (Miller, 1987).

In Case *et al.*'s. (2005) paper on information avoidance in genetic testing for cancer, they suggest that the concept of information avoidance is related to, amongst other things, reducing and managing uncertainty, coping with stress and anxiety, monitoring and blunting. Case (2012) makes a distinction between avoidance and blunting. Avoidance is the tendency to “*avoid exposure to information that conflicts with their prior knowledge, beliefs and attitudes, and/or which causes them anxiety*” (p.381). Blunting “*refers to a style in which a person responds to unpleasant realities or threatening information by blocking it from their attention.*” (p.381). However the literature tends to use the terms interchangeably for example Ek and Heinström (2011); Lambert and Loiseau (2007), as does (Case 2012, pp.109-120) in his review on information avoidance.

In this study avoidance was found in relation to information sharing and exchange, rather than purely information seeking. This was because the public were usually responding to a post made by the police, rather than the police actively seeking information through social media (i.e. monitoring, as in the augmented model). This study supports the notion of information avoidance and shed's further light on how information avoidance comes about. It also demonstrates that information avoidance can be associated with a different type of information behaviour (information sharing and exchange) and within a policing context.

Golman *et al.* (2017) use the term “active avoidance” to suggest that for information to be avoided the person must firstly be aware that the information exists. In this study what could be termed “active avoidance” was observed numerous times and was usually enacted when comments from the public were perceived as offensive or negative in content. For example, one officer explained that a post that was in relation to a fatal traffic accident involving a boy racer (this term refers to a young male who drives fast cars) had to be removed. Police were trying to generate information but due to the negative attention it received the post was removed, leading to the loss of potentially relevant information.

Golman *et al.* (2017) also suggest that avoidance is “active” if the information is costless and an individual chooses not obtain the information, or if it is costly to avoid it (p.97). Support for this could be found in this study, but rather than in relation to monetary cost, it was related to time and resources. For example, many staff reported that they simply did not have the time or human resources to respond to every comment on social media so they avoided it.

“we don’t get the time and that’s the problem and it comes back to that issue of it absolutely needs to be monitored, if you’re going to use it, but you’ve got to put the resources into it” [I21]

It was often the assumption that “*someone else probably does it*” and therefore was ignored. This study also agrees with Golman *et al.* (2017) who suggest that information avoidance deprives people of potentially useful feedback or information that they could use to improve or change things. They use the example of business executives not tolerating criticism, which could in fact aid in changing their behaviour (p.98). This was found to some extent in the emergent model. Police found it difficult to tolerate negative comments or criticism and in certain situations would block people or delete their posted content. This contrasts somewhat with the literature that suggests neighbourhood policing could use social media to gauge public perception and use information to inform decisions in the community (Williams *et al.*, 2013). Whilst this is a possibility and some police officers did do this, here they were more likely to ignore or in some cases block people from being able to interact with them again. This could be considered a paradox in that police wanted to understand their communities, but at the same time were not willing to listen if those views were negative. This could support Kim *et al.* (2015) who found that information sharing on social media was more likely to occur if it was associated with positive social rewards from their network (e.g. positive comments from social media followers). In this sense they avoided information that challenged their existing beliefs (Case, 2012).

In observing the behaviours above, it was also found that some police and support staff developed strategies to avoid information. For example, support staff began to anticipate what would cause negative reactions and deliberately restrain their sharing behaviour so they would not have to deal with the potential fallout.

“I’ve learnt the mistake you don’t put on ‘if you think there’s any areas we should tackle’ because you get people just coming out with rubbish, and they start all moaning and carrying on” [I20]

This was considered to be a way of managing potential conflict, if they do not share what might be deemed sensitive or provocative, then they absolved themselves of the responsibility of responding to it (Golman *et al.*, 2017). They developed new norms about what information to share and what not to share, in order to mediate the potential response.

Another example was the decision to move the conversation from an online environment and to offline. This was in the form of inviting the person commenting to come and speak with the police in person or over the telephone to resolve their issue. In this case it was a police officer that talked about how the nature of social media affords people to behave in a different way towards the police and they needed to find a way to manage that.

“a lot of people just want to be keyboard warriors and have a rant, but when you say to them, phone or drop a line to [PCs name], not many of them do...but it can be quite irritating, the informality and I just think you’d never come up to me on the street on a Saturday night and talk to me like that because you’d end up in the back of a bloody van” [I2]

Therefore although this was not strictly information avoidance it was a strategy aimed at stopping negative comments continuing on social media where the exchanges were public, and instead move them to a more private medium, where police felt more comfortable exerting their authority and more in control.

As mentioned above blocking people was described as a strategy to ensure no future interactions would take place with certain individuals. Although this was found to be rare and a last resort, it was reported that on occasion individuals would be blocked. This could be considered a method to maintain control on social media. As discussed in section 5.4.1 social media is difficult, if not impossible to control and unlike behaviour offline, police have limited means of dealing with what are becoming potentially ‘runaway objects’ (Engeström, 2008; Spinuzzi, 2011). To try and explain this, the work of Haywood and Young (2004) and Haywood (2016) in the field of cultural criminology could be drawn on. They

view agents of social control (police) as cultural products that exist through social interactions and these are also played out through the media. In their view *“there is no linear sequence, rather the line between the real and the virtual is profoundly and irrevocably blurred”* (Haywood & Young, 2004, p.259). It might be that the direct act of blocking someone could be said to mirror police actions offline. Making abusive comments to police in an offline context would more often than not result in an arrest or at the very least a talking to by a police officer. On social media they couldn't enforce that because they had no powers or mandate to do so (Manning, 2014). It could be then that within the cultural-historical context of policing, police translated their existing norms in an alternative environment of social media. They couldn't arrest people for being abusive or negative online, but they could use other tools in their toolbox and block them.

The literature suggests that avoidance has been linked to reducing and managing uncertainty and coping with stress and anxiety (Case *et al.*, 2005). While it could be argued that in this research uncertainty in the form of ambiguity did influence avoidance, in that because the rules were not clear they engaged in avoidance behaviours as a way of controlling their environment, there was no real evidence to suggest it was linked to coping with stress and anxiety. As most of the research has been conducted within a health context it would seem appropriate that avoidance was related to anxiety, but in a policing context this may not be the case. Further research would be needed on this to provide further clarification.

7.3.4 Summary

This study found that the concept of ambiguity can influence information behaviour. In the emergent model information sharing and information avoidance were found as two main information behaviours in social media use. There is less research on information sharing, particularly on social media (Mastley, 2017; Pilerot, 2011). The findings of this study illuminate information sharing behaviours on social media and highlight some of the intervening factors in police information behaviour, such as, culture, experience, work roles etc.

It supports the notion of information avoidance and shed's further light on how information avoidance comes about in a policing context. It suggests information avoidance is used as a way of managing conflict and negative comments shared through social media, to maintain control of the situation and for practical reasons such as a lack of time and resources. While much of the literature on information avoidance has been conducted in primarily a healthcare context (Case, 2012), these findings suggest that the concept of information avoidance can also be studied within policing. It adds to the literature in information behaviour in work contexts by proposing a new context of study.

7.4 Information Behaviour in the Augmented Model of Use

As presented in Chapters Four and Six, the key information behaviours found in this model of use were information seeking and use for decision making. These were prevalent in the activity of intelligence gathering. The division of labour in this context involved technical police staff, police intelligence officers and silver and gold commanders (tactical and strategic decision makers). As previously stated, in support of Allen and Wilson (2005) the lack of ambiguity around social media use in this model, enhanced information behaviour. This was because unlike the emergent context, the rules and division of labour were clear. It was found that social media was used as an information source to gather information and to support decision making. While many of the classic information behaviour models tend to focus on information seeking (Ellis, 1989; Kuhlthau, 1991; Leckie *et al.*, 1996; Savolainen, 1995; and Wilson, 1999), and have been applied over the years, less studies focus on how information is used (Kari, 2010). In section 2.5.2 it was also highlighted that there are few studies on police information behaviour (with the exception of Allen, 2011; Allen *et al.*, 2014; Karanasios & Allen, 2014) and in particular the use of social media in this context. This study further illuminates information behaviour in the context of policing (particularly the activity of intelligence gathering) and adds to the information studies literature by exploring information use. It also builds on Allen's (2011) work in shedding light on decision making in policing.

In this study it was found that information seeking behaviours on social media were used to support information use – decision making. In section 4.5 the information behaviours were highlighted in relation to a pre-planned event – and used the football derby as an example. This section develops the discussion in

Chapter Five by highlighting more nuanced findings around information use. It was found that information behaviour emerged at different stages of the activity. For example, information seeking was primarily used in the lead up to an event and would involve stages such as assessing the information, monitoring and checking with other sources. In this study social media was not used as a single source of information but was used alongside multiple sources such as other websites, the PNC, CCTV, police officers knowledge. In this sense it was used to scan the environment and acquire real-time information.

Chang and Rice (1993) suggest scanning can be either goal-directed or non-purposive. In the police context the legal rules dictate that using social media must always be goal-directed or purposive. Police explained that they cannot simply use social media if there is no justified reason to do so as this would be against the legal rules (RIPA). Some stated that often meant that a member of the public could legally use social media in ways that police can't. Therefore information from social media was only sought out for purposes of intelligence around major incidents and events, or if it would help an investigation. It was explained, if information is not acquired legally then it can't be used.

