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Investigative Decision Making: Interviews with Detectives

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Abstract

Purpose: This study explores investigative decision-making processes in the context of major crimes as experienced by the law enforcement agents.

Methodology: Episodic interviews were conducted with 6 agents from medium-sized police forces in the UK. Following the framework of Naturalistic inquiry, Qualitative Content Analysis took place with the assistance of Atlas.ti software. To ensure the validity of findings, the within method triangulation was preferred, by additionally analysing the interview transcripts with ALCESTE.

Findings: Findings from this study revealed a variety of internal factors at play, shaping the decision making course into an act of balancing various desired goals. Detectives appear to assess a situation based on their experiences confirming that the Naturalistic Decision-making model may assist in understanding investigative decision-making.

Limitations/implications: Due to the busy schedule of law enforcement agents the number of participants was limited and availability difficult; therefore, this study can be thought of as a pilot study that will inspire researchers to use the same method for in-depth understanding of investigative decision making.

Practical implications: Results captured the ill-defined goals in the police environment and provided ways of decreasing their impact on investigative decision-making thus should help detectives to understand their decision-making limitations and strengths.

Social implications: The findings from this project enhance the psychological understanding of investigative decision-making.

Originality: This project assists in understanding the psychological aspect of investigative decision-making during police duty and provides the opportunity to law enforcement agents to reevaluate situations in order to improve the investigative decision-making process; while adds to existing literature.

Key words: Police investigations; Investigative decision-making; Naturalistic Decision-making model; Psychological understanding; Police duty; Police environment.

1. Introduction

Decision-making has been studied across many disciplines and is viewed as a vehicle of rationality (Bernoulli, 1738; Savage, 1954; Von Neumann & Morgenstern, 1944) made of sophisticated and axiomatic expressions of subjectivity that can be described by numbers and formulas. As a psychological process it involves a mixture of cognitive processes, such as problem solving and information processing (Simon, 1960; Edwards, 1954); or as a collaborative process that justifies the interrelation of a group (March & Simon, 1958; Janis, 1972). Within the police force, an investigator functions as a decision-maker and usually engages in time-pressured situations with public demands, complex/ambiguous information, ill-defined goals, and other organizational constraints at stake, consequently such processes might increase stress and anxiety (Beach & Connolly, 2005). And it has been shown that stress and anxiety might result in biased decisions that are based on information processing during an investigation. Similarly, a detective might process the available evidence and information during events that are associated with stress or anxiety, which at times leads to biased processing of information (Pogarsky, Roche & Pickett, 2017). Biased processing by law enforcement agents can explain the decision pitfalls (Rossmo, 2005); nonetheless, shortcuts in thinking have been seen as important strategies in responding to the complexity of information within the context of investigating serious crimes (Bammer, 2010). There are various that assist in understanding investigative decision-making and these are explained in the subsequent sections.

1.1. Investigative Decision Making

Indeed, criminal investigations of major crimes, such as murder and organised crime attracts the media and public, and when criminal investigations failed, it resulted in the scrutiny of law enforcement authorities (Alys, Massey, & Tong, 2012; Fahsing & Ask, 2013). Miscarriages of justice and failed or delayed prosecutions, including institutional biases,

information management failure, manipulation of evidence, and failure to sustain basic investigative principles have been widely criticised (Alys et al., 2012).

The criminal investigation process in simple terms, involves two stages: first, to identify the suspect and second to build the case so as to justify the reason behind their first decision (Thibault et al., 1998). Police investigations have been viewed as goal-oriented, such as the successful prosecution or solving of a crime; although, effective decision-making is not as easily defined by the goal alone (Fahsing & Ask, 2013) since each stage requires a series of decision-making processes (Rossmo, 2005). In the past, the common perception was that the necessary skills for the investigators can be acquired while working (Tong, Bryant, & Horvath, 2009; Morris, 2007); however, modern investigative work identifies many factors that detectives need to be aware of. Such factors are often administrative in nature, such as knowledge of legislation, technical skills, workload management, and geographical changes (Stelfox, 2009).

1.2. Coping Strategies

Rossmo (2005) described three reasons of ineffective investigative thinking: cognitive biases, organizational traps, and lack of understanding of probabilities. Research (Fahsing & Ask, 2013) on investigative decision-making revealed that biases are difficult to eliminate. One of the more extreme examples of biases produced by these strategies, is that the decision-maker makes a decision considering the extent of the option to achieve a single goal (Baron, 2005). Gigerenzer & Todd (1999) labelled some of the most common choices and rules as fast and frugal heuristics. Fast because they approach optimality, but frugal as they require the consideration of relatively little information about the alternatives (Hastie & Dawes, 2001). Furthermore, in the past decade some fields have adopted heuristics and have accepted the cognitive processes that play a role not only in decision-making but in many aspects of human functionality, as well as the fact that individuals may ignore part of the gathered or presented

information, either consciously or unconsciously. For example, Gigerenzer & Gaissmaier (2011) supported that individuals and organizations often rely on simple heuristics in an adaptive way. However, frequently ignoring part of the information could lead to more accurate judgments, although the latter depends on the amount of information presented and this is used. Lastly, Volz, & Gigerenzer (2012) informed that most studies that focus on decision-making under risk, or stress in other words, expect that this will also provide an understanding of the decision-making process in general. However, the latter authors perceive that as humans do not face situations with known risks daily, the brain does not adapted to them, consequently researchers should focus more on situations with uncertainty rather than risk. Although, it has be acknowledged that detectives make decisions both during situations with known risks and uncertainty.

