Exploring the Decision Making of Police Officers Investigating Cases of Child Abuse within the Family

Laura BOULTON [a]
[a] School of Forensic and Applied Sciences, University of Central Lancashire, Preston, PR1 2HE,

ABSTRACT
Identifying the cognitive processes underlying investigative decision making in cases of child abuse is vital for reducing risk to safeguarding and justice through improved training. Despite this, very little research has been conducted into this specialised field. This study begins to address this gap by intitially exploring the decision making of four British Senior Investigating Offciers (SIOs) during challenging cases of child abuse using Cognitive Task Analysis methods. Whilst a range of cognitive, situational and organisational factors were identified as impacting on the decision making of the investigators, safeguarding was considered to be 'paramount' despite conflict with traditional investigative goals. This study provides some insight into the investigative decision making processes of specialist teams, but should be considered as a pilot study which will inform the design and provide a rationale for the proposal of a larger, more comprehensive study into SIO decision making in cases of child abuse.

KEYWORDS
Decision Making; Policing; Cognitive Task Analysis; Child Abuse Investigation.

INTRODUCTION

Child abuse has become and ever growing social problem. The NSPCC (2015) has estimated that, whilst the extent of child abuse in the UK may never be fully understood due to the hidden nature of such events, more than 57,000 children are currently at risk and in need of protection. This figure shows a significant increase from 2011 where only 50,000 children had been identified (NSPCC, 2015). Furthermore, the NSPCC identified that 47,000 of these cases were corded sexual offences against children (Bently, O'Hagan, Raff & Behatti, 2016).

The police service are one of the key stakeholders when it comes to protecting lives of children (NPIA, 2009), but they are the only agency that can investigate and take effective action against suspected offenders. When the police investigate allegations of child abuse there are specialist teams available to complete the investigations. In more current cases with relevance to child sexual abuse cases, there is the ability for the collection and use of forensics (i.e. ceasing of clothing, DNA examination and, where appropriate, medical examinations carried out by specialist doctors). Statements from victims are a critical part of the investigation and are usually taken by the first responder once the initial call comes in; further from here, video interviews are obtained at later stage of the investigation process. After all the evidence is gathered the decision to prosecute or not is in the hands of Crown Prosecution Service (CPS) who consider whether there is a possible conviction, and whether the prosecution is in the public interest (Citizens Advice, n.d.).

In order to fulfil the needs of investigating child abuse cases, it is essential that all police officers are confident in identifying child abuse and in their response to this identification in order to safeguard and promote the welfare of children, as well as protect their right to justice (NPIA 2009). High profile cases in the news in which the police, and other affiliated services, failed to protect children from abuse at the hands of parents and family members highlight the impact that police investigative failings can have on the victim, the family, the community and the wider general public. High profile cases in which this has occurred include the deaths of Poppi Worthington and Daniel Pelka. In both of these cases, a large number of potential opportunities for safeguarding of these children were missed by the Police, the NHS, social services and the school system. After the childrens' deaths, a further set of opportunities for justice were missed by the same agencies. In the case of Poppi Worthington, a High Court judge concluded that 12 basic Police failings had denied Poppi justice and that this was failure is un-recoverable due to lost opportunities to collect evidence at the time (i.e. missed opportunities to collect vital evidence, failure to secure the family home and delayed family interviews). The need for change within Police processes during child abuse and child death investigations have been strongly stated by the NSPCC who declared, "No child must ever be failed again in this way" (Rayner, 2016).

Naturalistic Decision Making (NDM) research examines how people make decisions in highly demanding and complex real-world situations, including how they can use personal experience to deal with challenging factors such as time pressures and restrictions, uncertainty, goals and objectives, internal organisational pressures and possible team conflicts (Klein, 2008). As a cognitively complex task, which is typically associated with situational challenges such as time pressure, uncertainty and high stakes, police investigation can be considered an NDM working environment.