"We need to make sure first of all that that has been gathered lawfully as well because if you happen to have hacked into an anarchist groups secret closed Facebook page, and you've found out – not as a police officer but as a member of the public – have decided to do a bit of investigation – you can pass us anything you can find but it doesn't mean that it's lawful, and therefore it doesn't mean that we can use it, because it's not been gathered lawfully because you shouldn't of had it in the first place." [I27]

This supports Cyert and March (1992) that organisations rely heavily on rules to aid their information seeking and use. It also supports Choo (2016) in that policing organisations used social media to engage in active or purposive information seeking to help make sense of their external environment. In the lead up to and during events, social media was used in this way because police recognised that if the information was out in the public domain and they failed to see it or indeed act on it, then they could be held to account, particularly if it was a serious situation.

"We've got a couple of acid tests, firstly, what would the public expect us to do, and secondly, the flip side of this, how does this look in the Daily Mail if we don't do it..." [I28]

Many police officers would refer to the riots of 2011 to acknowledge that mistakes were made and because they didn't fully understand social media at that time, they failed to recognise it could have been a useful source of information (Crump, 2011; Williams *et al.*, 2013). Therefore it could be suggested that while social media was used for information seeking to support information use, this was perpetuated by a concern for public scrutiny. They scanned social media because the costs of not doing so could be high. They engaged in information seeking then in an attempt to reduce uncertainty of the situation (Kuhlthau, 1991; Kuhlthau & Tama, 2001).

Although information seeking was found in this model the remainder of the discussion in this section will focus on information use. It will discuss information behaviour concerning how social media was used for decision making and the issues that emerged through this use.

7.4.1 Information behaviour and decision making

Figure 24 shows information behaviour in the augmented context. Here decision making is not linear but a continuous process as judgements are made throughout, based on what is already known. Police were found to move backwards and forwards through information seeking and use, with decisions being made, changed and modified along the way as more information is sought. Knowledge of the situation starts the process of information seeking, gathering and sense making. Numerous sources are assessed, monitored (to ensure they are still relevant, or if the situation is changing) and checked or corroborated against other sources. This process continues until a final decision is acted on or not.

organisations that enforce an analytic mode by using the National Decision Making Model.

This study aligned with Allen (2011) and Mishra *et al.* (2015) and found a combination of both analytic and intuitive approaches to decision making and information use. However it was found that the emphasis on these approaches varied depending on the context. For example, in the lead up to an event, when officers had time to search for information on social media and corroborate with other sources, their decision making was based on analytic modes. As the event drew closer it was also found that police would interpret cues based on their experience to make a 'professional judgement'. Police used their experience based on past events to formulate their decision on the likely outcome of the event, the potential for disorder, how many officers to deploy etc.

“What sort of numbers – or how many similar events have there been either locally or nationally, how many people turned up last time, who turned up, and what happened” [I27]

They used this experience to interpret information and create new norms linked to events, as discussed in 5.4.2. For example officers usually interpreted the number of attendees listed on Facebook pages, such as political events, with caution and as a general rule divided that number by three, as this reflected a more accurate representation of the number of people that were likely to turn up to the event.

This is an example of how they made sense of information on social media. In this instance even when the information was suggesting one thing, they had learned to interpret the value and reliability of the information and make a decision based on their own judgement.

“we’re learning how to interpret the information we’re getting in – so not just what does it actually say, but what does it mean. So we’ve learned to interpret ‘noise’” [I27]

As found in Allen’s (2011) study the perception amongst officers that these new norms seemed to have created an effective strategy reinforced this. When time became more critical and the situation developed in real time, intuition also

played a role. This would suggest the use of heuristics in decision making (Evans, 2011).

As mentioned above, researchers from the HB approach suggest decisions based on intuition are likely to produce flawed decisions (Tversky & Kahneman, 1971, cited in Kahneman & Klein, 2009). It was beyond the scope of this study to assess whether a decision was correct or not, however when observing the football derby it would suggest that police made accurate assessments using a combination of analysis and intuition. This was because gold and silver commanders are very experienced decision makers. They rely on their experience in similar situations and can draw on these experiences by recognising patterns and developing norms (Kahneman & Klein, 2009).

“And it’s that instant, not unthinking, but almost instinctive, intuitive response by the officer, sometimes commanders have to make those kinds of decisions” [129]

This enables them to make decisions quickly when under time pressure. In contrast to Allen (2011) this study did not find examples of solely intuitive or intuition led decision making. This could be because only pre-planned events were observed in this study, which is in contrast to Allen who observed behaviours within a traffic stop context. In Allen’s study officers were less likely to have time for analytic modes of decision making due to the fast paced nature of the activity. Therefore even though the use of intuition was found, in this study it was always based on experience and deliberative information behaviour, or in other words a hybrid. One mode was not used over the other, but instead analytic modes supported intuition.

Where this study departs from previous studies on information behaviour and decision making is its focus on the use of social media in this process. Although a number of studies (i.e. Bird *et al.*, 2012; Kavanaugh *et al.*, 2012; Procter *et al.*, 2013; Simon *et al.*, 2015; Williams *et al.*, 2013) have suggested social media can play a role in supporting decision making in policing and emergency response more generally, few studies have empirical findings to support this. This is because previous studies have relied on retrospectively analysing tweets rather than empirical work with decision makers during a live event. An exception to this is Trottier’s (2015) study on social media monitoring. However

Trottier focused on automated social media monitoring, rather than the decision making processes that these tools either hinder or support. While he found that police tended to use “manual decision making” as opposed to automated (p.327), he does not elaborate on this manual decision making process. As discussed in 5.4.1 this study supports his findings regarding automated monitoring of social media but extends this knowledge beyond the types of tools used and sheds light on how they are actually used in practice.

7.4.2 The influence of social media on decision making

In section 6.3 it was identified that social media influenced decisions in multiple ways. When moving into a live event such as a football game, or political protest, time becomes critical. In this situation police would constantly review their situation on the ground, by drawing on their own experience and knowledge of past events and consult real-time information on social media. This would feed into their situational awareness and support their decision making. It was found that in light of their experience, knowledge and real-time information, they either stick with their original decision or change it in light of the new information. Choo (2009) suggests in this sense experience is like a source of information in itself, it is key to recognising patterns and interpreting their significance in terms of what connects them (p.1079). Experience and interpretation of the situation helps them decide what to do next.

Social media was found to be important for initiating a decision but also for reviewing a decision to determine if the right decision had been made. Numerous officers reported this and it was also observed during the live event. Even after a decision or course of action was made or initially changed, police would still monitor social media, this time to see how the public were reacting. This was observed during the football derby when the silver commander had decided to hold rival football fans back by closing one of the exit gates. Information seeking through social media was then enacted to see how fans were responding. As there was no real reaction (barring one tweet), the decision remained and the gate was opened a few minutes later as planned. In this instance their decision was justified by minimal negative reaction on social media. This was further demonstrated in the quote used in 6.3.3.4 in relation to changing a decision during a separate event involving the prime minister. Parts of the excerpt are reproduced to support the point.

“on the day of the visit I walked the ground, I’m looking for a builders skip that’s full of bricks, I’m looking for things that have been hidden under bushes, banners, spray paint, whatever it might be, even though I’ve got other people doing that, for my own piece of mind I do it myself, and I looked around and said ‘this is not right’ I think he’s overexposed...I don’t think he should do it. In the scheme of things, I think the Prime Minister has a bit more clout than a superintendent, so...the plan went as first designed.” [I28]

Here the officer recognises a pattern and uses his experience to determine “this is not right” but he has to stick with the decision because he has been out-ranked, so he monitors social media to look for information.

“we’re then picking up stuff on Twitter ‘lets give Cameron a pancake’ ‘lets egg the PM’ and all this stuff is appearing on Twitter open source...So I then feed this through to the protection team and say I don’t want to say I told you so, but monitoring social media shows that people aren’t that happy that the Prime Minister is in a building right next to the art college” [I28]

In this situation social media provided justification and evidence for the officers initial gut feeling. This gut feeling was based on his experience in similar contexts. The officer mentions a series of cues such as it being an open space, located near a college and a shop, etc. He decides the course of action should change. This is ignored. He then checks social media to confirm his suspicion. The negative reaction that he found on social media supports his decision to change the course of action. The decision is changed. Although he states that social media helped him make a better decision, it could be that it actually just confirmed his already formulated gut feeling but helped him to justify it. This would suggest that in agreement with Allen (2011), Mishra *et al.* (2015), and Richter *et al.* (2009), for expert decision makers, intuition plays a role in decision making in time pressured and dynamic environments. A new finding in this research is that social media can support that decision making process and help to justify their decision. Figure 25 demonstrates the role of social media in decision making during time pressured events.