1.3. Criticism on the Traditional Decision Making Models

The most difficult decisions an individual takes are choices not only about what to do in an isolated instance, but those that can also affect an entire course of action (Shah et al., 2008). For instance, the police in the UK use the term “golden hour” to emphasise the salience of the decision making during the initial stage of an inquiry, as being crucial to the success of the investigation (Wright, 2013). Criticism on heuristics and biases started from an initial stage of their conception (Einhorn & Hogarth, 1981; Gigerenzer, 1998). Shah et al. (2008) questioned the originality of those heuristics because of the actual methodology used in tracing them; and argued that errors during decision-making processes must be probed more deeply to understand whether proposed heuristics are simply artefacts of the researcher and of an experimental environment, or if they actually represent a broader system of cognition economics.

Thus, although such elucidation has been intuitively appealing (Tversky & Kahneman, 1974), its feasibility in the field of investigative decision-making has not yet been

addressed. Given the inherent limitations of the human mind (Simon, 1956), and the external and internal pressures police face during an active investigation of a major crime, it is necessary for criminal investigative decision-making to be understood in this context, rather than as an isolated event. Applying such a perspective involves outlining the actual context in which police officers work, determining whether the heuristics that officers use are efficient, and study the decision-making strategies within the law enforcement environment.

1.4. Naturalistic Decision Making

Klein et al. (1993;1997) attempted to describe how people actually react in real situations, and introduced a model named the Recognition-Primed Decision model (RPD), which combines two ways of developing a decision. First, determining what course of action makes sense, and second, evaluating the proposed course of action through imagining the outcomes, to examine if the actions resulting from that decision are reasonable. Social processes also play a role in this procedure and are considered significant when defining and structuring decisions (O'Keefe, 2002). Naturalistic decision-making (NDM) is a paradigm derived from that theoretical approach that aims to take into account human nature, the individual differences of detectives as decision-makers, their agency in the investigation process, and their interaction with others within the police environment. The NDM also has four essential characteristics, Process orientation, Situation- action matching decision rules, Context- bound informal modelling and Empirical- based prescription.

Process orientation: The NDM model will not attempt to predict what option will be implemented by the individual but it will describe the cognitive process of proficient decision markers. In addition, for the NDM models to be reliable they must explain what information the decision makers will look for, how they will interpret it and what decisions rule they will use, for this reason, the NDM models are neither formal nor abstract.

Situation- action matching decision rules: Matching is a generic term for any decisions with the structure “Do A as it is appropriate for situation S” (Lipshitz, 1994). Previous studies have indicated that proficient decision makers will typically decide based on different forms of matching and not because of a concurrent choice. Furthermore, matching is different from concurrent choice in three respects. (1) The options will be evaluated sequentially one at a time. Decisions makers when they are presented with many options will compare them against a standard, they might focus on one or two options that will be compared to each other (Beach, 1993; Montgomery, 1988) (2) The options will either be selected or rejected depending on their compatibility with the situation they are in or the values the decision makers have and not their relative merits (Beach, 1990; Endsley, 1997; Klein, 1998; Pennington and Hastie, 1993). (3) Even though, the process of matching could be analytic it often relies on patterns matching and informal reasoning.

Context- bound informal modelling: Proficient decision making is guided by experienced knowledge, this limits the utility of abstract formal models. Two reasons for this are (1) Expert knowledge is domain and context- specific (Ericsson and Lehman, 1996; Smith, 1997) (2) The decision makers are sensitive to semantic and syntactic content (Wagenaar et al, 1988; Searle 1995). The NDA models describe the information that decision makers focus on and the arguments they will use, especially if they are designed for applied purposes (Cohen and Freeman, 1997; Crandall and Getchell-Reiter, 1993).

Empirical based prescription: NDM suggests that “ought” cannot be separated from “is”: if prescriptions are optimal in some formal way but they cannot be implemented then they are worthless. Descriptive models of expert performance will direct to empirical-based prescription to improve feasible decision markers’ characteristics models of making decisions (sequential single-option evaluation) rather the replacing them altogether is the goal empirical based prescription by basing prescription on demonstrations of feasible expert performance.

The study of NDM asks how experienced people work as individuals or groups, uncertain and often fast-paced environments, identify and assess their situation, make decisions and take actions whose consequences are meaningful to them and to the larger organization, in which they operate (Zsombok & Klein, 2014, p. 5).