In a qualitative comparison of British and Norwegian detectives, Fahsing and Ask (2013) identified 14 situational factors that impacted their decision making. These included; time pressure (the need to "wrap up the case"), availability of information and evidence, external pressure and community impacts ("reputation of entire Norwegian police force on your shoulders"), internal pressure (high workload) and organisational issues (Fahsing & Ask, 2013, p. 160). In support of these findings, research has shown that increased time pressure can negatively affect a decision maker's flexibility by reducing ability to generate alternative hypotheses and hypothesis testing strategies (Alison, Doran, Long, Power & Humphreys, 2013). Furthermore, when investigators are under time pressure, they have been found to seek hypothesis-consistent information to confirm initial beliefs regarding a crime, thereby avoiding hypothesis generation (Ask & Granhag, 2005). Whilst uncertainty and framing of information has been found to impact on evidence search strategies and interview question style, resulting in search strategies based on initial assessment of guilt or innocence (Hill, Memon & George, 2008; Rassin, Eerland & Kuijpers, 2010).

Fashing and Ask (2013) also identified 10 individual factors that impacted on investigative decision making. These included; experience ("best friend but also worst enemy"), personal characteristics ("investigative mind-set is vital") and training and education (Fahsing & Ask, 2013, p. 161). Such individual factors can be influenced by cognitive capacity overload which may reduce controlled processing ability and therefore impact decision making reliability (Kleider-Offutt, Clevinger & Bond, 2016), as well as vulnerability to forms of cognitive heuristics and bias (Croskerry, 2013). In their review of child abuse inquiry reports, Munro (1999) found evidence of both the availability heuristic (assessments of risk were based on a narrow range of evidence biased towards the information readily available and more memorable) and confirmation bias (a critical attitude towards evidence was found to correlate with whether or not new information supported existing views) in the risk assessment decisions of child protection professionals. Whilst this research is very dated now, it does suggest that errors in professional reasoning in child protection work are predictable on the basis of decision making and heuristics research (Kahneman & Klein, 2009; Tversky & Kahneman, 1975). If this is the case, errors may be reduced through training, i.e. implementing aids that recognise the central role of intuitive reasoning but offer systematic methods to reduce bias (Munro, 1999) or via high fidelity stress exposure training (Alison et al., 2013). However, currently there is little research examining this area of decision making, therefore in order to be able to recommend ways to improve decision making and avoid bias in these settings, first we must understand the processes involved in this domain through research.

The aim of this pilot study was to begin to identify the key decisional processes involved in the decision making of expert British SIOs during the investigation of child abuse cases in order to serve as guidance for further, more in depth, empirical evaluation. NDM research has promoted the study of expertise to highlight efficient decision-making techniques, which can be promoted and learnt from. The use of Cognitive Task Analysis (CTA) qualitative research methods can be used to generate meaningfully informed hypotheses suited to subsequent empirical testing (Wiltshire, Neville, Lauth, Rinkinen & Ramirez, 2014). For the present purposes, CTA methods are used as exploratory means to derive an integrated theoretical framework, which can then be tested empirically in future studies and contribute to the current evidence-based policing agenda. This approach is hoped to result in more informed policing and directed resources towards not only areas and issues that require it the most, but also in a way that has been found to be efficient.

METHOD

Design

This exploratory study employed CTA methods to qualitatively examine the decision making of British SIO's during the investigation of child abuse. Through consideration of the available CTA knowledge elicitation techniques it was decided that an interview protocol based on the Critical Decision Method (CDM) interview protocol would be most suitable to retrospectively examine the decision making processes of SIOs during a previously experienced investigation of child abuse which they considered to be non-routine. The CDM (Crandall, Klein, & Hoffman, 2006) is structured as an intensive incident based interview protocol which aims to identify the decision making processes involved in the judgments made during a 'challenging' incident that have been personally experienced. CDM has been used in a number of studies to identify the strategies, expertise, and knowledge requirements involved in other critical decision making situations which have led to important insights for designing better decision aids (see Wong & Blandford, 2002).

