



## Pragmatic solutions to offender profiling and behavioural investigative advice

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This paper outlines a brief history of the evolutionary trajectory of offender profiling and illustrates the three broad strands (*investigative, clinical, and statistical*) that emerged in the 1970s–1990s. We then indicate how a more pragmatic, interdisciplinary practitioner–academic model has emerged in recent years and go on to describe the range of contributions that are now made across the criminal justice field. More recently termed ‘behavioural investigative advice’ in the UK, the paper then argues that whilst a range of potential contributions exist (from linking crimes, risk assessment, provision of bad character evidence, investigative interviewing advice, to geoprofiling), the nature of the process by which that contribution occurs is not yet well understood. The review of these potential contributions concludes with several suggestions and recommendations for further research and relevant methodologies by which to conduct that research. This includes the requirement to combine conceptual and theory-driven models alongside empirically driven statistical approaches, as well as the requirement to more precisely delineate and describe how contributions are made by behavioural experts through cognitive task analyses and associated methods.

Several countries’ police services regularly employ the assistance of psychologists in relation to the prevention, management, and investigation of crime (Alison, 2005). Although some of what they are engaged in might be described as offender profiling, the support from psychologists over the last 10 years, in the UK at least, might be more accurately described as *behavioural investigative advice* (BIA; ACPO, 2006). The older term *offender profiling* has developed an almost mythic status in popular literature and drama (Herndon, 2007), although, as this paper will demonstrate, in its best understood but narrow definition, it has failed to make much operational impact.

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Moreover, several studies have shown that the idea of psychologists being able to generate a coherent set of offender characteristics by inferring latent patterns or 'styles' of offending from crime scene information has proven empirically and theoretically problematic (see Snook, Cullen, Bennell, Taylor, & Gendreau, 2008), although they themselves recognize some recent and notable exceptions (e.g. Goodwill & Alison, 2007; Goodwill, Alison, & Beech, 2009; Mokros, 2007; Santtila, Pakkanen *et al.*, 2008) as the field has developed. In the last 10 years, however, a broader definition of offender profiling, or *BIA*, has emerged which recognizes the range of fruitful, reliable, tested, and transparent evidence-based methods by which psychologists might provide advice to the police during investigations (Alison, McLean, & Almond, 2007).

The relatively new term *BIA* (ACPO, 2006) is broad in its scope, inter-disciplinary in nature, and benefits from a *tacit knowledge* (Sternberg & Horvath, 1999) of the policies, procedures, and protocols of the police service with which it engages. The type of expertise that behavioural investigative advisors build-up 'on the job' by working closely with investigators can be referred to as *tacit knowledge*, knowledge 'so thoroughly grounded in experience that it cannot be expressed in its fullness . . . knowledge that is built-up in activity and the effort around it' (Sternberg & Horvath, 1999, p. ix). We argue that this is potentially why researchers and practitioners alike have faced many challenges in their attempts to firmly ground this new approach in empirical evidence and good practice principles. Establishing 'what works' is an applied endeavour requiring pragmatic approaches and solid partnerships between academics and their police counterparts.

This paper will outline the studies that have criticized the narrower offender profiling term, describe the ethos of the *BIA* approach, and recommend methods for researching it, as well as critically examining this new approach. As such, the purpose of this article is to put some distance between the old and new terms, illustrate the lack of empirical support for narrow definitions of profiling, and offer a more optimistic albeit tempered view of what may be possible within the remit of *BIA*.

## The past

A recent thorough literature review covering the last three decades revealed that the majority of articles on offender profiling comprised discussion pieces lacking any clear theoretical framework for the process of offender profiling, with very few articles utilizing empirical multivariate research techniques (Dowden, Bennell, & Bloomfield, 2007). A meta-analysis by Snook, Eastwood, Gendreau, Goggin, and Cullen (2007) pointed to the plethora of 'common sense' (as opposed to scientifically evidenced) rationales in 130 articles on offender profiling. Consequently, the apparent lack of validity in offender profiling has warranted a healthy scepticism among law enforcement personnel (Copson, 1995; Snook, Haines, Taylor, & Bennell, 2007) and even outright apprehension among forensic mental health professionals (Torres, Boccaccini, & Miller, 2006).