NDM was invented among decision and human factors from researchers studying decision makers in real-world settings and carefully studying a multitude of cases, such as disasters and airplane crashes (Lipshitz, Klein, & Carroll, 2006). Their inquiry focused primarily on crucial real-life decisions made in actual situations and tasks, such as fire-fighting or military decision making, using the personal memories of the participants (Klein, et al 1993).

Qualitative methods became useful tools for understanding how decisions are made in various investigations of various fields (see Lipshitz, Klein, & Carroll, 2006; Klein, 1993), and have been proven insightful and valid. For example, Hoffman et al. (1998) reviewed numerous studies based on this methodology in terms of validity, reliability, and efficiency. To determine reliability, they investigated the consistency of participants in reporting the same event's details or the general picture of an event in a retelling. As a result the 'Think-aloud' accounts, as a qualitative method, which became a useful tool for tracing how investigative decisions are made (Lipshitz Klein, Orasanu., & Salas, 2001; Wright, 2013) and promised to provide the depth and detail of decision-making processes that have been otherwise left unexplored.

Behavioural decision theories have been able to define errors without hindsight because they can define optimal choices and optimal choice strategies, and by tightly controlling the contextual setting they are able to predefine the errors. Therefore, while behavioural decision theories generally try to understand errors as the result of faulty decision processes and reliance on fallible heuristics, naturalistic decision-making tries to understand

mistakes in a broader context. NDM researchers instead of tracing bad outcomes to human errors at the end of an inquiry, they aimed to treat human errors at the beginning stages of an investigation (Lipshitz Klein, Orasanu, & Salas, 2001). As such, the principal contributions of NDM to decision-making, stands in the development of ecologically valid practical methods for minimising errors and improving decision quality.

1.5. Aims & Rationale

The importance of investigators' decision-making process, the crucial role it plays during an investigation (Courtland, 2018; Fahsing & Ask, 2018), and researchers' on-going attempt to identify flaws on the way detectives make their decisions during serious crimes and investigations (Barrett & Hamilton-Giachritsis, 2013; Alderden & Ullman, 2012), led to this project that attempted to study detectives' decision-making through an alternative method. The investigative psychology agenda has provided police enquiries with evidence-based research and aided investigations with a better understanding of the process of decision-making within common psychological frameworks (Youngs & Canter, 2006). The rationale behind this project was the importance of understanding investigative decision-making through an in-depth examination of this process in real life settings and in practice. While exploring what assistance detectives receive in order to make informed decisions, was of equal importance, since trial and error strategies may have a negative impact to the society. Therefore, the present study aimed to contribute to the existing literature with respect to investigative decision-making during the investigation of serious crimes, based on the premises of the naturalistic framework and suggesting that investigative decision-making during serious crime investigations can be better understood by the narratives investigators have to offer. Alongside the main aim, this project also explored the variations on investigative decision-making for serious crime, how the environment in the police force affects this process, what are the investigators' attitudes, expectations, beliefs, and emotional

aspects of their decision-making and which commonly used heuristics are used frequently and under what circumstances. Finally, attention was paid to the language detectives use to evaluate investigative decision-making in serious crimes and their training needs.

2. Methodology

In the present study, detective narratives were used as the main device for data collection. The methodology fits within the naturalistic-inquiry paradigm (Lincoln & Guba, 1985) and emphasises the importance of understanding the meaning of human behaviour and sociocultural interaction (Patton, 1987).

2.1. Naturalistic Inquiry

In recent years, qualitative interviews have been increasingly employed as a qualitative research method, and have induced an expansion in methodological literature regarding how to carry out an interview research systematically (Kvale, 1996). The choice for qualitative interviews was taken mainly to encourage interviewees to narrate their experiences. In this way, the study places the detective at its centre of interest and as the basis for its description. Detailed descriptions and direct quotations, as open-ended narratives through qualitative interviews could prevent us from fitting decision-making or detectives' experiences into predetermined/standardised categories and imaginary tasks (Patton, 1987). Moreover, in 1985 Lincoln and Guba proposed the naturalistic approach, as a more efficient inquiry method in order to avoid manipulation of the research findings. In this study avoiding manipulation of the findings due to researchers' biases and accidental mistakes was of great importance, as the aim was to present an in-depth understanding of investigators' decision-making process as the investigators experienced and not as researchers perceived.

2.2. Qualitative Interviews

Qualitative interviews permit understanding the decisions as experienced by respondents, as well as capturing the context-specific aspects of knowledge (Flick, 2006).