Sample

A total of four SIOs (all male) voluntarily participated in this study. Whilst this sample size is small, this is in line with many CTA studies which are typically based on a small sample size (<10) due to the large amounts of qualitative data that are generated by these approaches and limited access to experts of specific fields of interest (see Wiltshire et al., 2014). Furthermore, it is emphasised that this study is aimed to serve as a pilot upon which future research can be designed. All of the SIOs in this sample can be considered as experts as they work on a specialist team that deal with child abuse cases on a day-to-day basis, have led cases, have had specialist training and have national accreditation. Demographic data relating to the SIOs were not collected to protect anonymity. Prior to data collection, ethical approval was gained and each participant signed informed consent.

Materials

In order to conduct the analysis, permission was sought to record interviews in audio format using a Dictaphone (Olympus: WS-852). The participants were informed of this procedure before signing consent forms. The interviews were conducted guided by a script. Qualitative data analysis software NVivo 11 (QSR International) was used to assist the qualitative analysis of the current studies.

Procedure

Access was granted from the head of the Force Major Investigations Team at Lancashire Constabulary, but emphasis was placed on the importance of officer anonymity. To protect anonymity, no demographic information was collected and participant numbers were used throughout analysis. Data collection consisted of semi-structured interviews using a CDM based script. Each participant was asked to walk through a 'challenging' and non-routine case of child abuse investigation that they have personally experienced as a SIO. The interviews were conducted in the officers' workplace. Each interview lasted between 45-60 minutes.

Data Analysis

All audio recordings were transcribed and the transcripts were reviewed for accuracy immediately after collection. The data analysis reflected a framework analysis methodology, which allowed for both a 'top-down' (theory-driven) approach and a 'bottom-up' (data-driven) identification of emergent patterns (Wiltshire et al., 2014). Firstly, the data set was read multiple times whilst considering issues which appeared to be relevant to the analysis. The interview transcripts were then inductively coded for repeated ideas, which were reviewed and grouped into themes and subthemes. This process was iterative and was conducted by the named author.

RESULTS

The data collected referred to the investigation of child abuse within a family environment, three of the cases were current cases and one referred to historic offences. All of the cases (n=4) had successful convictions at court, with all suspected offenders pleading guilty and concluding with custodial sentences. When looking at the work styles only one participant worked on the investigation as a single detective rather than as part of a team. In addition to this only one participant attended the investigation as an initial responder. In all cases discussed, the victim of the abuse was female and under the age of 13, whilst the suspect in all cases was male and 18 years or older. In two cases, the suspect was the victim's brother, one suspect was the victim's uncle and in one case the suspect was a non-blood relation at the same group home. In three cases, the abuse included rape; however, the offense type was not disclosed in the one other case. The analysis identified three themes, each with related subthemes. These themes included; (i) cognitive factors, (ii) situational factors, and (iii) organisational factors.

Cognitive Factors

All SIOs discussed cognitive factors which impacted on their decision making. These included; (i) prioritisation (safeguarding vs. investigation), (ii) information gathering, (iii) intuitive first judgments and, (iv) the considered need to remain impartial and adaptive to re-evaluation. The results highlighted the difference between the participants in the factors they feel should lead their investigations, specifically in relation to the decision to prioritise safeguarding or the need for an investigative result. All four participants referred to this. Whilst the investigative result was acknowledged to be a significant factor, this was often discussed in relation to the importance that other officers gave to it, whereas the three participants expressed the paramount need for safeguarding to be the forefront of the investigation at all times;

> P1: "The main priority at the time was safeguarding, (…) the paramount decision at that point is to safeguard those children in case he still posed to any of them (…) A lot of times in the office we have conversations about investigations coming over safeguarding (…) I am very safeguarding minded, whereas many officers want to get the investigation."

> P2: "I would say we have to look at the best interest of the child, whereas sergeants or inspectors will look at the best interests of the investigation (…) I am quite victim centred as some of my colleague are, whereas higher ranking officers aren't as concerned about what's best for the victim but there is more concern about what is best for the case instead."

> P3: "Safeguarding is paramount and nowadays it tends to come before the investigation."