### **Traditional approaches to offender profiling**

The different approaches to traditional offender profiling can be broadly categorized into three types: a *criminal investigative* approach, a *clinical practitioner* approach, and a *scientific statistical* approach (Muller, 2000). Each approach reflects a different

type of knowledge domain (usually coinciding with the background of the respective proponents) on the basis of which hypotheses are drawn in order to understand offenders' behaviour (Goodwill *et al.*, 2009). These respective knowledge domains are based on specific investigative experience (mostly in cases of sexual and violent offending), hands-on expertise from working with criminals in a clinical context, and applied scientific knowledge from broader domains, respectively. Although the approaches differ, all the three domains, at various points in their evolutionary history, have argued that it is possible to identify reliable clusters of crime scene behaviours, and, from these, infer various latent descriptors of those taxonomic classifications and, finally, work backwards to provide coherent lists or a pen portrait of the most likely type of offender. These approaches have been described elsewhere in great detail (e.g. Hicks & Sales, 2006) and will therefore only briefly be illustrated here.

### ***The criminal investigative approach***

This approach, developed by Federal Bureau of Investigation (FBI) agents in the 1970s, presents the first systematic attempt to utilize all available information on a violent offence in combination with considerable investigative knowledge to make inferences about the type of unknown offender (Douglas, Ressler, Burgess, & Hartman, 1986). Douglas *et al.* state that the technique of profiling is acquired 'through brainstorming, intuition, and educated guesswork. [Profilers'] expertise is the result of years of accumulated wisdom, extensive experience in the field, and familiarity with a large number of cases' (1986, p. 405). According to this view, it can be argued that offender profiling relies heavily on a mix of tacit and evidence-based expert knowledge. Arguably, this may make a profiler's advice more susceptible to cognitive biases and faulty decision making (Kahneman, Slovic, & Tversky, 1982). However, this charge that heuristics and biases are inherently faulty mechanisms cannot be claimed, by any means, to represent the definitive view, and – albeit beyond the scope of this paper – there is extensive work relating to the positive, adaptive aspects of heuristics (Gigerenzer, 2000). Certainly, in this applied area of offender profiling, the contribution of practitioner expertise to the evolutionary story of 'what works' should not be rejected. Reporting in favour only of academic findings would itself be a biased as well as crude conclusion. Nevertheless, subjecting practitioner findings to empirical validation was identified as being necessary.

Efforts to formalize this tacit knowledge used by profilers in the form of various typologies (e.g. organized/disorganized) have received criticism (Canter & Alison, 1999; Egger, 1999), mostly concerning the lack of scientific methodological rigor, sound theoretical underpinning, and falsification of these typologies (Muller, 2000; Wilson, Lincoln, & Kocsis, 1997). The oversimplification of complex situational behaviours into dichotomous categories, a typical strategy used within this approach, has also been empirically refuted (e.g. Canter, Alison, Alison, & Wentink, 2004). However, in recent years the FBI and several of their retired profilers have adopted a more scientific approach to behavioural investigative research, publishing empirical papers in several peer-reviewed journals (Hazelwood & Warren, 1999, 2003; Safarik & Jarvis, 2005; Safarik, Jarvis, & Nussbaum, 2000, 2002). These articles provide evidence of a new, more integrative approach between FBI profilers, clinicians, law enforcement, and academics to produce innovative and theoretically sound contributions more in line with the concept of BIA outlined herein (Burgess, Commons, Safarik, Looper, & Ross, 2007; Myers, Husted, Safarik, & O'Toole, 2006).

### **The clinical practitioner approach**

In the same manner, individuals using the clinical practitioner approach rely on their practical experience, knowledge, and to varying degrees intuition to draw inferences from crime scene information. Clinical profiling approaches appeared to be primarily based on the expertise and knowledge of the individual profiler (Copson, Babcock, Boon, & Britton, 1997). However, as is the case with the criminal investigative approach, it is difficult to judge when and how a clinician's tacit knowledge gets translated into formalized, explicit, and falsifiable knowledge, as well as how this knowledge subsequently leads to the generation of useful offender profiles (but see '*How do BIAs do what they do?*' below).