Questions regarding detectives' prior training content specific to decision-making as well as educational needs were first asked to establish a baseline of detectives understanding of the study at hand and develop rapport with the researcher. Given the exploratory nature of the research, and the nature of the topic, a semi-structured episodic interview followed to examine the research questions. According to Flick (2000), episodic interviews allow the interviewee to decide which type of situation to talk about in order to explain a certain type of experience, either positive or negative. Finally, it has to be mentioned that qualitative interviews and qualitative analysis has been used previously by others (Schulenberg, 2007; Dando & Ormerod, 2017), who support that qualitative analysis of interviews can give an in-depth understanding of detective decision making tracing how decisions are made tracing how decisions are made

2.3. Episodic Interviews

The design of an episodic interview should combine invitations to recount concrete events that are relevant to the issue under examination. To ensure interest and first-hand knowledge, the contact person was asked to select a recent investigative decision, which illustrated an example of bad decision-making and mistakes made in the past, either during an operational or managerial decision-making. Accordingly, risks, uncertainties and organisational restrictions faced at that time could build a holistic account of police reality.

2.4. Reliability and validity

Although narratives are crucial in establishing connections between the exceptional and the ordinary, on many occasions, narrators guess on how they could have behaved. Retrospective data can be biased by inaccurate recall due to self-justification, memory lapses, logical inconsistencies, and limited verbal ability (Lipshitz et al, 2001). Additionally, interviewees often give reasons for their choices, which can be shown to be rationalisations and not real exposure of their motives (Simon, 1986). To improve data validity and provide a

way around these difficulties, interviews focused on factual events; only recent decisions were discussed to reduce memory failure, and participants were advised to choose a case that was familiar to them, either by being the decision makers or observers to wrong decision-making.

2.5. Participants

A purposive sample, consisting of detectives in the Criminal Investigation Department from medium-sized police forces in the UK were asked to participate in this study. Key decision-makers who had some involvement with criminal investigations of serious crimes were then interviewed. The senior police management in each force granted access to participants with appropriate researcher vetting by cleared prior to this. All the prospective participants were amongst the top tier of the police leadership structure in their respective forces. Eight detectives in their mid-forties that were decision-makers with significant experience in their fields and with approximately 25 years of service in the force were identified and agreed to participate in the study. Out of the eight interviews with senior detectives, six were used for the analysis, as two were exempt due to technology related errors.

2.6. Procedure

The meetings took place in three different police offices and stations where participants were employed. Participants were emailed in advance an information sheet that detailed the nature of the topic. The interview duration was fixed at 60 minutes and to ensure first-hand knowledge, participants were asked to select critical investigative decisions they had to make, and talk about the training they undertook in their career. Interviews were recorded and transcribed and transcripts were coded according to a schema of free-codes stemming from the central themes, which were defined in the first analysis phase. The coding

was not line-by-line coding but more akin to selective or focused coding, therefore more conceptual than line-by-line and spanning larger amounts of data (Charmaz, 1990).

2.7. Material

To analyse the data the research team used Qualitative Content analysis (Mayring, 1983), allowing categorisation and definition of interrelations based on the time of occurrence and co-occurrence of the codes in the primary data transcripts of interviews. For this study a combination of two types of textual-analysis software was used to reveal a more detailed and robust view of the variations and language of the detectives throughout their narrations of the decision-making processes. ATLAS.ti software assisted in the manual-content analysis of data, and Alceste complemented or revealed inconsistencies.

2.7.1. Manual Content Analysis

Initially, interviews were content analysed manually in order to understand the relationships between the available data (Evans, 2002); categories were created and interrelations were defined between them. Transcripts were coded according to a schema of free codes stemming from the central themes, which were defined from the first phase of interviews. The authors used the ATLAS.ti scientific software to assist with the manual analysis. Computer Assisted Qualitative Data Analysis Software (CAQDAS) accommodates phenomenologists, interpreters, grounded theorists, positivists, and other epistemic orientations and does not require the analyst to impose an exclusively top-down deductive logic (Abramson, ATLAS.ti manual). The advantage of computer-assisted analysis is obvious, since ATLAS.ti allows transparency; the coding rules are necessarily made explicit and thus allow recreation “reproducibility” under varying circumstances, using different coders (Krippendorff, 2004).

2.7.2. Automatic Content Analysis

Triangulation is a combination of methodologies in the study of the same phenomenon, as broadly defined by Denzin in 1978. In this study, the notion of within-methods triangulation was applied. Using the same transcripts of the interviews, the ‘by-hand’ analysis was juxtaposed against the analysis obtained automatically by a sophisticated textual-statistic analysis program: the *Analyse des Lexèmes Co-occurents dans les Énoncés Simples d’un Texte Alceste*. Alceste is a program for automating textual analysis with which transcripts from interviews or other qualitative data could be analysed. The program splits the text into categories and provides a number of tools with which to interpret the identified classes. The step by step process in an Alceste analysis can be seen in Figure 1. The outcome “relies upon co-occurrence analysis, which is the statistical analysis of frequent word pairs” (Schonhardt-Bailey, 2005). Alceste can be seen as a methodology in its own right because it also statistically measures and classifies the key themes deriving by the interviewees and proposes themes, clusters based on word lists and characteristic phrases found in the data (Schonhardt-Bailey, 2005).