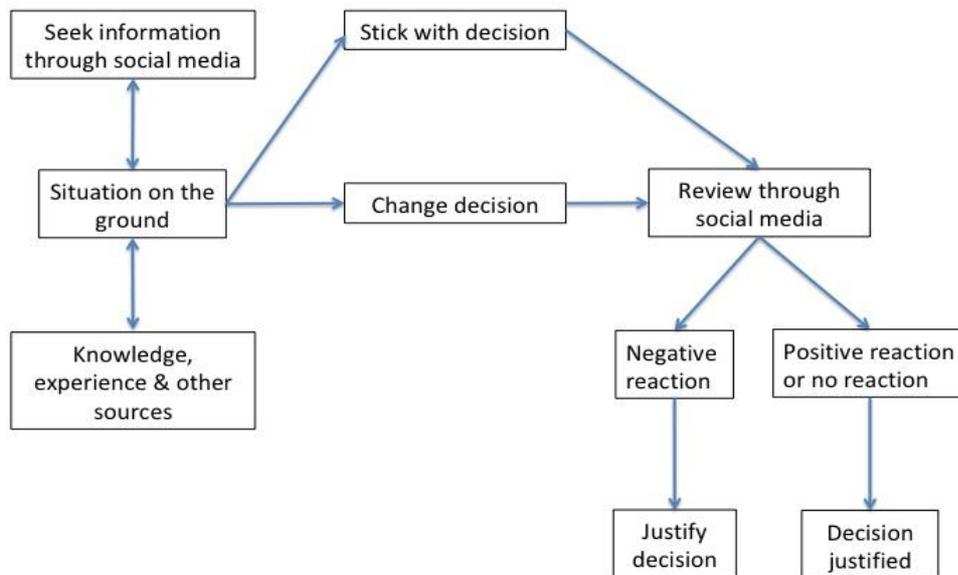


Figure 25 A model of social media use for decision making in time pressured environments

These findings suggest that social media helps support both analytic and intuitive decision making. This was observed under two conditions, during the pre-planning stage of an event and during a live event. Social media was found to support analytic decision making in the lead up to an event. Information from social media was used in combination with other sources and with knowledge of past events. During the live event it helped support intuition and was used retrospectively to justify decision making. This supports Allen (2011) and Mishra *et al.* (2015) who both found that decision makers would often seek information to confirm or justify their decisions. In policing this is particularly important due to their accountability to the public (Manning, 2014). This is demonstrated in excerpt below.

“But when you have to make those fairly tight, time constrained decisions, you know that there’s a risk that there’s something lurking that would help you make a better decision and if this decision is deemed to be inappropriate, that’ll come out in the public enquiry” [I29]

Although social media could be used to justify decisions it could also be used illuminate bad or wrong decisions, or failures to act. Negative reactions or in fact missed information on social media (as is potentially the case in the emergent

model due to information avoidance) could bring bad decisions to light and in a very public arena. This is has the potential to raise questions about police legitimacy (Bradford *et al.*, 2014; Manning, 2008). This is in contrast to Allen's (2011) study where this intuitive decision making was found to remain opaque and therefore less likely to be uncovered.

Although social media was found to support information use and decision making, it also presented some challenges. These were mainly related to managing the volume of information.

7.4.3 Information overload

The concept of information overload has been explored in relation to information behaviour and decision making (Bawdon & Robinson, 2009; Case, 2012). When there is too much information individuals 'satisfice' (Simon, 1997). Others have also suggested this is particularly the case in fast paced environments with a high degree of uncertainty and where time is often constrained (Klein & Klinger, 1991). In information studies this has been explored in relation to deciding when to stop searching, that is deciding when we have enough information (Berryman, 2006; 2008). In this study it wasn't necessarily about deciding when to stop searching, it was about how to manage vast volumes of information and information that may be contradictory. Dealing with vast volumes of information was observed during the football game. Once the game started, the tweets were coming through that fast even the experienced officer stated he could not read them or make sense of them. As Trottier (2015) found, police have not yet developed sufficient processes to overcome these challenges. Even with the use of automated systems, Trottier suggests that human decision making is still necessary.

There was no evidence in this study to suggest that police were managing the volume of information, although some had reported developing strategies such as filtering automated searches by ensuring the search terms were limited. As one officer explained, the problem is that the social media platforms are always increasing and as they do, information is spread further across multiple channels. Innes (2014) suggests that whilst the online environment provides new opportunities for police, it also provides the issue of how to separate the relevant information from the 'noise' (p.70).

7.4.4 Summary of the augmented context

In this model social media was used for information seeking and information use – decision making. In contrast to the emergent model, the rules were less ambiguous and work roles were clearly defined. This enhanced their existing information behaviour. Both analytic and intuitive modes of decision making were found. While Allen (2011) found five modes of decision making, this study found two, analytic and analytic moderated by intuition. Social media was used in both of these modes of information behaviour. In the first it was used to seek information to support an initial decision and review it. In the second mode it was used to support intuition. Social media was used therefore to seek further information and to support and justify decision making.

While social media was found to enhance information behaviour, there are also issues with the potential for information overload. This increases when concentrated on major events. Although automated tools are used to help filter relevant information, it still relies on human interpretation and sense-making. As more information becomes spread across increasing channels of communication, this could stretch police resources as they will need to invest in either new search tools or more sophisticated tools that can access more channels. This will require an investment in training and technology.

7.5 Information Behaviour in the Transformed Model of Use

Chapters Four and Six identified a new model of policing where implementing a private social media platform transformed and re-organised traditional work activities. Key information behaviours in this model were collaborative information sharing and decision making. Neighbourhood policing is built on the notion of collaboration with both the public and other community stakeholders, however traditionally this has taken place offline and was driven by police. In this context it was found that the police were no longer driving this collaboration and instead, it was driven by a combination of the private sector and the local authority becoming new agents of crime control (Crawford, 2014). A shared information need to establish a picture of the issues and crime in the local area

led to collaborative information behaviour for joint problem solving through the use of social media (Widén & Hansen, 2012).

“its encouraging businesses and agencies to take ownership and manage low-level incidents themselves so police can focus their resources on more serious crime” [I18]

The literature in 2.3.1 suggests that information sharing across boundaries of organisations has been explored from three perspectives: technological, organisational, and political. Zhang and Dawes (2006) found that technology can enhance the efficiency and effectiveness of information sharing. This study supports Zhang and Dawes (2006) in that technology (social media) did not just enhance information sharing, it also created an information space for collaboration with actors across multiple organisations. This led to the creation of new partnerships and the alignment of cross-organisational work practices. While Lee and Rao (2007) found technology could present challenges for security due to the nature of the information, in this study social media appeared to provide a secure platform in which to share information. For example, although Facewatch was a collaborative space, it still had an administrator to ensure each group had relevant information.

“the idea was myself and their retail crime guy would act as admin so we would see the information coming from both areas and if we recognised something we could then share it, but the businesses only see what’s in their group.” [I18]

This would suggest that although a collaborative approach was evolving, information was still controlled by certain individuals who would deem which information was relevant and of value to the group. This was said to ensure security of the information and prevent information overload, rather than to prevent access to information. However in section 5.5.2 questions of legitimacy and accountability were raised. While the public police have a mandate to store and share information on individuals, suspects and people of interest, within a private social media platform there appeared to be a lack of organisational or legal rules such as RIPA to regulate this.

Research has found that regulation on policy and legislation can have both a positive and negative influence on public sector information sharing (Gil-Garcia *et al.*, 2007; Zhang & Dawes, 2006; Yang & Maxwell, 2011). Yang and Maxwell

(2011) suggest that rules and regulations can enable sharing by reducing risk and providing formal guidelines, where as others suggest they can also create barriers for sharing across organisational boundaries (Gil-Garcia *et al.*, 2007). In this study it was found that a lack of rules and regulation enabled informal information sharing across organisational boundaries. This is in contrast to the emergent model where information behaviour was constrained. It could be that in the transformed model, individuals were motivated by the same information needs and goals – to work together to tackle low-level crime and anti-social behaviour, therefore a lack of rules was necessary to support that.

Organisational factors such as trust (Akbulut *et al.*, 2009; Dawes, 1996; Gil-Garcia *et al.*, 2010; Mishra, 2012) have been found to influence information sharing across boundaries. This is because research has shown that trust is related to interpersonal relationships, that is, when people trust one another they are more likely to share information (Fisher *et al.*, 2007; Marsh & Dibben, 2003). In line with this, barriers to information sharing can occur when there is a lack of trust among members (Ardichvill, Page & Wentling, 2003).

In this study it was found that collaborative information sharing enabled better interaction between community members, which led to more information being shared and used to make decisions. This could suggest trust didn't lead to information sharing but instead trust was developed through members using this collaborative space.

“the bigger our database grows and the more we can analyse, we then feed back to partner agencies, police, our council community safety teams and we can then highlight offenders and areas that have got particular problems. It's the glue that gets everyone working together as a partnership.” [18]

“the way we've used Facewatch and developed the system to suit our needs has played a huge role in improving working relations between ourselves, businesses and the local neighbourhood policing team” [17]

This seems to support Ibrahim and Allen (2014) who found a counterintuitive relationship between information sharing and trust. They found that in the context of offshore emergency response, information sharing helped to instil trust, rather than the other way round (p.1921). However the context in their study was different in that trust developed over a short time period. It could be that here, this trust is developing over a longer time period. As individuals and

organisations continue to work together they build up more trust. This new model is still in the early stages but it was reported that they hoped online information sharing would *“encourage interaction between businesses to create a community spirit”* [117]

Social media in this context enabled information to be used in a number of ways. For example, the collection of data on crimes committed within a town centre were used to create profiles on serial offenders and crime hotspots. This was because the platform enabled business groups to share information on incidents that may not have been reported to police. This led to the collaborative development of a *“top 10 offender list”*. It was found that the sharing of this information led to joint decision making.

“We can identify offenders that who have been causing problems across the different businesses in the town centre and then flag that person to the police and community safety team. We get them to meet with us and the businesses and we decide what action to take – either through civil or criminal. [118]

This study supports Widén & Hansen (2012) who suggest that, *“social media has brought new expectations of interactivity in all kinds of processes in organizations. Managing different aspects of collaboration and interactive information sharing in these processes is important to better support decision-making”*. However it found that this also applies between organisations as well as within them. In this study the key aspect was the shared object. Multiple organisations were motivated by a common goal and through social media developed a shared set of understandings that enabled a collaborative approach (Hertzum, 2008). Widén & Hansen (2012) suggest the need to explore the different ways that collaboration manifests and propose the integration of collaborative information behaviour with information culture. While information culture has been explored within an organisation, this research suggests that as organisations begin to utilise social media technologies for collaboration it may also be useful to explore this in relation to information cultures across organisations. As suggested by Choo (2016) and Widén & Hansen (2012), information culture is made up of the values, norms, attitudes, social relations and networks. From this perspective, it could be argued that in this context a new information culture is emerging where shared values, norms, attitudes and social relations are aligning beyond organisational boundaries to create new virtual organisations. Where different organisations come together to collaborate

and solve joint problems in the community (Nardi, 2007). Exploring how these information cultures align and transform within these contexts will be important for future studies of information behaviour. As Leonardi and Vaast (2017, p.172) suggest more research is needed to understand how social media afforded collaboration in a variety of organisational contexts.