### **The statistical approach**

The statistical approach is primarily based on the multivariate analysis of behavioural and other information found at the crime scene to infer an offender's characteristics and psychological processes. The pioneering work of Canter (1995, 2000) and his colleagues aimed to employ an explicit, psychological (i.e. scientific) framework to provide offender characteristics that are *directly* useful (i.e. avoiding non-falsifiable and non-pragmatic motivational and/or psychodynamic explanations) to police investigations. This approach has stimulated an increasing amount of academically peer-reviewed research into many aspects of offender profiling, including, amongst others, burglary (e.g. Bennell & Canter, 2002; Goodwill & Alison, 2006), robbery (e.g. Woodhams & Toye, 2007), homicide (e.g. Salfati, 2003; Salfati & Dupont, 2006), arson (e.g. Canter & Fritzon, 1998; Häkkänen, Puolakka, & Santtila, 2004), and sexual offending (e.g. Almond & Canter, 2007; Canter, Bennell, Alison, & Reddy, 2003; Greenall & West, 2007; Häkkänen, Lindlöf, & Santtila, 2004). The most significant critique of this approach is whether nomothetical and often inductively gathered research findings can be applied to specific idiographic cases; this is especially true when the base-rate of a behaviour is disregarded, and when studies are based on small or even unrepresentative samples.

Moving nearer to the contemporary picture, it is evident that practitioners have moved on to an eclectic, often multidisciplinary approach (i.e. BIA) that combines the apparent advantages of all three perspectives (e.g. Alison, West, & Goodwill, 2004; Rainbow, 2008). This has rendered debates over inductive versus deductive inferences somewhat redundant (Turvey, 2008) and moved the focus towards the bidirectional partnerships between academics and practitioner counterparts. Thus, in defining what works, it is more appropriate to ask to what degree behavioural investigative advisers rely on available and adequate empirical research. Another remaining challenge is to identify the contribution of tacit knowledge as a form of implicit expertise to the behavioural investigative process, and its impact on providing investigative advice professionally. Differences also exist between countries in the preferred amount of contribution from each (knowledge) domain (e.g. Germany: Federation-State Police Forces Project Group, 2003; UK: Rainbow, 2008). This translates into who is eligible to provide BIA or, in fact, be employed as a behavioural investigative adviser.

In research driven by pragmatic principles (see Fishman, 1999), several studies (see Alison, 2005, for a review) have focused on the psychological mechanisms (including attention, encoding, and problem solving) that influence the ways in which the content of profiles is understood (and misunderstood), as well as the evidence upon which any given profiling claim appears to be based. For example, Alison, Smith,

Eastman, and Rainbow (2003) found that 80% of the approximately 4,000 claims made in the profiles they sampled were unsupported. The claims lacked appropriate *grounding* in psychological knowledge, contained no *warrants* (specific examples of supportive research), were provided with no estimation of their *veracity* (i.e. probability) and less than a third were *falsifiable* (Toulmin, 1958).

However, a contemporary UK study conducted by Almond, Alison, and Porter (2007) of behavioural investigative reports produced by the National Policing Improvement Agency (NPIA) found that these reports had clearer boundaries around the claims made within them, and presented material in a more coherent and evidence-based format than previous expert advice. This new approach is thus characterized by adherence to the abovementioned principles (Toulmin, 1958) and allows for individual differences in expertise, while providing a framework within which minimum expectations and requirements are set (Rainbow, 2008). Additionally, the NPIA has set out a new requirement for all reports to make the supportive rationale behind their advice explicit, a change that 'represents the most significant advancement in the professionalization of BIA within the UK' (Rainbow, 2008, p. 91). Although not explicitly aimed at establishing the utility of such profiles, such studies reveal the extent to which empirical findings have been incorporated into daily working practices.

### **Behavioural investigative advisers: How can they contribute?**

In recent years, several countries in particular the UK, Canada, Germany, The Netherlands, and more recently, Singapore have opted for a more integrated multidisciplinary approach to the erstwhile concept of offender profiling. Over the last couple of decades, there has been an increasing realization, particularly in the UK, that *behavioural analytic approaches* are not only paramount to the clinical understanding of offences (e.g. West, 2000) but also aid investigative efforts. Depending on their respective background and tacit knowledge of an area, BIAs may contribute to the investigative process by aiding: (1) suspect prioritization, (2) linking crimes and crime scenes, (3) geographical profiling,<sup>1</sup> (4) the interviewing process, and (5) risk assessment of offenders in clinical settings. Before these various contributions are discussed, it is necessary to review the evidence with regard to the initial underlying assumptions for historical offender profiling, and consequently the new assumptions underlying the provision of BIA.