Insert Figure 1 here.

The analysis is based on the investigation of the statistical variation of the discourse available in order to identify representative language patterns. Alceste produces classes (i.e., clusters) and a variety of tools to interpret findings. The classes that are obtained have no meaning nor can they be interpreted in ways other than in their position of opposition, in a system with antithetical relations (Kalampalikis, 2003). The aim of an Alceste analysis, is to distinguish word classes that represent differing forms of discourse concerning the topic of interest. The software automatically identifies the key words and sentences in context, a task, which is laborious when performed manually. A sufficient theoretical background of the

researcher comes into play only for the final synthesis of the results within the framework chosen (Gaskell, & Bauer, 2006; Jick, 1979).

2.8. Ethics

The research team followed the BPS guidelines for ethical conduct in research and the interviewer was in constant communication with the rest of the research team to avoid potential difficulties or problems. Participants were communicated in a concise manner the aims of the study, instructions, and their right to withdraw at any time, while ensured anonymity via the consent form.

3. Results

3.1. Manual Textual Analysis

The first analysis of the interviews yielded 515 categories of linguistic codes. Early in the coding cycle, the code map was redefined and merged with broader conceptual codes. This check and redesign of the code map involved recoding compiled transcripts to ensure consistency throughout the whole data set. Using this concept mapping method allowed the research team to identify micro-narratives that provided rich descriptions of decision-making attitudes, as the interviewees understand and experience them in their everyday life. Eventually, the final analysis of the data yielded 5 codes that were more distinct focused on the initial research questions.

3.1.1. Theme 1 - Decision processes

Detectives appeared to constantly justify their decisions due to increased criticism present in their environment. This stemmed from organizational demands, expectations from their position and media scrutiny in cases of major investigations. Detectives often assume the role of the press and spend considerable effort in constructing a story viable for viewers, often putting aside the goal of the investigation.

'I had to keep on making decisions and second-guessing what the press is going to say. It was a good story for the press so they wanted me to make comments. Almost they wanted the story. Forget the result of the story, the story was more important than the result'.

Criticism of past decisions is often hard to express, as various personal factors might be at play during the investigation.

'It's very easy to say, well done, you've done a brilliant job – it's not very easy to say, do you know what? You really haven't done a good job here, and you're really not performing to the level that ... and we really need to do a, to address that – cos that's quite difficult'.

Very important evidence from the detectives' narratives was the use of 'we' instead of 'I' when it came to report a decision the individual made.

'We took the decision that we would go face to face with protection so we'd have ballistic shields and we'd have firearms officers with us but we'd go face to face. We discuss together what we think the best solution is. Then as a result of that discussion I will make a decision based on what has been said. So it's very much team work than just me making the decision'.

3.1.2. Theme 2 - Training

There was an evident distinction between the everyday reality of policemen and the training available.

'I think it is good to learn from others... After 25 years you sort of know the generic questions and answers and policies and how you do things. Its learning from experience of somebody who has done something a bit different'.

The training appears to concern those only who are climbing the hierarchical ladder within a police unit.

'A lot of them were people that were going to be going to be Dis in the future. So they were actually training them so they could have formal qualification before they joined. I had my course cancelled about five times'.

However, some detectives claimed that they might have gained transferable skills during such training.

'It includes simulated exercises and everything is recorder'.

Participants envisioned a more interactive and immersive training schedule to be more helpful.

3.1.3. Theme 3 - Constrains

Detectives acknowledged that there are many interferences and pressures during an investigation. This could arise from individual limitations and could extend to organizational and public pressures weighing their decision-making process. One statement indicates that the current practices in record keeping are not aiding officers in recalling specific details of their decisions, and perhaps later prevent the improvement of decision-making through iteration.

'I'm terrible for storing everything and I don't always write things. As you get older your memory gets worse, so I'm thinking why did I make that decision. I have almost got to change my style as I get older because I have got to write more things down because I am forgetting more and more...sometimes I wish then I just put on a Dictaphone and just keep on talking.

Every time I tell people 'Can you do this for me? Can you do this? Can you do this?'

External factors are often at play during investigations and may impact the actual decision-making, even though such factors may be unknown by third parties.

'It's often when you are asleep at three o'clock in the morning, you are fast asleep, you get a phone call and they expect you to make a decision when you are half asleep on very limited information. You know that decision you are possibly going to make is going to ruin the whole investigation'.

Investigator's feelings, sensitivities and empathy towards victims may be regarded as impediments towards un-biased collection of information during an investigation.

'Dealing with rape and we are talking about emotions involved as well. There are people to consider other than yourself or law... let's say you are talking about rape, you are talking about victims that are very obviously upset and traumatized at the time, but potentially could be traumatized for the rest of their life. It's not just like having something stolen from a shop'.

3.1.4. Theme 4 - Experience

Experience was at times described as a major factor in feeling confident about the overall quality of decisions made. This correlation was attributed with trust to other members of the same team or to one's own intuition. Detectives pointed towards a trial and error method of obtaining experience, where the ultimately right decisions are rewarded with future confidence in decision making in general.