7.5.1 Summary of the transformed context

In this study a new model of policing was emerging. This led to more collaborative information behaviours taking place online, which then appeared to be strengthening interactions and relationships offline. It is important to point out that this new model is still in the early stages of development but it was found that a lack of rules and norms, a shared object and the implementation of a new tools (social media) transformed police information behaviour as the division of labour was re-configured. It is suggested that information culture could open up further lines of study in this context, particularly as the use of social media and collaborative tools evolves.

7.6 Conclusion

In answer to the research question, how is social media influencing police information behaviour? This study found that social media was used in multiple ways which led to different information behaviours emerging (Table 8).

Model of Use	Key Information behaviours
Emergent	Sharing; Avoidance and blunting
Augmented	Seeking and gathering; Monitoring; Assessing; Decision making
Transformed	Collaborative sharing and decision making;

Table 8 Key information behaviours in contexts of social media use

In the emergent model information sharing and information avoidance were found. It suggests that ambiguity around the rules and work roles, in combination with other factors such as the wider organisational culture and experience, influenced social media use and information behaviour. It also sheds light on information avoidance, suggesting that avoidance behaviours were developed to manage conflict, maintain control of the situation and to manage a lack of time and resources. In the augmented model social media was used to seek information and to support and justify decision making. While social media was found to enhance information behaviour, there are also issues with the potential for information overload. As more information becomes spread across increasing channels of communication, this could stretch police resources as they will need to invest in either new search tools or more sophisticated tools that can access more channels. In the transformed model information behaviour became collaborative through the shared object of tackling low-level crime and anti-social behaviour. Although it is still early days, it suggests that collaborative information sharing developed trust and partnership working within the local community. This may suggest it is possible to align different information cultures if there is a common ground or objective.

This chapter demonstrates that context is particularly important for the study of information behaviour in work. It highlights three organisational contexts where social media is implemented and adopted. The findings suggest that information behaviour in these different contexts are mediated by the use of social media as it is interpreted and used in different ways. It contributes to the literature by shedding light on underexplored areas such as information sharing and decision making and the mediating role of technology.

Chapter Eight Conclusion

8.1 Introduction

A review of literature in Chapter Two indicates that limited studies in information science have been conducted within the dynamic context of policing. This thesis explores information behaviour within a policing context. This chapter is set out as follows. Section 8.2 will firstly provide a brief overview of research gap highlighted in Chapter Two. Section 8.3 will discuss the contribution and implications for theory and practice. The limitations of the research are acknowledged in 8.4 and future research is discussed in 8.5.

8.2 An overview of the research gap

Allen *et al.* (2011) suggest that although many scholars agree that context should be addressed, very few explore how it actually influences information behaviour and how information behaviour in turn shapes context. Fidel *et al.* (2004) suggest a multi-dimensional approach is needed in order to understand context and the complex interactions between contextual factors. There is a growing body of literature exploring information behaviour in the context of work (Byström, 2015; Hyldegård *et al.*, 2015; Widén *et al.*, 2016), however few studies have explored the influence social media is having on information behaviour in organisational contexts. In organisation studies, Leonardi and Vaast (2017, p.150) highlight there are “*growing considerations of the ways in which social media within the workplace changes organizations and the work of their employees*”. They also note that studies exploring social media in organisational contexts have tended to focus on large, multinational corporations in the telecommunication industry. They suggest that research on social media needs to explore a wider variety of organisations (Leonardi & Vaast, 2017, p.172). While research has started to explore social media use in organisations (Forsgren & Byström, 2018), little is known about police organisations use of social media and its influence on their work practices and in turn information behaviour.

Studies on information behaviour tend to focus on information needs and seeking rather than information sharing and use (Vakkari, 2008; Wilson, 2010). Policing is an information intensive environment, where not only is information sought out, but it is also shared and used to make decisions (Bouwman & Wijngaert, 2009). In a policing context, information is essential in ensuring public safety. Studies that have explored information sharing focus on either intra-organisational (Forsgren & Byström, 2018; Sonnenwald & Pierce, 2000) or inter-organisational (Allen *et al.*, 2014; Loebbecke *et al.*, 2016; Zhang and Dawes, 2006), however policing organisations are unique in that they also rely on information sharing with the public in order to operate (Manning, 2008). With the integration of social media into police organisations, it is suggested that police can utilise these tools for information sharing and exchange (Williams *et al.*, 2013). However there are limited studies on how these tools are used (or not used) in practice and the contextual factors that play a role in shaping information behaviour.

Similarly in information studies, research on information use for decision making are limited, with the exception of a few such as Allen (2011), Berryman (2008), Choo (2009) and Mishra *et al.* (2015). However debates in the decision making literature suggests individuals use either System 1 (intuitive) or System 2 (analytic) approaches to make decisions (Evens *et al.*, 2005; Hammond *et al.*, 1987; Klein, 2008). The formal rules and regulations of policing suggest an analytical decision making model is used. However, research by Allen (2011) and Mishra *et al.* (2015) has found that intuition also plays a role in decision making. It is important to understand how information is used to make decisions and how social media supports this.

Finally literature on policing and new technologies has recently turned to the use of social media for purposes of engagement and intelligence gathering (Bartlett *et al.*, 2013; Deneff *et al.*, 2012; Trottier, 2015). However at present studies on police organisations' use of social media largely focus on retrospectively analysing the content of tweets. Less attention has been paid to understanding how these emerging technologies influence change within the organisation or how they fit into the existing work practices of policing. Scarce academic research has been carried out to explore the impact of social media on policing activities, particularly everyday practices that are high on the government and public agenda such as policing low-level crime and anti-social behaviour. Little

is known about the influence of social media in sharing information and decision making in policing.

8.3 Contributions of this research

This section discusses the contribution of this thesis. These are organised as theoretic, methodological and practical contributions.

8.3.1 Theoretical contributions

This study contributes to two fields of research 1) the field of policing and technology mediate change 2) the literature on information behaviour in work contexts. From the discussion in Chapters Five and Seven the key contributions to theory and the implications are summarised below.

Ambiguity as a concept for understanding technology mediated change

This study contributes to the literature on policing and technology mediated change by proposing the concept of ambiguity as a way of understanding social media use in policing. A key finding in this study was that social media use in policing must be studied in relation to the context of use. Existing literature on social media and policing do not enhance our understanding of how these technologies influence change within the organisation or how they fit into the existing work practices of policing. These studies (such as Crump, 2011; Meijer & Torenvlied, 2016; Sakiyama *et al.*, 2010) also view social media as if it were in isolation as merely a technological artefact. However, it was found in this study that social media is a tool amongst a set of other tools, within a socially organised collection of activities and in which actors sense-making develops in various ways, based on their own knowledge and experiences.

This study is one of the first studies to take the officers' (often neglected) perspective into consideration and observes the use of social media in an everyday policing context. It found that social media was used and interpreted in multiple ways and three models of social media use were unpacked. These were characterised as emergent, where a high degree of ambiguity was found to constrain work practices; augmented, where low ambiguity enhanced work practices; and transformed, where ambiguity enabled new practices to form.

This study proposes the concept of ambiguity as a way of understanding the multifaceted dimensions of social media use in policing. The study contributes to the literature on policing, but also the wider literature on technology mediated change in organisations, by demonstrating the role of ambiguity in influencing this change. Ambiguity provides agency, which can both enable and restrict work practices as was demonstrated in the different models of use.

Understanding information behaviour in work contexts

This research contributes to the growing literature on information behaviour in the context of work. It demonstrates that context is essential in understanding the use of new tools such as social media in policing organisations. Courtright (2007, p.285) states, *"IT plays a dual role in context, as it is both a shaper of information practices and the object of shaping by other contextual factors and by users themselves"*. In this study social media was found to influence three organisational contexts, leading to different information behaviours.

For example, in the emergent model of use, information sharing and information avoidance were found. The findings of this study illuminate information sharing behaviours on social media and highlight some of the intervening factors in police information behaviour, such as, culture, experience, work roles etc. However it was also found that while ambiguity led to some police officers engaging in information sharing, others engaged in information avoidance. While much of the literature on information avoidance has been conducted primarily within a healthcare context (Case, 2012), and has been linked with anxiety or stressful situations (Goleman *et al.*, 2017), in this study information avoidance was associated with ambiguity in the rules and norms and the redistributed division of labour. These findings shed light on the complexity and nuances of information sharing through social media in dynamic organisations.

In the augmented model of use information seeking and use were more prevalent. It was found that police use information on social media to both support and justify their decision making. Figure 24 shows a model of social media use and information behaviour in the activity of intelligence gathering. Figure 25 shows the use of social media for decision making in time pressured environments. Thus, the two models illustrate how social media is used for decision making in different spatio-temporal settings. This study contributes by building on the work of Allen (2011) and further illuminating information use and

modes of decision making in a policing context which is currently lacking in the information behaviour literature.