### **Consistency and homology in offence behaviour**

Alison, Bennell, Mokros, and Ormerod (2002) outlined two theoretical tenets of offender profiling relating to 'the necessary (*consistency*) and sufficient (*homology*) conditions for offender profiling to be valid and useful' (p. 122). The *consistency assumption* held that the variations in actions (i.e. behaviours) of an offender across their series must be less than the variation in actions by all other offenders. The second assumption holds that people who commit crimes in a similar style will have similar background characteristics - called the *homology assumption*.

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<sup>1</sup> Geographical profiling is a substantial area of study and application in BIA, but it is beyond the scope of the current paper and will not be included as a major topic of discussion. A geoprofiling study is used below for illustrative purposes to address this gap, but see Rossmo (2000) for a review of geoprofiling techniques and related issues.

Research has shown that offenders can behave relatively consistently in a number of ways, from their choice of crime type (Farrington & Lambert, 1997), and their behaviour across crimes in burglary (Goodwill & Alison, 2006), arson (Santtila, Fritzon, & Tamelander, 2004), robbery (Woodhams & Toye, 2007), and sexual assault (Grubin, Kelly, & Brunson, 2000; Santtila, Junkkila, & Sandnabba, 2005). Thus, there does seem to be some degree of supporting evidence that offenders commit crimes in a consistent manner which, in turn, offers potential utility in respect of 'what works'.

However, the second and perhaps most notable aspect of behavioural consistency is the fact that an individual's behavioural variation must be less than others' to be *investigatively* useful. This aspect has been called *differentiation* (Bennell & Canter, 2002) or distinctiveness (Woodhams & Toye, 2007) and is an implicit necessity in proving consistency for investigative purposes. This has been explored in relation to some types of offence. Studies on burglary and robbery have shown that it is possible to discriminate between particular characteristics and consequently predict accurately whether several offences are (un)linked (Bennell & Jones, 2005; Goodwill & Alison, 2006; Woodhams & Toye, 2007).

In terms of offender homology, the findings are less encouraging, at least at the many actions-many characteristics level. Empirical tests of the homology assumption have been largely unsupported for various types of offences (Doan & Snook, 2008; Mokros & Alison, 2002; Woodhams & Toye, 2007). Rapists tend to be especially versatile, antisocial offenders (Harris, Smallbone, Dennison, & Knight, 2009); this finding challenges a simplistic homology assumption (at least in this context). Thus, Alison *et al.* (2002) suggest that a direct link between offender characteristics and offence behaviour (i.e. homology) is unlikely to prove fruitful without acknowledging the influence of the situation.

By now, a substantial amount of findings from different domains demonstrate the variability in offending behaviour under the influence of situational and contextual factors, especially for sexual offences. Rich, qualitative studies by Polaschek, Hudson, Ward, and Siegert (2001) and Ward, Hudson, and Keenan (1998) showed that a sexual offence is a highly dynamic event with regard to cognitive, behavioural, affective, and volitional aspects of the offender. Also, Ullman's (2007) review highlighted that the type of victim resistance strategy has a significant impact on the offender's behaviour and consequently on the outcome of the offence. Beauregard and colleagues (Beauregard, Proulx, Rossmo, Leclerc, & Allaire, 2007; Beauregard, Rossmo, & Proulx, 2007) have demonstrated that several aspects of serial sex offenders' modus operandi are influenced by various contextual factors (e.g. type of offence site, familiarity with the environment, etc.). They also described how a rational choice perspective can serve as an explanation for the way in which situational structure influences the offenders' decision-making process. Although an innovative study by Woodhams, Hollin, and Bull (2008) found no evidence for the temporal stability of thematic 'if . . . then' offender-victim interactions in rape, Goodwill and Alison (2007) confirmed that the incorporation of the context and carefully chosen variables enables the prediction of rapists' characteristics from crime scene information. Novel sequence analysis techniques (Taylor *et al.*, 2008) offer the possibility of a more realistic way of modelling offender behaviour which in turn could be used to test the homology assumption. Future research should also examine the role of psychological moderators, as Mokros (2007) recently showed that sexual offenders' psychological characteristics (e.g. extraversion, narcissism, etc.) can be predicted from scaled crime scene

behaviours. This might hold the (as yet untested) promise that distinct psychological characteristics could also be linked to different socio-demographic characteristics of the offender.