Information gathering to serve as evidence was, understandably, an action described by all participants. This occurred via multiple processes, including; initial response intelligence, conducting ABE (Achieving Best Evidence) interviews and forensic examination. Forensic examination and collection of evidence for forensic testing was highlighted as being extremely important to all participants, except the participant who discussed a historic case;

> P4: "we needed to establish what was going on to progress anything else, sometimes the logs aren't always accurate, sometimes the comms operator misheard things or typing errors (…) From then on it was about getting as much evidence as we could for a trial (…) we would ask for fingernail cuttings, request his clothing, we would do the swabs (…) the key thing was the forensics in this case."
>
> P2: "In order to move forward what we did was the forensics first."

When considering the decision making processes involved, three of the participants expressed that there was an initial intuitive judgement from the case briefing information based on recognition of key cues;

> P3: "because of who she was, as bad as that sounds (…) I'm not saying you would stereotype but I suppose it would have an influence on some of the actions and how you would go about dealing with that person and the case in its early stages."
>
> P4: "Sometimes you can judge it and see if it's going to be much of a job or not and that's more from experiences of what you had dealt with an the things that have been said."

However, it was also made clear by the same thee participants that the need to remain impartial and to re-evaluate judgments as the case continuously develops was at the forefront of their investigation. Here, the SIOs demonstrate knowledge of the need to be able to adapt cognitive processes and revisit and/or reject initial intuitive judgements in light of new information;

> P1: "it was a consideration that it could have been a revenge report, it couldn't be investigated in that manner it has to be investigated impartially."
>
> P3: "it never always goes to plan. There are certain things that change."
>
> P4: "It could be helpful, it could be unhelpful, so we have to remain impartial (…) you've just got to take it step by step. Sometimes bits of information come in and send you off on completely different leads than you ever thought there would be, and you literally have the whole investigation changed before you. It's completely continuous you literally just don't know."

Situational Factors

All participants expressed their concerns with regards to NDM related situational factors that led or affected their ability to make decisions. These situational factors included; time pressure, conflicting options, 'luck', impact, as well as welfare and safeguarding considerations. Time pressure was reported by all four participants as being influential in their decision making. This manifested in the form of custody and bail timings, as well forensic examination and evidence collection time constraints. Furthermore, it was highlighted that when dealing with victims who are very young, time pressure also arises in terms of deciding when ABE interviews should be conducted considering the amount of time these, in addition of forensic examinations can take and how tired young children can get, especially after experiencing trauma;

> P1: "we can't have people on bail for long anymore, and that decision has been taken out of our hands
>
> by the government (…) we have to get authority from out superintendent to extend to extend that bail, if they don't agree they are released no charge (…) so there are definitely time pressures in terms of bail."
>
> P2: "we did have to consider the time restraints because she is only five and should we really be interviewing a child after a certain time? (…) forensically there was time pressures definitely (…) then we have the added pressure of custody time restrains."
>
> P4: "it's a really long process and that's why he was kept in custody because we couldn't charge him without her interview and full detailed account."

Long-term time pressure was also recounted. Two participants discussed feeling external pressure to conclude cases of child abuse to achieve justice as quickly as possible and highlighted how this conflicts with the need to conduct a thorough investigation, especially with the amount of intelligence which is generated online, i.e. social media;

> P1: "I think we are always under pressure to make decisions, especially in child abuse cases as the courts, family and the police want these sort of cases dealing with as quickly as possible. The reality of it is, that these cases are the ones that take the most length of time. So there is never a quick outcome to these cases, they could quite easily take two years to investigate."
>
> P3: "from time the investigation starts to the time he was convicted and sentenced it was probably eighteen months so as much as you do feel the pressure, it just takes time".

Uncertainty and conflicting options were highlighted by three of the participants as an additional and influencing pressure. However, interestingly, three officers also referred explicitly to luck playing a crucial part in the decisions made and outcomes of the investigation;

> P1: "we had to make a decision about how do we deal with her, treat her as a witness or a suspect? That was a really important decision, how we were best to do it (…) I mean luckily in this case this suspect pleaded guilty at the earliest opportunity (…) if I'm honest with you that is the key decision in the case that actually swayed him to plead guilty".
>
> P3: "luckily in this case because the social worker, or should I say two were already involved they played the role in ensuring that she was safeguarded".
>
> P4: "I was quite lucky because I was there right from the beginning".