'I've been ... been put in many operational positions where I've had to make difficult calls, and I'm not saying I get every one right, but the more you do, the more confident and competent you become in your own abilities to make the right decisions and calls'.

Assigning task and splitting the investigation between police members is also considered a heavy decision-based approach, with moral and ethical implications based on the detectives' personal preferences and history.

'Am I going to get the best out of that person? Is that person the best to do the job? Should I give that task to somebody else? Should I give that person a statement to take when that person might have been abused as a child themselves? Is it going to affect them? What are the dynamics of the team? How are they going to affect the investigation? There are some people that might have preconceived ideas. Is that going to affect how they speak to victims. So you are thinking of all those things. They may not go down in the policy book, but they are things that you still have to consider'.

Some statements indicated the difficulty of personal reflection on past decisions taken, and the minimisation of reflection once an officer has gained a certain level of experience.

'I don't think they affect your decision. You do spend quite a bit of time reflecting on whether or not you could have thing ... done things differently, or how you managed that, and how you dealt with it, could I have done that differently, could I have done it better, or whatever. Ultimately, I think, with experience – and I say, I do think experience counts for an awful lot in terms of ... having been put under pressure before in different circumstances, still being able to maintain that clarity of thought, and how I made my decisions, and the rationale for making those decisions – you know'.

The detective's personal image is carefully guarded during a decision-making process. Signs of ambiguity or hesitation are generally avoided especially when related to officers with less experience. It is indicated that the police culture is one that promotes affirmative and quick action.

'Certainly, as a young police officer, you wouldn't want to show any kind of weakness or flaws in you, you'd always want to be, I think we're probably better at understanding and realizing how certain incidents can impact upon you, and the effect that it can take on you – and that is the body's natural reaction to some of those stressful circumstances you're placed in. I think in the police service there's always been quite a ... I guess quite a macho culture, that says, you know, we're roughy-toughty and we don't feel it, but actually, do you know what?'

Insert Table 1 here.

3.2. Automatic Textual Analysis

Following the content analysis of the interview transcripts carried out manually, interview transcripts were collated in one text file and were uploaded into the Alceste textual statistic software. The total word count for the text file uploaded to the program (which

includes all the transcripts of the interviews recorded) was 35,776. The software managed to analyse approximately 79% of the volume of the interview data, a percentage that indicates a robust analysis from which to make inferences. To support this, the steadiness of the produced *dendogram*, as is showed in Figure 2, also demonstrates the robustness of this analysis.

Insert Figure 2 here.

On first viewing the outputs produced, the word “decision” became highly noticed, despite having been the most related and frequent word in the text (407 times), did not appear in all individual classes (in terms of chi-square statistic test). This may suggest that different forms of language related to investigation decision processes, training and detectives’ individual accounts, identified by Alceste in the data.

Insert Table 2 here.

The different forms of language identified by Alceste in the data, were categorised into classes according to the distribution of the number of occurrences of the vocabulary used. Alceste identified 4 classes out of detectives’ verbal accounts. A brief presentation of findings is presented bellow.

3.2.1. Class No1 - Unique case

The first class covers 8% of the units of analysis within the corpus of data. It is distinct to the other three classes and forms a concept on its own. Class 1 mainly includes discourses from one participant who talked about an unusual case he dealt with during his career.

‘An armed man entering a shop to rob when another ...man who was playing the fruit machine obviously saw what was happening, and as the man, the offender, was at the, threatening the cashier at the counter, this man very bravely decided to tackle the offender and take him to the floor...’.

The unique aspect of this case was that the man, who was considered brave initially, eventually killed the robber. The detective's dilemma was salient throughout his narration of the case.

'So were they victims, or, were they witnesses, or were they offenders themselves'

The language he chose to use consisted of factual unfiltered details pertaining to the story or empathetic accounts towards the suspect.

'He lived within, I guess, about 100 yards from where the bookmaker's shop was the offender lived within about half a mile from the bookmakers, and all of his family lived within about half a mile'

'...Waiting and waiting and waiting for the police to arrive, and eventually that man {robber} died, and then I subsequently found myself being arrested on suspicion of murder or manslaughter, how would I feel about that?'

This class may demonstrate how the respondent makes sense of an unusual investigation decision-making process in order to build their understanding of a unique case.

'...So that's the scenario my decisions were that it, that there was no criminal activity, so other than the man who committed the armed robbery, the off, the witnesses had acted reasonably they had acted very bravely.'

3.2.2. Class No2 - Reduce the risk

In the second class, the most distinct function words, due to their high chi-square, were: risk (89), situation (64), firearm (62) negotiation (60) wait (52), face (47), reduce (36) and threat (36). The frequency and co-occurrence of these words indicate that this class clustered responses that concern prior evaluation of the risk that a situation may present before following a clear course of action.