In the transformed model of use, information behaviour moved from the individual to collaborative information behaviour through the use of social media. Social media was found to enable collaboration not just within organisations but also across organisational boundaries. This suggests new collaborative approaches to information sharing and decision making are evolving as the activity changes into new ways of working. This contributes to the literature on collaborative information behaviour and suggests that new technologies such as social media can enable new forms of information behaviour.

8.3.2 Methodological Contributions

In recent years, activity theorists have explored the dialectical nature (social and technical) of how digital technology, as a tool, has transformed human activity and in turn, been transformed by human activities (Hassan *et al*, 2016; Kaptelinin, 1996). With the exception of Forsgren & Byström (2018) and Simeonova (2017), few research studies have applied the activity theory concept of tool mediation to the study of social media in organisations. This study demonstrates a methodological contribution by using activity theory as a framework and analytic lens to study the interaction between actors, collective structures and tools as a means of understanding change in policing organisations (Karanasios & Allen, 2014). It has found activity theory particularly useful in providing an overarching framework to explore the influence of social media in policing contexts and the contradictions that are emerging. To the authors knowledge, few studies have been able to dig below the surface of social media use and in particular, explore how police adopt social media in practice and how this adoption manifests in different and emerging work activities. In using activity theory to both design the study and analyse the data, it enabled the researcher to take a more holistic approach in understanding what police do in practice and how the organisational context influences the use of technology, the meaning officers ascribe to it, and the wider organisational processes.

8.3.3 Practical contributions

From the findings of this research are four main contributions and implications for practice. In this thesis the findings in Chapters Four and Six indicate social media use in practice is more complex than some of the literature suggests.

1. This study found that rules and regulations are important for social media use. These findings are consistent with other studies that have found there is a lack of consistency and clear policies on how police should use social media (Leiberman *et al.*, 2013; Trottier, 2015). The findings suggest that while ambiguity exists surrounding the rules, then social media use is likely to be constrained. These findings are also supported by a recent news article which suggests that police are still struggling to grasp social media use (BBC News, 4 September, 2017) despite implementing it almost ten years ago. In the context of neighbourhood policing, if organisations are to make better use of social media to engage with the public and understand public perception, then clear rules need to be developed to guide police and support staff.

Although studies such as Mergel and Bretschneider (2013) suggest that for social media use to be successful, organisations may have to change and adapt by creating new organisational forms and structures, this may not be appropriate or desirable in hierarchical and bureaucratic organisations such as policing. It could be suggested that rather than policing structures changing, they could utilise the top down approach in two ways 1) to clearly define the role of police and support staff with regard to using social media 2) by providing clearer rules and organisational norms which support officers that want to engage with it. This could take the form of national training and guidelines so each policing organisation follows the same rules and norms. This may reduce ambiguity and enable social media to become more embedded into work practices. It may also better align the organisational attitudes, values and beliefs, so that it becomes part of their information culture (Widén and Hansen, 2012). This could also be applied to hierarchical and bureaucratic organisations more generally, such as government, healthcare and other public sector organisations that share and exchange information with the public.

2. Following on from the point above, ambiguity was found to lead to active information avoidance. This has implications for the likelihood of information being missed. Although police reported that they made it clear that crime should

not be reported through social media, they also acknowledged that people ignored that. If police organisations are not monitoring social media or responding to public questions and requests, and people perceive this as being ignored, then this could raise issues of accountability (Innes, 2014; Manning, 2014) and reduce public confidence in police. It was beyond the scope of this study to measure this but it should be considered for future work.

3. While social media was found to enhance information behaviour for intelligence officers, there are also issues with the potential for information overload. This increases when concentrated on major events. Although automated tools are used to help filter relevant information, it still relies on human interpretation and sense-making. As more information becomes spread across increasing channels of communication, this could stretch police resources as they will need to invest in either new search tools or more sophisticated tools that can access more channels. This will require an investment in training and technology in order to stay up to date with the latest platforms and applications. However as police in the UK have seen their spending budgets decrease by an estimated 20 per cent since 2010, it is questionable if there will be resources available to stay on top of the technological advances (Travis, 2017).

4. This study found that a new model of social media use was transforming police practices. This is a novel finding and one that has implications for both privatisation of policing and the redistribution of police work. Although it should be recognised that this is still evolving it suggests that social media technologies can facilitate new ways of working which has the potential to take some of the strain away from police in terms of time and resources. It may also be incorporated into traditional notions of neighbourhood policing where collaboration with community members and stakeholders is an essential element (Innes, 2014). However as new regulations such as GDPR come into affect, this may limit how information on individuals is stored and the types of information that can be shared. It may also question the legitimacy of private agencies taking more control of what was tradition police work. Particularly in relation to surveillance and privacy. Given the recent scandals associated with Facebook and Cambridge Analytica, individuals may start to question who collects, stores and accesses data that is associated with them.

8.4 Limitations

Whilst effort has been made to perfect the research process, it is acknowledged that no research is perfect. While 35 interviews and 40 hours of observation were conducted across three police forces and other organisations, this could limit the generalizability to other forces. Similarly this research only represents UK policing and may not be applicable in other countries due to the differing social, cultural and political environments. As was noted in section 3.4 qualitative research can invoke biases of the researcher when it comes to interpretation. Although an effort was made to eliminate bias, the researcher accepts it is inevitable that it exists to some degree. Therefore results would benefit from validation in future research.

8.5 Future research

The findings from the transformed model of use were found during the early stages of implementation. Future research should explore this context further to see how it continues to evolve. This may shed further light on both the trend of privatisation in policing and the use of social media for collaborative information behaviour. As mentioned in 8.4, this research was conducted with three policing organisations. The study could be replicated across the UK or indeed other countries for further comparison across different work tasks, activities and contexts. The findings indicate that social media is used to support intuitive decision making. Although it was beyond the scope of this study, research in this context could be extended to add to the debate on dual processing theories (Evans, 2007; Allen, 2011).

8.6 Concluding remarks

This research investigated two research questions. The first was to explore how social media was used in policing and how this use changed work practices in relation to policing of low-level crime and anti-social behaviour. It found that social media was used in multiple ways and in different activities. The second question was to explore the influence of social media on information behaviour more specifically. It found that as social media was used in different ways this led to different information behaviours emerging such as information sharing, information avoidance, information seeking, decision making and collaborative information behaviour. It utilised activity theory to provide a holistic view of technology mediated change. This indicates that activity theory is a useful

framework to study social media use in organisations (Forsgren & Byström, 2018).

As a final point, in this study social media was explored as a tool that mediates activity, however in future it could also be viewed as an object. As social media is in constant development and becoming more out of control, it has the potential to become a runaway object as social media permeates social life and crosses boundaries into organisational practices and indeed across organisational boundaries (Engeström, 2007). We may well find that as we interact more through social media, and work shifts increasingly into the digital realm, that rather than just being a tool, it may well become the object activities.

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Appendices

Appendix 1: Information Sheets for Participants

Research FAQ for interview respondents

1. What is the title of the research project?

Information behaviour: the influence of social media in a policing context.

2. What is the purpose of the interview?

You are being invited to take part in a research project. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

3. What is the project's purpose?

The research involves an exploration of how social media is used for sharing information and making decisions. This study particularly focuses on policing within neighbourhoods or communities and how social media influences this. The approach taken is a qualitative one, utilising activity theory as a framework. As yet there is little theory on information use and social media in a policing context, therefore this study aims to develop theory within this field.

4. Why have I been chosen?

You have been chosen because you are part of a force/ team working with social media. You have been suggested as a potential interview respondent by your organisation.

5. Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be asked to sign a consent form and you can still withdraw at any time. You do not have to give a reason.

6. What will happen to me if I take part?

You will be asked to participate in an interview lasting approximately 45 minutes. The interviews will not include any personal or biographical questions and will only focus on your experiences and use of social media during your work. The interviews will be an in depth discussion about how you use social media during work, i.e. how you firstly identify information needs, search, share and use information from social media and what factors influence its use. It is anticipated that interviews would take place at your work place in a suitable room. If this is not possible please let me know and I will sort out any alternative arrangements.

7. What do I have to do?

In essence answer the questions posed as best you can. There are no lifestyle restrictions as a result of participating, the interviews will remain confidential and results will be anonymised when published.

8. What are the possible disadvantages and risks of taking part?

The main disadvantage for participants is the time factor. It is anticipated that the time taken for the interviews will be about 45 minutes.

9. What are the possible benefits of taking part?

The participants will be given a summary of the research and an opportunity to discuss the findings. It is also hoped that this work will help to develop a better understanding of how people manage information for decision making in complex environments. The anonymised data analysis will also provide insights to the information practices of police to assist in the development of future policy and practices.

10. What happens if the research study stops earlier than expected?

If the research activity stops earlier than anticipated for some unforeseen reason(s) each participant will be notified and an explanation provided.

11. Will my taking part in this project be kept confidential?

All the information that I collect during the course of the research will be kept strictly confidential. You will not be able to be identified in any reports or publications.

12. What type of information will be sought from me and why is the collection of this information relevant for achieving the research project's objectives?

The research will compile and then analyse the responses of each person who is interviewed. Based on what is said I will draft a narrative/transcript which you may check if you wish. When all the results are collected they will be built up to develop a picture of the information practices (how people search, share and use information) within policing contexts.

13. What will happen to the results of the research project?

The results of the research will appear in researcher's thesis scheduled for completion in March 2016. Before and after this date the researcher may use the results, which will be anonymous, to write papers for academic journals, other publications or for presentations to conferences.

15. Who is organising and funding the research?

The researcher is undertaking this doctoral research at the University of Leeds as part of an Economic and Social Research Council scholarship.