### **Suspect prioritization**

BIAs may aid the investigation by reducing the time spent on wholly irrelevant suspicions and providing an evidence-based approach for developing lines of inquiry and making investigative decisions. Marshall and Alison's (2007) study illustrated the mixed operational potential of investigative advice. By providing a similar picture to the preconceived idea an officer carries, the advice may be reinforcing and ultimately, promote confirmation bias. However, the study also showed that officers were forced to rethink and think more thoroughly about their assumptions where the profile did not match. Caution should, therefore, be exercised around likely responses from recipients of advice. Nonetheless, the key issue appears to relate to the adviser's ability to provide an evidential basis for any given claim and draw upon, where possible, the relevant databases and theoretical models.

In order to successfully prioritize possible suspects, it is necessary to predict offender characteristics that are of actual value to police investigations such as prior criminal antecedents or offender age; in other words, information that is readily accessible to the investigator. There is a fundamental dispute whether to limit the predictions to the direct associations between (an) offence behaviour(s) and (an) offender characteristic(s) (e.g. Davies, Wittebrood, & Jackson, 1997) or to try to collate crime scene actions into themes or scales of offence behaviour to predict offender characteristics (e.g. for arson, Häkkänen *et al.*, 2004; burglary, Santtila, Ritvanen, & Mokros, 2003; rape, Santtila *et al.*, 2005). However, Goodwill *et al.* (2009) made empirical comparisons between direct association techniques (e.g. multivariate regression), thematic and typological approaches, finding the more powerful multivariate direct association statistical technique significantly more predictive of offender characteristics. Yet, thematic and typological approaches which were based on a multidisciplinary approach (e.g. law enforcement, clinical, and statistical domains) were found to perform better than those that relied purely on a statistical basis. Therefore, it is still not clear whether analyses of behavioural information should constitute precise independent or multivariate predictions or comprise approaches that incorporate themes, or 'fuzzy' boundaries.

The adoption of filter-style models is another emerging approach that has direct investigative use and has had some empirically validated success (Goodwill & Alison, 2006). The particular advantage of this approach is its straightforward application for law enforcement agencies; investigators can make objective decisions at each step of the hierarchical decision-tree based model while also utilizing their experiential knowledge in those decisions. The result is a decision-making framework that is somewhat malleable to investigator experience while also providing objective and transparent investigative decision support in the form of an empirically based model.

So far, filter models for serial burglary and armed robbery have been proposed (Goodwill, & Alison, 2006; Snook, Wright, House, & Alison, 2006, respectively) taking advantage of the combined information of spatial and behavioural offence characteristics in order to prioritize lists of possible suspects. These studies have illustrated that geographical information (e.g. how close an offender lives to a crime site) outperforms behavioural information (e.g. used a weapon) in accurately prioritizing

potential suspects and should be employed as the first stage in filtering suspects. Models, especially those of a pragmatically useful nature (e.g. filter-style models), that have been developed based on well researched facts (e.g. regardless of the committed offence type, offenders tend to operate in close proximity to their home, (Santtila, Laukanen, Zappalà, & Bosco, 2008)) are clearly the way forward for developing 'what works' in suspect prioritization techniques.

One drawback to such models is that the analyses underlying the empirically based decision-tree or filter models seldom account for situational variability – this is left to investigators to consider. Although this may lead to potentially greater investigative success on occasion, it is a less transparent and bias free approach resulting in a less scientifically defensible outcome. A more parsimonious approach has been recently proposed that also integrates situational interactions in a decision-tree style approach. Goodwill and Alison (2007) successfully predicted offender age on the basis of the victim's age when the moderating effects of the degrees of planning and aggression were taken into account.

Yet another emerging area of research, which may potentially bridge the gaps between prediction of offender characteristics, situational aspects of the offence, and the analyses of offence behaviour, is the utilization of probabilistic research methods. Aitken, Connolly, Gammerman, Zhang, and Oldfield (1995) and more recently, Baumgartner, Ferrari, and Palermo (2008) have employed Bayesian network modelling to aid in the suspect prioritization process with (albeit as yet limited) positive results.