Furthermore, consequential impact of any decision made was reported to be thoroughly considered. This impact manifested in terms of cost (i.e. of running certain forensics tests) and in terms of community impact and potential threat, either from community members towards a suspect if they are released on bail, or towards a community/children in that community from a suspect;

> P4: "should we send the condom off to see if her DNA was on the outside. But logically, its cost implicated and we believed he would plead guilty."
>
> P2: "But then we also have to look at the fact that offender lived round the corner from the alleged victim and we also had a lot of community issues as well (…) We had already been told by family members that if he went back to that area there would be consequences, so we had to look at the community impact if we allowed him back into that area with those bail conditions (…) No it's relatively quick, it's very costly but it's quick."

Overwhelmingly, welfare and safeguarding considerations were reported to be the biggest influential factor on decision making during the cases recalled. All four SIOs discussed this and in addition to safeguarding being referred to many times within the transcripts, it was emphasised strongly within the content of the description as being 'paramount' to the investigation;

> P1: "the main priority at that time was the actual safeguarding of any children in the case. For example our victim was alleging that she has been sexually abuse by her brother, I found out that her brother currently has his own children that are also female. So paramount decision at that point was to safeguard those children in case he still posed a risk."
>
> P2: "the uncle [suspect] also had children of his own who were a similar age to our victim which again is imperative in the case because we have got to look at safeguarding, which is paramount".
>
> P3: "safeguarding is paramount and nowadays it tends to come before the investigation".

Organisational Factors

Organisational factors that influenced SIO decision making broadly involved multi-agency conflict and factors that related to team decision making. Conflicting aims and differing needs with social service and the CPS in particular, was reported by three participants to have put additional pressure (both time and workload) on the officer and the investigation or created additional considerations to be made:

> P1: "There are pressures from CPS. When we put in advice files, or take a case to them, it is very often they will give us a further action plan and are given a time limit to do that. We then have to balance that action plan alongside our other cases."
>
> P2: "He was going to be bailed, so we had to fight with CPS, which was another issue"
>
> P3: "nowadays within what we do in the CSE [child sexual exploitation] office, they [social services] are a massive stakeholder and partner for us, I'd probably say we are in contact with them on a daily basis, more than other department in the police, we work with them very closely. Even now though it can be difficult and that communication isn't as fluid as it should be, sometimes might happen and it be three of four weeks before we get that information through".

Instances and descriptions of team conflict, processes of team decision-making and verbal development of shared mental models were discussed by three participants. The cases being discussed were all described as involving no team conflict, however this was caveated with descriptions how team conflict is typical in other cases. For the

most part, this conflict was described positively as a way to generate and discuss ideas, reflect on options and develop shared mental models in order to facilitate team decision making;

> P1: "there wasn't any conflict in terms of decisions. We were all singing from the same hymn sheet. There is often in this sort of investigation a difference of opinions from supervisors and officers in the case, but a lot of the time we sit and trash the ideas out and come up with a plan we are all comfortable with."
>
> P2: "people do have differences of opinion and sometimes we are railroaded down a certain path which sometimes we don't think is the right one."
>
> P3: "I thrive off discussions and I personally would always value someone else's opinion on a job, two heads are better than one. Discussion is important so I would always much rather prefer that prior to making a decision."

DISCUSSION

The aim of the study was to explore the decision making process within an investigative setting in cases of child abuse within the family environment. The results support past research that emphasise the impact of complex situational demands such as time restraints, uncertainty and organisational pressures on the decision making that occurs in investigative settings (Fahsing & Ask, 2013).