16. Will I be recorded, and if so how will the recorded media be used?

Yes, using a digital recorder with inbuilt encryption. The audio recordings of your activities made during this research will be used only for analysis and for illustration in conference presentations and lectures. No other use will be made of them without your written permission, and only the researcher will be able to access the original recordings.

17. How will my data be stored?

All recordings, notes and transcriptions will be encrypted and stored on a password protected computer in a secure room at the University of Leeds.

18. The project team consists of the following people.

Researcher	Lead Supervisor	Supervisor
Emma Dunkerley 07841357142 bnelj@leeds.ac.uk	Prof. David Allen 0113 343 7015 d.allen@lubs.leeds.ac.uk	Prof. Alan Pearman (0)113 343 4489 a.d.pearman@leeds.ac.uk

Contact Address - Leeds University Business School, Maurice Keyworth Building, Leeds LS2 9JT

Research FAQ for observations

1. What is the title of the research project?

Information behaviour: the role of social media in a policing context.

2. What is the purpose of the interview?

You are being invited to take part in a research project. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

3. What is the project's purpose?

The research involves an exploration of how social media is used for sharing information and making decisions. This study particularly focuses on the policing within neighbourhoods or communities and how social media influences this. The approach taken is a qualitative one, utilising activity theory as a framework. As yet there is little theory on information use and social media in a policing context, therefore this study aims to develop theory within this field.

4. Why have I been chosen?

You have been chosen because you are part of the team working with social media. You have been suggested as a potential interview respondent by your organisation.

5. Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep (and be asked to sign a consent form) and you can still withdraw at any time. You do not have to give a reason.

6. What will happen to me if I take part?

You will be asked to participate in a series of observations. These will include observing you in your normal working practices and may involve answering some questions. No personal data is obtained and you will not be asked to act differently to how you usually would. This method is designed so the researcher can get a good grasp of your information practices i.e. how you identify information needs, search, share and use information from social media, what factors influence its use and how this translates in practice. You may be asked to 'think aloud' during the observation so you can explain how you do things and why.

7. What do I have to do?

In essence go about your usual work activities, which will be observed by the researcher. You may be asked to 'think aloud' during the observation so you can explain how you do things and why. The observations will be anonymised when published.

8. What are the possible disadvantages and risks of taking part?

There are no foreseeable disadvantages for participants. It is recognised policing is a complex and skilled activity and therefore the researcher will try to anticipate conducting 'thinking aloud' techniques when it provides no distraction to your job.

9. What are the possible benefits of taking part?

The participants will be given a summary of the research and an opportunity to discuss the findings. It is also hoped that this work will help to develop a better understanding of how people manage information for decision making in complex environments. The anonymised data analysis will also provide insights to the information practices of police to assist in the development of future policy and practices.

10. What happens if the research study stops earlier than expected?

If the research activity stops earlier than anticipated for some unforeseen reason(s) each participant will be notified and an explanation provided.

11. Will my taking part in this project be kept confidential?

All the information that we collect during the course of the research will be kept strictly confidential. You will not be able to be identified in any reports or publications.

12. What type of information will be sought from me and why is the collection of this information relevant for achieving the research project's objectives?

The research will compile and then analyse the observations. When all the observations are collected they will be built up to develop a picture of the information practices (how people search, share and use information) within policing contexts.

13. What will happen to the results of the research project?

The results of the research will appear in the researcher's thesis scheduled for completion in September 2015. Before and after this date the researcher may use the results, which will be anonymous, to write papers for academic journals, other publications or for presentations to conferences.

15. Who is organising and funding the research?

The researcher is undertaking this doctoral research at the University of Leeds as part of an Economic and Social Research Council scholarship.

16. Will I be recorded, and if so how will the recorded media be used?

The researcher will take written notes during observations. The audio recordings may be taken when using the 'thinking aloud' technique. Both notes and recordings taken during observations will be used only for analysis and for illustration in conference presentations and lectures. No other use will be made of them without your written permission, and no one outside the project team will be allowed access to the original recordings.

17. How will my data be stored?

All recordings, notes and transcriptions will be encrypted and stored on a password protected computer in a secure room at the University of Leeds.

18. The project team consists of the following people.

Researcher	Lead Supervisor	Supervisor
Emma Dunkerley 07841357142 bneljd@leeds.ac.uk	Dr. David Allen 0113 343 7015 d.allen@lubs.leeds.ac.uk	Prof. Alan Pearman (0)113 343 4489 a.d.pearman@leeds.ac.uk
Contact Address - Leeds University Business School, Maurice Keyworth Building, Leeds LS2 9JT		

You will be given a copy of the information sheet and a signed consent form to keep.

Appendix 2: 1st draft interview questions

Senior officers

Interview

Work role:

Area/team:

Years of service:

Aim of the interview:

This interview is part of the data collection for my PhD research titled “Information sharing and decision making: the influence of social media in a policing context”. I am exploring the information practices of police officers engaged in neighbourhood/local policing who either use or do not use social media during their work activities. The focus is on how information is shared and used to make decisions. The interview will last up to an hour where we will draw on your own experiences to explore how you use information in your daily work practices.

This research will follow the University of Leeds Ethical Code of Practice, to ensure confidentiality and anonymity of your responses. No personal information will be collected, therefore you will not be identifiable in either the raw data or the write up of the results, and will only be referred to as a number so if you wish to withdraw from the study, I can identify your responses.

With your permission I would like to record the interview using a digital recorder to ensure your responses are captured accurately. The digital recorder will encrypt all data recorded, therefore only myself will have access to the interviews. You will remain anonymous at all times and once the transcript is written up this will be made available to you on request.

If you have any questions do not hesitate to ask at any point before, during or after the interview.

Thank you for giving your time to this research.

Draft interview questions for senior officers

First establish the local neighbourhood priorities for the area

To find out the influence of social media in policing:

What approach do you take to policing [insert local priorities for area]?

How does social media play a role in policing this/these?

Can you give an example of the ways social media is used – is it different under different circumstances?

If yes - How? Can you give some examples of difference in use?

Why did you/force start using social media?

Prompt:

Others were doing it? – if so who? Do you do it the same as them/different?

How?

New policy?

Perceived benefits?

Are there any formal rules/policies that are followed when using social media?

Prompt:

What are these?

What (physical) tools/technology/device are used to access social media? (e.g. smartphone, tablet, laptop, PC)

Does it change for different tasks?

If so – How? Why?

Who's involved in the use of social media?

Prompt:

Individual officers/teams/departments

How is the work shared out?

How did you/your officers police [insert priority] before social media was introduced?

Prompt:

Were there any formal rules/policies that were followed?

What (physical) tools/technology/devices were used? (e.g. mobile phone, smartphone, radio, laptop, tablet, PC)

Who was involved?

How was the work shared out?

How have you/your officers adapted to use social media (i.e. what new working practices have been introduced?) Can you give an example of how practices have changed?

To understand social media in information sharing:

When policing [insert priority identified] how is information on social media sought by officers? Can you give an example?

Prompts:

Tools used?

Policy/guidelines?

Who's involved?

How is work shared?

How would this have been done before using social media? (i.e. how has it transformed information seeking?)

Prompts:

Tools used?

Policy/guidelines?

Who's involved?

How is work shared?

How is information from social media shared?

With other officers/departments

With other forces

With the public

How is this different to how information would have been shared before social media?

To understand how social media is used in decision making:

Can you give an example of when information from social media has been used to inform decisions on [insert priority]?

Can you describe the process an officer would go through when making this decision?

Prompts:

Tools used?

Policy/guidelines?

Who's involved?

How is work shared?

How do they know if the information is sufficient to make an accurate decision?

What would have been the process they would have used before the introduction of social media?

Prompts:

Tools used?

Policy/guidelines?

Who's involved?

How is work shared?

How is decision making different now you are using information from social media to police [insert priority]? (faster, slower, more complex, easier etc.)

Ending questions:

In your view does social media aid the policing of [priority]?

In what way?

In your view, are there any circumstances or situations where social media is not helpful/appropriate to use?

Can you explain these?

**Draft interview questions for
officers on the ground using social media**

First establish the local neighbourhood priorities for the officer's area

To find out the influence of social media in policing of low level crime and anti-social behaviour:

How do you use social media to police [insert identified priorities for their local area]? Can you give an example of when you have used it to police [priority]?

Why do you use social media to police [priority]?

Prompts:

part of policy/strategy?

Effectiveness?

Who does it serve/benefit – police/community/both?

What Physical tools do you use to access social media? (e.g. smartphone, tablet, laptop, PC)

Does this change for different tasks (e.g. in the office, out on patrol etc), why? how?

Are there any rules/norms/policy/strategy that you follow when using social media?

What are these?

Is anyone else involved when you use social media?

Who?

What do they do?

How is the work shared out?

Do other officers use it to police [priority] in your area?

If yes – how do they use? Is this different from you?

How did you police [priority] before social media?

Prompts:

Tools/devices used to do this?

Rules/norms/policy/strategy followed?

Who's involved?

How have you adapted to use social media (i.e. has it offered new ways of working, new training)?

Can you give an example of how your working practices have changed?

To understand social media in information sharing:

When policing [insert priority] how do you seek information on social media?

Can you give an example?

Prompts:

Are there any formal rules/policies that are followed?

What (physical) tools/technology/devices are used? (e.g. mobile phone, smartphone, radio, laptop, tablet, PC)

Who is involved?

How is the work shared out?

How would you have done this before using social media?

Prompts:

Were there any formal rules/policies that were followed?

What (physical) tools/technology/devices were used? (e.g. mobile phone, smartphone, radio, laptop, tablet, PC)

Who was involved?