Nevertheless, the fact that most offenders have criminal antecedents of some kind, the future challenge lies in efficient exploitation of the nowadays vast amount of electronically stored information on previously identified offenders (Cullen, Snook, Rideout, Eastwood, & House, 2006). BIAs may assist in the construction of databases and decision support systems as well as in advising on how data might be most fruitfully collected, stored, and utilized. Additionally, psychological input can be useful in informing what data are collected and how to generate systems that can be coded reliably and efficiently. The sobering fact is that most criminals appear to be in the system already, investigators just need to know at what, and especially where, to look. Essentially, future research must encourage validation of approaches similar to the aforementioned statistical, thematic, Bayesian, and filter-style models across various crime types (e.g. sexual offences, homicide) that remain pragmatic and investigatively useful in their application.

### **Linking of crimes and crime scenes**

BIA may also be given in regard to determining whether two (or more) cases are likely to have been committed by the same offender(s), commonly referred to as *case linkage* or *comparative case analysis*. Santtila *et al.* (2005) suggest that this may pertain to two different situations: (a) establishing whether a new offence can be attributed to a previously identified string of offences or offender(s); (b) linking a group of unidentified offences. The stepwise process of case linkage or comparative case analysis has been described elsewhere in detail (e.g. Woodhams, Bull, & Hollin, 2007).

Apart from physical evidence such as DNA (Grubin *et al.*, 2000), geospatial information appears to hold the most merit for a successful linking process. As mentioned before, serial offences do reflect some degree of behavioural consistency, although certain behaviours appear to be temporally less stable and are more susceptible to situational influence, especially in sexual offences (Bootsma & van den Eshof, 2006).

The jury is still out on whether specific single behavioural similarities (e.g. rare behaviours) are more accurate for a successful linkage analysis than behavioural scales or themes. Several studies have demonstrated some linking accuracy in different crime types using a thematic approach (e.g. Santtila, Fritzon, *et al.*, 2004; Santtila *et al.*, 2005; Santtila, Korpela, & Häkkinen, 2004; Woodhams, Grant, & Price, 2007), although linking accuracy tended to be low (e.g. 25.6–33%). Most recently Santtila, Pakkanen, *et al.* (2008) found that the use of non-parametric Mokken scaling in combination with discriminant function analysis yielded a linking accuracy of 62.9% in a sample of 116 Italian serial murders (chance expectation was 6.2%). This already high rate was even more improved when using a full Bayesian approach with high- and low-frequency behaviours in the same sample (linking accuracy = 82.8%, chance expectation = 5.3%; (Salo, 2008)). Although more evidence is needed, it appears that certain offences, particularly serial homicide, may be successfully linked with either a thematic or probabilistic approach. Perhaps, not surprisingly these studies of linking methods have provided insight into the reliability of certain aspects of crime scene information and as a result have contributed to the call for the development of an evidence-based reduction of information in decision-support systems such as ViCLAS (Violent Crime Linkage Analysis System; Goodwill *et al.*, 2009).

### **Investigative interviewing**

The provision of an investigative interviewing strategy can also constitute an aspect of 'what works' in BIA. Advice may centre on interview strategies through the means of preparing officers or Tactical Interview Managers for what they might expect psychologically from a given offender. This issue is currently being formalized, though there are indications that having a psychologist advise on issues, additional to the way the interview itself is conducted, can only be of value if that psychologist has some understanding of what is legally admissible and procedurally correct. BIA may thus provide both tacit and experiential knowledge (as based on experience with previous cases), in the form of hypotheses, theoretical formulations, and empirical information, to the investigative interview (Alison *et al.*, 2004). Specifically, BIAs may assess the credibility of statements, evaluate interviewer performance (and assist in the structuring and planning of an interview), and advise on what aspects of the account might most fruitfully be challenged or explored in more detail (see Porter and ten Brinke in this volume), and offer empirically supported advice on how to evaluate claimed amnesia (see van Oorsouw and Merckelbach in this volume).