Whilst early information framing was found to impact of SIOs initial intuitive hypotheses in relation to case legitimacy (Hill et al., 2008; Munro, 1999; Rassin et al., 2010), the officers in this sample were able to remain 'impartial' via their recognition of the continuous and changing nature of such cases. In this sense, the sample were able to retain cognitive flexibility (Diamond, 2013; Ward, Ericsson & Williams, 2012) to adapt existing hypotheses and generate new ones in response to new information. This reflect adaptive expertise (Klein & Jarosz, 2011; Kozlowski, 1998; Morrison, Wiggins, Bond & Tyler, 2013) and has been found in other policing context such as the expert decision making of Specialised Firearms Officers (Boulton & Cole, 2016).

A key finding expressed as being important to the decision making of all participants in this sample is the approach taken to child sex abuse cases in the modern day; decision-making should always be made whilst keeping safeguarding at the forefront of the mind. The participants explained that in cases with children, there needs to be additional care taken due to the age, intellectual ability and anxiety levels that can be found in children that are faced with the prospects of a criminal investigation after making a complaint. However, it was also acknowledge that the decision to prioritise safeguarding can often conflict with the investigative goals of higher-ranking officers and time pressure in both the short and long term. Whilst the need of the investigation to ensure justice for the victims was understood by the sample, the participants reflected that due to the face to face work that they do with those involved in child sex abuse cases, their mind-set had changed to prioritise the people involved rather than the investigative outcome. They believed that this does, and should, lead their decision making process.

Limitations

It should be noted that analysis is based on only four participants, all recruited from a department within the same British Police force. Although it is acknowledged that generalisability is a shortcoming, SIOs investigating child abuse are a very specific group of decision makers and as such, generalisation to a larger population is not a major consideration (McAndrew & Gore, 2013). However, it is possible that these results represent force-specific SIO decision-making themes and a larger sample generated across UK wide forces could help decipher the generalisation of these findings more accurately. Future research may seek to clarify these issues through replication with officers across different forces to examine these themes more thoroughly.

CONCLUSION

The results show that the paramount factors in investigative decision making in these cases of child abuse is the broader duty of safeguarding the children involved. However, time restrictions and organisational pressures to generate an investigative result can affect this. This study provides some insight into the decision making process on specialist teams to deal with such crimes, but should be considered as a pilot study which will inform the design and provide a rationale for the proposal of a larger, more comprehensive study into the decision making of SIO's in cases of child abuse and child death investigation.

ACKNOWLEDGMENTS

We thank Lancashire Constabulary for supporting this project and organising access to participants.We also thank Olivia Bloomfield for collecting and transcribing the data presented in this paper.

REFERENCES

Alison, L. Doran, B. Long, M. Power, N. & Humphrey, A. (2013). The effects of subjective time pressure and individual difference on hypotheses generation and action prioritization in police investigation. *Journal of Experimental Psychology: Applied. 19*(1), 83-93.

Ask, K. & Granhag, P. A. (2005). Motivational Sources of Confirmation Bias in Criminal Investigation. *Journal of Investigative Psychology and Offender Profiling*, *2*(1), 43-63.

Boulton, L., & Cole, J. (2016). Adaptive Flexibility Examining the Role of Expertise in the Decision Making of Authorized Firearms Officers During Armed Confrontation. *Journal of Cognitive Engineering and Decision Making, 10*(3), 291-308.

Bentley, H. O'Hagan, O. Raff, A. & Bhatti, I. (2016). *NSPCC: How safe are our children: The most comprehensive overview of child protection in the UK.* Retrieved from https://www.nspcc.org.uk/globalassets/documents/research-reports/how-safe-children-2016-report.pdf

Citizens Advice (n.d). Child abuse – How the police investigate allegations. Retrieved from https://www.citizensadvice.org.uk/relationships/children-and-young-people/child-abuse/police-involvement/child-abuse-how-the-police-investigate-allegations/

Crandall, B., Klein, G. A., & Hoffman, R. R. (2006). *Working minds: A practitioner's guide to cognitive task analysis*. Cambridge: MIT Press.

Croskerry, P. (2013). From mindless to mindful practice – Cognitive bias and clinical decision making. *English Medical Journal*, 2445-2448.

Diamond, A. (2013). Executive functions. *Annual review of psychology*, *64*, 135-168.