‘...But you have to think you are making that decision do we go forward and put ourselves or put the officers in danger. You are trying to balance the risk to him, the risk to the officers, what’s likely to happen, what’s his intent really in terms of threat, what’s his capability in terms of the firearm he’s in possession of, what’s our protection’.

In dynamic situations, according to the respondents, the detective needs to justify any course of action even if that involves waiting.

‘Sometimes it is a tactical option to wait but you have to be clear, if that’s what you are going to do, why you are doing that because you may have to justify that as well.’

This class also captured the role of the context of detectives decision making within a dynamic situation.

‘Other times they are saying, wait, even when there’s a-lot-of pressure to take action’.

Societal or organizational demands could put an additional pressure to a police member.

‘...So there may be all sorts of pressures on people. If you think about, like I say, a firearms incident like that well actually you think about all the resources which are tied up so there’s a-lot-of pressure to release those resources to other jobs’.

3.2.3. Class No3 - Communicate decisions

The third Class covers the majority of the data analysis (64%). The function words are given on Table 2. The frequency of these words, along with the strong associations between them, shows that there is an overlap between the need to consider how others judge decision-making and the quality of those decisions.

‘I often find the big decisions are the ones we put lots of thought in. you think of how it s going to be seen at court, how it s going to be seen in the press’.

Detectives expressed their concern about the criticism and scrutiny that they undergo by media, public, or in the court where they have to defend their case and present the reasoning of their decision making.

'The other issue on the inquiry, the victim who originally came to us, he also made it in the independent police complaints commission do you know?'

'I think that's what people want to know, that they will be able to speak openly without everyone knowing that you have had a particular decision to make and you weren't able to make it'.

Also the same class included additional issues regarding open communication during the decision-making process, one of them being hierarchical concerns.

'...Some of those officers that made those decisions are still serving officers now and they are more senior than I am in rank. So I couldn't say oh by the way, your decision was bad and by the way, you're my boss. So I had to be mindful of the press are going to criticise me...'

The use of the policy, a notebook that includes all the decisions taken during an active investigation, and the reasoning behind them was closely linked to the criticism of a decision. Additionally, there was a need to keep such communication open and transparent.

'So when I write the policy I am saying at this moment for these reasons I think I am right. It may be criticised in the future'.

'But a recording will capture the essence of what is being said and so the written is not as comprehensive and is dependent on my ability to concentrate and what I think, as I say, is important'.

Finally it was noted that externalizing one's thinking during an investigative decision making process to others, was taken in consideration when the actual decision was being made, as one detective expressed.

‘I have got to make decisions on what I am going to do with that information. I am also thinking about what staff I am going to call in the next day, who needs to be told’.

3.2.4. Class No 4 - Roles and Training

Lastly, the fourth cluster that Alceste produced covers the 14% of the analysed units, and bare equal weight with class 2 on detectives’ answers. The category distinctly combines two prototypical contexts that regard current status within the hierarchy of the police and responses about the training in decision-making available to the police.

One detective described his roles before stepping into his current position.

‘...And then I became a detective inspector so then my career moved towards the investigation of volume and serious crime and as I say, latterly I’ve stepped into the detective chief inspector s role...’.

Those who attended a course before described it as a professional development requirement for their career.

‘...They try and make it as real as possible. You each take turns in being senior investigating officer and you make decisions. You have type in your decisions, type in your rationale. So that is the training you get. Then once you finish that you then have to do every year, you have to do a certain number of development, professional development they call it’.

Detectives evidently identify, professional development courses with ones promotion in the police organization.

‘...The only formal training I guess I had was to become a detective. You have to do a detective course as you can probably appreciate. To become a ds I had to my serious crime course and to become a detective inspector I had to do my senior investigating officer course’.

‘When you are promoted to detective inspector they send you on, detective inspector. They send you on a senior investigating officer course’.

However, the same class included an interesting observation regarding a managerial decision that was narrated by a senior investigator who refused to release an officer to attend a similar course, because of the limited staff as he explained later.

‘The course is six weeks, and the course is not specifically related to the role that he is currently doing. So my sergeant, my inspector had that discussion, and he decided, yes, you can go on this course for six weeks’.

Insert Figure 3 here.

From the dendrogram as shown in Figure 2, one can see that two groups are formed. These correspond to two distinctive ways detectives narrated their decision-making processes; one in terms of story building in order to describe uniqueness and novelty of a situation (McMenamin, 1995), and the other in terms of familiarity with the situation. According to the factor analysis produced, as illustrated in Figure 3, there is an evident distinction between class 1 and class 4, and the other two groups. This suggests that the language used to understand a new situation is different to the discourse used in familiar circumstances. Another interpretation could be that the discourses about training and roles in the police are detached from the ones expressed in actual situations. However, a very interesting finding remains the location of the court in the center of the matrix, indicating the ultimate goal of investigation.