Clinical interviews may thus provide experiential frameworks within which crime scene data can be interpreted. Not infrequently, for example, the NPJA will refer a Senior Investigating Officer (SIO) to an expert on the advisory list (BIA) who has an understanding of, among other areas, the debates in so-called recovered and false memories, malingering, or the dynamics of interviewing vulnerable witnesses or people with learning disabilities (Alison, 2005). Specifically, studies have shown that using a cognitive interview (CI) approach with vulnerable victims or witnesses will lead to enhanced recall of correct information and a reduction in the amount of confabulations made (Milne, Clare, & Bull, 1999) resulting in more complete and accurate reports. Naturally, the full picture is not so straightforward: for example, praxis in relation to CI does not necessarily reflect the ideal with regard to theoretical knowledge (e.g. Walsh & Milne, 2008). It is a complex area beyond the scope of this paper. Notwithstanding, the central tenet of BIA (as with other areas discussed in this paper), – stating *probabilities* not *certainties* – holds good in relation to interviewing styles as well, and constitutes

a standard *proviso* which ensures investigations are not misled (Rainbow, 2008). Nevertheless, further validity and utility studies are needed in order to expand the empirical basis on which the issue of statement credibility in particular are based.

A related controversial point involves the provision of BIA on the admissibility of *bad character evidence*. Bad character may arise in a criminal trial or investigation where a defendant has a criminal record, or in which past misconduct (irrespective of whether it resulted in a conviction or not) is introduced as evidence against the defendant (Criminal Justice Act, 2003, Section 101 (1)). Bad character evidence is only admissible if: (a) all parties to the proceedings agree to the evidence being admissible, (b) the evidence is adduced by the defendant him (or her) self or is given in answer to a question asked by him (or her) in cross-examination intended to elicit it, (c) it is important explanatory evidence, (d) it is relevant to an important matter in issue between the defendant and the prosecution, (e) it has substantial probative value in relation to an important matter in issue between the defendant and a co-defendant, (f) it is evidence to correct a false impression given by the defendant, or (g) the defendant has made an attack on another person's character (Criminal Justice Act, 2003, Section 101 (1)). If and when these criteria are met, BIA may be provided in order to advise the court on the psychology of a defendant, specifically if a person's previous misconduct has significance for determining matters in the present case. However, as is the case with advice on the veracity of witness statements, these statements should be put forward with discretion and only in terms of probabilities and not certainties, in order to not give bad character evidence undue weight and thereby distort the criminal proceedings.

### **Risk assessment**

As a case in point, forensic risk assessment illustrates the greater breadth of the definition of BIA to offender profiling. Osterheider and Mokros (2006) explain how a thorough understanding of the actual offence behaviour and dynamics, a mainstay of behavioural investigate advice, is vital for forensic practitioners. Osterheider and Mokros (2006) argue that an objective, evidence-based, reconstruction of the offence process (as opposed to the offenders' personal perspective) can contribute to more accurate risk assessments. This is especially true with regard to sexually motivated homicide offences; the degree of sexual deviance and other relevant aspects can be deduced from an objective analysis of the crime scene behaviour. Horn (2006) illustrated how assessment of pre-arrest BIA in collaboration with forensic mental health practitioners post-conviction can assist in improving BIA in future cases. He also delineated how cooperation between BIAs and forensic practitioners led to the development of the 'HEADS' (Haft-Entlassenen-Auskunfts-Datei-Sexual straftäter, trans. = Excon Information Index for Sexual Delinquents) initiative in Bavaria, Germany, in which high risk sexual offenders are flagged in a centralized database three months prior to their release from jail, including all information that relates to that individual's risk assessment. When such an offender begins his or her re-integration into society, the police put into place a follow-up process in collaboration with the judiciary, prison and probation services, in order to prevent the offender from committing future offences (Horn, 2006).

### **Implications and caveats**

By taking advantage of the now more substantial knowledge of 'what works' in BIA, police forces can demonstrate a continuing commitment to intelligence-led policing and

the policing of risk. This is in line with national policing initiatives in the UK. Crucially, however, if investigators do choose to embrace the contribution from psychologists, they should retain a healthy scepticism. As Canter and Alison (1999, p. 39) noted, 'one must check and treat with caution all opinions and not simply assume that because it is said with great conviction by someone with experience that it must be true'. Because officers should not be expected to have a full and comprehensive knowledge of the scientific methods used, it can prove difficult for any given SIO to know what qualities of the expert s/he should be looking to evaluate. In recent ACPO guidelines (Kent Police, 2006), the effective and appropriate use of BIA is made explicit. Additionally, these guidelines have been incorporated as a core component in recent national training programmes for SIOs, through which they are taught how to best evaluate and use BIA (Rainbow, 2008). However, officers are unlikely to know the range of issues that psychologists and others may assist with, since there is currently no formal checklist of the range of possible contributions. Although not all SIO courses have a training input on profiling and advice, several have now taken up contributions from psychologists and advisers regarding this contribution (D. Crompton, personal communication, 2007).