Fahsing, I. & Ask, K. (2013). Decision making and decisional tipping points in homicide investigations: An interview study of British and Norwegian detectives. *Journal of Investigative Psychology and Offender Profiling, 10*(2), 155-165.

Hill, C. Memon, A. & McGeorge, P. (2008). Role of confirmation bias in suspect interviews. *Legal and Criminological Psychology*, *13*(2), 357-371.

Kahneman, D., & Klein, G. (2009). Conditions for intuitive expertise: a failure to disagree. *American psychologist*, *64*(6), 515.

Kleider-Offutt, H. M., Clevinger, A. M., & Bond, A. D. (2016). Working Memory and Cognitive Load in the Legal System: Influences on Police Shooting Decisions, Interrogation and Jury Decisions. *Journal of Applied Research in Memory and Cognition*, *5*(4), 426-433.

Klein, G. (2008) Naturalistic Decision Making. *Human Factors: The Journal of Human Factors and Ergonomics. 50*(3), 456-460.

Klein, G., & Jarosz, A. (2011). A naturalistic study of insight. *Journal of Cognitive Engineering and Decision Making*, *5*(4), 335-351.

Kozlowski, S. W. J. (1998). Training and developing adaptive teams: Theory, principles, and research. In J. A. Cannon-Bowers & E. Salas (Eds.), *Decision making under stress: Implications for training and simulation* (pp. 115-153). Washington: APA Books.

McAndrew, C., & Gore, J. (2013). Understanding Preferences in Experience-Based Choice A Study of Cognition in the "Wild". *Journal of Cognitive Engineering and Decision Making*, *7*(2), 179-197.

Morrison, B. W., Wiggins, M. W., Bond, N. W., & Tyler, M. D. (2013). Measuring relative cue strength as a means of validating an inventory of expert offender profiling cues. *Journal of Cognitive Engineering and Decision Making*, *7*(2), 211-226.

Munro, E. (1999). Common errors of reasoning in child protection work. *Child abuse & neglect*, *23*(8), 745-758.

NPIA. (2009). *Guidance on investigating child abuse and safeguarding children* (2nd Ed). Retreived from https://www.ceop.police.uk/Documents/ACPOGuidance2009.pdf

NSPCC. (2015). Child protection register statistics UK: 2011-2015. Retrieved from https://www.nspcc.org.uk/globalassets/documents/statistics-and-information/child-protection-register-statistics-united-kingdom.pdf

Rassin, E. Eerland, A. & Kuijpers, I. (2010). Lets find the evidence: an analogue study of confirmation bias in criminal investigation. *Journal of Investigative Psychology and Offender Profiling, 7*(3), 231-246.

Rayner, G. (2016). *Poppi Worthington: Call for public inquiry into sudden death of 13-month-old shortly after she was sexually assaulted by her father*. Retrieved from; http://www.telegraph.co.uk/news/uknews/crime/child-protection/12107318/Poppi-Worthington-Toddler-was-sexually-assaulted-by-father-before-sudden-death-judge-rules.html

Tversky, A., & Kahneman, D. (1975). Judgment under uncertainty: Heuristics and biases. In *Utility, probability, and human decision making* (pp. 141-162). Springer: Netherlands.

Ward, P., Ericsson, K. A., & Williams, A. M. (2013). Complex perceptual-cognitive expertise in a simulated task environment. *Journal of Cognitive Engineering and Decision Making*, *7*(3), 231-254.

Wiltshire, T. J., Neville, K. J., Lauth, M. R., Rinkinen, C., & Ramirez, L. F. (2014). Applications of cognitive transformation theory examining the role of sensemaking in the instruction of air traffic control students. *Journal of Cognitive Engineering and Decision Making, 8*(3), 219-247.

Wong, B. W., & Blandford, A. E. (2002). *Analysing ambulance dispatcher decision making: Trialing emergent themes analysis.* Paper presented at the Human Factors 2002, the Joint Conference of the Computer Human Interaction Special Interest Group and The Ergonomics Society of Australia, HF2002, Melbourne.