4. Discussion

The present study intended to add to the literature related to investigative decision-making during investigations of serious crimes; this was achieved by gaining an in-depth understanding of the investigative decision-making process as it is exercised in real life events. Although findings appear consistent with previous theoretical and empirical studies,

some parts were unanticipated. This is because of data interpretation, along with the application of the naturalistic approach of enquiry. However, this study contributes to a detective perspective of investigative decision-making in the context of a major crime.

In this study, Alceste analysis assisted to understand the content of the interview transcripts and provided insight into investigative decision-making processes. In contrast to the manual analysis with Alceste, such analysis does not require any prior familiarity with the text whilst allowing to cluster the different statements according to the vocabulary produced. Alceste allowed a distinction between the ways that detectives understand their decisions and revealed the nature of the excising training in decision-making. However, both methodologies provided interested answers to the study's questions and strongly supported the NDM approach for studying investigative decision-making.

In a police environment there are many reasons that could interfere agents' decision-making (Stelfox & Pease, 2005). These can be organizational, societal, or individual pressures; time regulated inquiries to move and demands, such as to move as fast as possible from the investigation to the verification mode. Additionally, detectives are constantly challenged with uncertainty, especially in serious crime investigations. Detectives must stay within budget, evaluate and utilise intelligence quickly, meet key as well as performance indicators. The current study revealed that detectives might be concerned when reflecting on decisions made by senior officers, especially when the senior members are on active duty. Their descriptions also indicated a variety of internal factors at play, shaping the decision-making course into an act of balancing various desired goals, such as the safety of officers on site and effectiveness of dealing with criminals. Detectives appear to assess a situation based on their experiences; and seem to hint at the nature of the educational process in decision-making, describing it as good enough imitation of reality but limited to written communication when reflecting on decisions made.

4.1. Strengths and Limitations

Due to the busy schedule of law enforcement agents the number of participants was limited and availability difficult. It is recognized, that the number of interviews present perhaps the most important limitation for this study therefore caution needs also to be exercised in regards to generalizability of the findings. Nevertheless, this research could potentially be thought as a pilot study, that addresses important questions and variables, such as deductive hypothesis testing aimed at confirming those exploratory findings and/or going on with further inductive in-depth analysis to rival hypotheses and undiscovered factors. Moreover, memory is complex mechanism and the literature concerning bad decision-making within an organisation context also observed that there is a consistent tendency towards defensiveness while exposing such issues (Simon, 1986; Begley, 2005). Although the research team made great effort to assist participants to feel comfortable during the interviews and while sharing their experiences, nonetheless, it cannot be known whether and to what degree that effort assisted and whether participants expressed themselves freely without withholding opinions or whether they had forgotten details of the events in discussion.

People tend to explain errors as an indicator of faulty training or dysfunctional organizational demands, flawed design of human- computer interface in order to reduce the possibility of errors and they do not attribute their errors as faulty reasoning strategies, known as conceptualization of errors. Findings from this study support the absence of the conceptualisation of errors in the naturalistic decision-making literature (Liptshiz, Klein, Orasanu, & Salas,, 2001) compared with the behavioural and rational decision theories that could operationally define errors and bad decisions while focusing on decision processes. Thus, detectives' hindsight plays little role in the identification of personal mistakes. Such realisation could suggest the need to revisit the choice of the design used for this study. The use of an automatic textual analysis eliminated biases and worked to increase the

comprehensiveness of the study's findings. Both ATLAS.ti and Alceste were a great help to the research team in minimising the rather time-consuming process of analysing qualitative data; nevertheless, it is not absolute that they can answer the same questions. However, it has to be acknowledged that Alceste, although a useful tool, still it comes with limitations, as crucial information may be lost during the interview (e.g. pauses, rhythm of speech etc.). Moreover, this study and its findings could potentially assist other researchers to conduct their own research and use the same or similar in-depth approach, considering that such qualitative analysis and lengthy interviews can provide abundance of information that is perhaps restricted in quantitative methodologies. Finally, the findings from this pilot study could be used to indicate the necessity that need to be implemented in detectives' training, both the evaluation and the assessment procedures of the decision-making process. Furthermore, , the detectives could also benefit by realizing and comprehending what is their automatic daily practice and how they themselves can improve these with conscious decision-making. These implications could benefit any police force in the world that has a structured decision-making process, which is engraved in detectives' practice through training they receive and through continuous evaluation for improvement purposes of their work.

4.2. Conclusion

From a scientific perspective, this project gives a deeper understanding of the detectives' psychology and the process of investigative decision-making, whilst adding information to literature. Results captured the ill-defined goals in the police environment and provided ways of decreasing their impact on investigative decision-making and should help detectives to understand their decision-making limitations and strengths. Due to the explorative stance of this project, a model of decision-making under organisational and individual constraints can inspire future studies. By providing the theoretical framework that explains decision-making within the police environment, further research can be done using

tools such as questionnaires to assess police decision-making. This study can contribute towards a novel way to study detectives in other parts of the world or within different organisational contexts.

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