How was the work shared out?

How is information from social media shared?

With other officers/departments

With other forces

With the public

Prompts – for each of these:

Tools used?

Policy/guidelines?

Who's involved?

How is work shared?

How is this different to how you would have shared information before social media?

Prompts:

Tools used?

Policy/guidelines?

Who's involved?

How is work shared?

To understand how social media is used in decision making:

Can you give an example of when you have acted on information from social media to inform decisions on [insert priority]?

What was the outcome? (e.g. arrest/investigation launched/ suspect identified etc)

Can you describe the process you went through when making this decision?

Prompts:

Tools used?

Policy/guidelines?

Who's involved?

How is work shared?

Was the information sufficient for you to make an accurate decision?

If no – what other information was needed?

If yes – how did you ensure it was accurate?

How did you interpret the meaning of the information from social media?

How did you make these decisions before social media?

Prompts:

Tools used?

Policy/guidelines?

Who's involved?

How is work shared?

How is decision making different now you are using information from social media to police [insert priority]? (faster, slower, more complex, easier etc.)

Has there been an occasion when you have made an accurate decision from social media when deviating from the policy/guidelines?

If yes – how did you do this?

Prompts:

Tools used?

Policy/guidelines?

Who's involved?

How is work shared?

Ending questions:

In your view does social media help you to police [priority]?

In what way?

In your view, are there any circumstances or situations where social media is not helpful/appropriate to use?

Can you explain these?

Appendix 3: Final Interview Questions

Interview questions for senior officers

Work role:

Area/team:

Years of service:

Age:

Introduction

The interview is exploring your views and experiences of the use of social media in neighbourhood policing.

In this research the term social media refers to internet based applications that allow the creation and exchange of user generated content, these include platforms for social networking (Facebook, Google +, LinkedIn), microblogging (Twitter) and media sharing (Flickr, YouTube, Instagram etc).

The interview is split into three sections, the first explores general uses of social media in policing, the second looks at information sharing using within social media, and the third explores social media use for making decisions.

Do you have any questions before we start?

To find out the influence of social media in policing:

Could you briefly describe your role?

Could you describe your experience with using social media to date?

- personally?
- professionally?

Which social media platforms are currently being used in your force?

- When did your force start using these?

How are these used [ask for each platform mentioned]?

- a. *Internally? [within the organisation/ between colleagues]*

- b. *Externally? [with outside organisations/businesses/members of the public]*

Prompts:

- *Pushing out information*
- *Gathering information*
- *Generating discussion/opinion*
- *Interacting with the public*
- *PR*
- *Other*

How did the idea for using social media [platform/s] arise?

Prompts:

- *Others were doing it? – if so who? Do you do it the same as them/different? How?*
- *New policy?*
- *Perceived benefits?*

Before the use of social media, were there any extensive discussions within the force to explore social media use and potential benefits?

- *Who was involved?*

Are there any guidelines/policies that are followed when using social media?

Prompts:

- *What are these?*
- *How are these implemented?*
- *How have these changed?*

How have your officers adapted to use social media (i.e. what new working practices have been introduced or have developed spontaneously?) Can you give an example?

How has social media changed interactions with the public?

Prompts:

- *Opportunities for interaction with different groups of community?*

To understand social media in information sharing:

How are [platforms] used for sharing information?

- a. *With other officers/ departments/ teams/ other forces*
- b. *With outside organisations*
- c. *With the public*

Prompts:

- *Devices used?*
- *Policy/guidelines?*
- *Who's involved?*
- *How is work shared?*

How is this different to how information would have been shared before social media?

- a. *With other officers/ departments/ teams/ other forces*
- b. *With outside organisations*
- c. *With the public*

Prompts:

- *Devices used?*
- *Policy/guidelines?*
- *Who's involved?*
- *How is work shared?*

To understand how social media is used in decision making:

Can you give an example of when information from social media has been used to inform operational policing?

Prompts:

- *How valuable was the information?*
- *How reliable was this information?*
- *What other information was needed?*

How does social media fit with existing decision making models for policing?

Finally...Ending questions:

In your view does social media aid neighbourhood policing?

- a. *In what way?*
- b. *What is it most useful for?*

In your view, how important is the use of social media for neighbourhood policing?

In your view, are there any circumstances or situations where social media is not helpful/appropriate to use?

- a. *Can you explain these?*

Are there any challenges/barriers to using social media?

How do you see police use of social media developing in the next few years?

Is there anything you would like to add?

Interview questions for PCSOs/PCs using social media

Work role:

Area/team:

Years of service:

Age:

Introduction

The interview is exploring your views and experiences of the use of social media in neighbourhood policing.

In this research the term social media refers to internet based applications that allow the creation and exchange of user generated content, these include platforms for social networking (Facebook, Google +, LinkedIn), microblogging (Twitter) and media sharing (Flickr, YouTube, Instagram etc).

The interview is split into three sections, the first explores general uses of social media in policing, the second looks at information sharing using social media, and the third explores social media use for making decisions.

Do you have any questions before we start?

To find out the influence of social media in policing:

Which social media platforms are you currently using in your area? (i.e. Facebook, Twitter, Flickr, YouTube etc...)

How are these used [*ask for each platform mentioned*]?

Internally? [within the organisation/ between colleagues]

Externally? [with outside organisations/members of the public]

Prompts:

Pushing out information

Gathering information

Generating discussion/opinion

Interacting with the public

PR

Other

When do you use social media? (in what circumstances?)

Is it different for different platforms? How? Why?

Where do you use social media from?

From a fixed location i.e. office?

When mobile i.e. on foot patrol/in vehicle?

Why do you use social media?

Prompts:

part of policy/strategy?

Effectiveness?

Who does it serve/benefit – police/community/both?

What devices do you use to access social media? (e.g. smartphone, tablet, laptop, PC)

Is this a personal or work device?

Does this change for different tasks (e.g. in the office, out on patrol etc), When?

How? why?

Are there any challenges?

Are there any guidelines that you follow when using social media?

What are these?

How have these changed?

Do you undertake any training? How does this help when using social media?

How did you police [priority] before social media?

Prompts:

Devices used to do this?

Rules/norms?

policy/strategy followed?

Who's involved?

How have you adapted to use social media (i.e. has it offered new ways of working, new training)? Can you give an example? Has there been any issues/problems/challenges?

How has it changed your interaction with the community?

Prompts:

Interactions/engagement with different groups of community?

To understand social media in information sharing:

What types of information does social media provide?

Prompts:

How valuable is this information?

How do you gain this information on social media to police [priority/ies]? (*i.e. appeal for info from public, deliberately seek it by searching hashtags and key words, voluntarily offered from public/other orgs, online discussions*)

Can you give an example?

Prompts:

Are there any guidelines followed?

What devices are used? (e.g. mobile phone, smartphone, radio, laptop, tablet, PC)

Who is involved?

How is the work shared out?

How would you have gained this information before using social media?

Prompts:

Guidelines followed?

What devices were used? (e.g. mobile phone, smartphone, radio, laptop, tablet, PC)

Who was involved?

How was the work shared out?

How is social media used for sharing information?

With other officers/departments/forces

Outside organisations

With the public

Prompts – for each of these:

Devices used?

Guidelines?

Who's involved?

How is work shared?

How is this different to how you would have shared information before social media?

Prompts:

Devices used?

Guidelines?

Who's involved?

How is work shared?

How do you decide what to share?

Prompts:

Guidelines?

How do you manage information on social media?

Are there any challenges when using social media to share information with the public?

To understand how social media is used in decision making:

Can you give an example of when you have used information from social media to inform your neighbourhood policing?

Prompts:

What tools did you use?

What rules/guidelines do you follow? Is it the same as when pushing out information?

How valuable was the information?

How reliable was this information?

What other information/sources was needed?

How did you corroborate the information?

How does social media fit with existing decision making models for neighbourhood policing?

Can you describe the process you would go through when gathering information through social media?

How is decision making different now you are using information from social media to police [insert priority]?

Is it faster? How? In what ways?

Slower? How? In what ways?

More complex? How? In what ways?

Easier? How in what ways?

How do you decide what information to act on, or follow up on?

Are there any challenges when using social media to gather information?

Ending questions:

In your view does social media help you to police [priority]?

In what way?

In your view, how important is the use of social media for neighbourhood policing?

In your view, are there any circumstances or situations where social media is not helpful/appropriate to use?

Can you explain these?

How do you see your use of social media in neighbourhood policing developing in the next few years?

And more long term?

Is there anything else you would like to add?

Interview questions for Facewatch

Work with Facewatch:

Introduction

The interview is exploring your views and experiences of the use of social media in neighbourhood/community policing.

Do you have any questions before we start?

To find out the influence of Facewatch in neighbourhood/community policing:

Can you tell me a bit about your role?

Can you tell me about the role of Facewatch within your force/neighbourhood?

- What motivated you to engage with it?
- What does it offer that wasn't available before?
- How does it fit with existing practices?
- Other social media platforms?

Can you describe how Facewatch is used within your force/neighbourhood?

- Devices – mobile, fixed location etc
- Who's involved?
- Is it used differently by different people?
- Links with other forces/organisations
- Facewatch ID app?

How have you adapted to use Facewatch

- What new working practices have been introduced?
- Example?

To understand information sharing:

How is information stored on Facewatch? Who has access?

How is Facewatch used for sharing information and what types of information?

- a. With other partners/groups/businesses
- b. With policing organisations
- c. With the public

Prompts:

- *Devices used?*
- *Policy/guidelines?*
- *Who's involved?*
- *How is work shared?*

How is this different to how information would have been shared before Facewatch?

- a. With other partners/groups/businesses
- b. With policing organisations
- c. With the public

Prompts:

- *Devices used?*
- *Policy/guidelines?*
- *Who's involved?*
- *How is work shared?*

How do you decide what information to share?

- *with partners*
- *policing organisations*
- *public*

Are there any challenges when sharing information?

To understand how Facewatch is used in decision making:

How is information collected through Facewatch used to make decisions? Who makes the decisions?

Can you give an example?

Prompts:

- How valuable was the information?
- How reliable was this information?
- What other information/sources was needed?
- What was the outcome

Has decision making changed since the use of Facewatch? How? In what ways?

Are there any challenges?

Finally...Ending questions:

In your view how does Facewatch fit with neighbourhood/community policing?

- How is Facewatch changing traditional neighbourhood/community policing?

In your view, how important is Facewatch for neighbourhood/community policing?

In your view, are there any circumstances or situations where Facewatch is not helpful/appropriate to use?

- a. Can you explain these?

How do you see the use of Facewatch developing in the next few years?

- a. And more long term?

Is there anything you would like to add?

Appendix 4: Examples of initial coding

	A	B	C
27	<p>Quotes</p> <p>1. We also do the night time economy operation at the weekend, so certainly if I'm stopping around we'll do the pictures and the tweets, everyone loves seeing people being put in the back of a police van. I did one of a girl being sick in a gutter once, you had no idea who they were because their hair was all down and actually there was a serious point to it and it wasn't to embarrass or ridicule that person, I wanted to find that kind of scenario so I could put a link on to a public health organisation in Manchester that will work with people to help them understand what their drinking is doing to them, and then I got loads of shit, you know 'you've humiliated this girl', 'did you have her permission?' and was like I don't need it she's being sick in public and the point wasn't to humiliate her or embarrass her, it was actually a means to an end to then push Safe Drinking Manchester.</p>	<p>1st level Codes</p> <p>Getting it wrong</p>	<p>Categories</p> <p>Learning to use social media</p>
28	<p>1. we have now got a force policy which you're not supposed to tweet about 999 calls without speaking to our communications branch and that's because a couple of people complained about ones that I've put on and I'm probably Amanda would say, I'm probably the one that sails close to the wind more often than most. Some of it my status as an inspector allows me to be a little bit cheeky, naughty, push the boundaries whatever you want to call it</p>	<p>Breaking the rules</p>	<p>Rules and norms (emerging)</p>
29	<p>1. I'll certainly monitor the stuff that comes in, if stuff comes in when I'm not there, there is very little information I will give because I'm not in a position where I'm in the office and can look on the computer, see what's gone on, but if I need to ring it in or offer some general advice then I'm happy to do that.</p>	<p>Working off duty</p>	
30	<p>1. you've got to be careful then because news reporting is one thing but you have to remember however that you are a police organisation and there are things like chain of evidence, so I have seen tweets where, not from our account, where people have taken a picture of, lets say someone has been arrested for possession of cannabis dealing and then they show a picture of what we seized you know two big bags and I've seen that go out immediately after arrest and that would have happened before a solicitor has gone to see their client in the cells and agreed what they are or aren't going to say in the interview and before the officer in the case has decided what we're going to tell them we know before interview. I don't think defence solicitors are looking at Twitter for clues as to what we know but there is a danger that you are compromising that investigative process,</p>	<p>What you can share</p>	
31	<p>1. I'm always really careful particularly when you look at vulnerabilities, you know a lad fell off a balcony in a nightclub this weekend, we didn't tweet about that because we wasn't sure what the score was with next of kin, so you're enthusiastic and want to give the live updates and the live ones with pictures are the ones that generate big traffic for us but you just need to remember we're not the Manchester Evening News, we're Manchester Police.</p>	<p>What you can do depends on rank</p>	
32	<p>2. So now for me its all about using social media, I've got my own Twitter account I only set it up about a couple of months ago really because the one I've got now is just, basically, because I'm not now involved in the neighbourhood stuff because I've got a more strategic role so what I tend to do is I have my own personal account which shows a bit about myself really</p>		
33	<p>3. I have a personal account, @DCCIanHopkins, through that I'm able to put my own opinion on things directly to about 3,000 people</p>		<p>Role</p>
34			

Appendix 5: Coding using Dedoose

So you said it's mainly Twitter that you're using?

R: We do have a neighbourhood Facebook account but that's managed by our operational support officers who you'd recognise them as admin staff, junior members of staff, so whilst I do feed them stuff to put on, it's not the main driver for the city centre for our social media engagement.

How is it that you use Twitter?

R: For me it's firmly part of our daily business, we probably send between 20 and 40 [tweets] a day, we do a quarterly social media evaluation report, ask Amanda if she's willing to share that with you. I think what we've seen is that staff now take a real pride and ownership in managing those accounts, people maybe saw it as a bit of a bind and didn't really see the value in it and we very much try and get as close to 24/7 as we can, bare in mind that neighbourhood teams will typically work from 7am through until about 1, 2 or 3 am on a weekend. One of the issues we're having to manage is that the expectation for people out there is someone standing there waiting for those tweets to come in 24/7. Our front page says if it's a crime or an incident and it needs dealing with now, ring 101 or 999, don't report on Twitter but people don't look at. We had one three months ago where someone said there's a lad trying door handles over the road and sent it in about 2am and obviously I've come in at 7am and it's like, but you don't want to criticise these people but you've got to say I mean that's a 999 call all day long that, but there is that expectation out there that we are managing our social media 24/7, so the staff do take ownership, it can be infectious and I guess there's a question about do you allow your staff to tweet off duty or not. I certainly monitor the stuff, especially if I know we've not got coverage for a day or so, I'll certainly monitor the stuff that comes in, if stuff comes in when I'm not there, there is very little information I will give because I'm not in a position where I'm in the office and can look on the computer, see what's gone on, but if I need to ring it in or offer some general advice then I'm happy to do that. But yeah some people's expectations and you'll see sometimes that someone will tweet at 3am and then they'll tweet at 4am 'oh you're not interested then' and I'm like, I'm in bed, I don't say that but you know they expect a response quicker than we would give a commitment for a 999 call or a 101 so it is odd.

I: that maybe in part by the fact we're living in this world where you expect real time information and real time responses, even text messages can be sent really late in the evening and people expect you to respond just because most people have their phones on them constantly.

R: I bullet pointed about 10 things that I brainstormed as to what we would do, so one thing that's managed through the city is updates on key events as there's always something happening in Manchester so we will kind of, depending on the nature event is we will do pre-event, we'll do during the event and sometimes that's live and then we'll follow up after. So in terms of the updates for example Man United homecoming which if you follow [football] was at least a few years ago and even City won very recently, there's huge appetite for live time reporting and I think that's been the other development is that we're moving towards almost like a news media style so I'm certainly pushing the staff to get out and get a picture, get it on. So we had a car stuck on the tram tracks on Tuesday which the public love to read about because they can't image how stupid people are to drive onto tram tracks, so first thing I did is sent my PCSO and almost try and beat the MEN to it, they did beat it to it but not by long. I mean again I didn't put it on here [sheet] you've got to be careful then because news reporting is one thing but you have to remember however that you are a police organisation and there are things like chain of evidence, so I have seen tweets where, not from our account, where people have taken a picture of, lets say someone has been arrested for possession of cannabis dealing and then they show a picture of what we seized you know two big bags and I've seen that go out immediately after arrest and that would have happened before a solicitor has gone to see their client in the cells and agreed what they are or aren't going to say in the interview and before the officer in the case has decided what we're going to tell them we know before interview. I don't think defence solicitors are looking at Twitter for clues as to what we know but there is a danger that you are compromising that investigative process, so I'm always really careful particularly when you look at vulnerabilities, you know a lad fell off a balcony in a nightclub this weekend, we didn't tweet about that because we wasn't sure what the score was with next of kin, so you're enthusiastic and want to give the live updates and the live ones with pictures are the ones that generate big traffic for us but you just need to remember we're not the Manchester Evening News, we're Manchester Police. So pre, obviously European football teams, Bayern came two weeks ago and I put one [tweet] out 48 hours before they came 'Bayern fan visiting Manchester, got any questions?' then I just put in the official Bayern Twitter account and they retweeted it so we got up to about 1/2 million on that and we got a few questions, daft questions, we got some abuse as well but hey. What are the staff doing - we quite often tell them what the staff are doing on a daily basis. Odd calls, arrests and incidents, I think that's fairly obvious.

I: We promote crime prevention but it's got to be interesting, I mean at the moment we're heavily pushing the ice bandits stuff where you leave your car on the drive defrosting and go back in and finish your cup of tea and that's a fairly corporate message but people just yawn and switch off, it's like don't leave your windows open but it's the middle of summer it's red hot, people are going to leave their windows open so people just ignore it so you've got to try and be a little bit interesting. I mean last week, there's a lot of good stuff on our GMP Flickr and we put a lot of our archive pictures on as well, last week I put on three of our archive posters on crime prevention from the 1950s, one because it was a fantastic bit of art work and two because bizarrely enough the posters from the 1950s, actually the issues were exactly the same 50 years on. One was about leaving your house unsecured, one was about leaving your car, things on show in your car and I can't remember what the third one was, because they were artistic posters I knew that would appeal to that kind of Manchester audience, so you've got to be a little bit

Codes

- Banning people
- Becoming routine
- Change in policing
- Controlling information
- Crime via social media
- Crossing into private life
- Decision making
- Analytic
- Contradictory information
- Experience
- How to get it right

Appendix 6: Example of mind map used to explore relationships between categories (axial coding)