### **Limitations and boundaries**

Rigid rules exist governing the use of expert evidence in criminal trials (Criminal Procedure and Investigations Act, 1996). The general consensus is that BIA does not amount to probative evidence that can be used in court to establish guilt (Kent Police, 2008). Additionally, due to the heterogeneous nature of profiling along with a poor conceptual understanding of a BIA's tacit knowledge, BIA currently yields poor reliability and probative value (Meyer, 2007). This has led to past profiling techniques and present-day BIA alike failing expert admissibility standards (Meyer, 2007).

If BIA were to be received by the court, it would need to satisfy the legal tests of relevance and admissibility as well as the rules concerning the reception of expert opinion evidence. The latter relate to the BIA's qualifications, the perceived helpfulness and reliability of the evidence, and, in the case of investigative advice, its potential categorization as a novel technique. Generally, the degree of difficulty that the rules will pose depends on the purpose that the profiling evidence is intended to serve. As Ormerod and Sturman (2005) point out, where the purpose is to identify the defendant, profiles are likely to be excluded (in England and Wales at least) as unreliable, prejudicial, unscientific, and insufficiently relevant; however, they may be deemed admissible if their purpose falls under one of the following categories:

- (1) The profiler may be able to testify about the crime scene.
- (2) Profiles may be admitted as comparative crime scene analysis.
- (3) The accused seeks to establish his or her personality and its incompatibility with the police profile.
- (4) A profile might be admitted where the question is whether it is more likely that defendant A rather than defendant B committed the crime with which they are both charged.

Neither the British Psychological Society nor the American Psychological Association (APA) has devoted special attention to the ethical, legal, or professional issues raised by the involvement of BIA's in criminal investigations. Rather, their codes of conduct set out general principles which all psychologists must adhere to in their professional

endeavours. However, the APA statement below, illustrating boundaries of competence, gives the general overview of what is expected:

In those emerging areas in which generally recognized standards for preparatory training do not yet exist, psychologists nevertheless [should] take reasonable steps to ensure the competence of their work and to protect clients/patients, students, supervisees, research participants, organizational clients, and others from harm (Standard 2.01, APA, 2002).

### **Establishing the contribution made by BIAs**

There have been relatively few studies that have attempted to quantitatively evaluate the profiling profession (see Kocsis, 2006, for a review) and fewer that look at contemporary methods. Those studies that have been done are relatively inconclusive, where findings indicated that, on one hand, the majority of investigators agreed that criminal profiling does help solve cases, while many officers also believed that the application of offender profiling was limited, or even that it had the potential to mislead an investigation (see Copson, 1995; Pinizzotto & Finkel, 1990; Snook, Haines, *et al.*, 2007 for details). Additionally, several studies found that self-proclaimed profilers made a greater number of correct predictions to those produced by laypersons or investigators combined, but that general investigative experience does not matter in the profiling process as much as critical thinking skills do (Gogan, 2007; Kocsis, 2006). On the other hand, a tentative study by Bennell, Corey, Taylor, and Ecker (2008) found no significant relationship between critical thinking ability and profile accuracy. Thus, there is much research ahead to determine fully the contribution made by BIAs.

Although recent studies have attempted to examine expertise in (geographical) profiling (for a review, see Bennell, Taylor, & Snook, 2007), some confusion remains as to whether the results in general can be delineated from criticisms of what support (e.g. expert computer systems) *may* be used from what *is* actually used in the provision of BIA globally. We argue that in order to begin any evaluation of BIA generally, geoprofiling specifically, or any other psychological contribution to criminal investigation, it is important to describe the range and diversity of what the advice encompasses and is based upon. In the specific case of geoprofilers, as we have indicated, these individuals appear to have a multidisciplinary, multivariate set of contributions beyond, for example, the simple idea of putting an 'x' on a map. BIAs develop this respective expertise across a vast range of areas based on both their individual tacit knowledge, as well as scientific, evidence-based knowledge that is required for the profession. In order to fully understand how BIAs put their tacit knowledge to use in aiding the investigation process, one must seek to tap into their knowledge and make it explicit. This task is yet to be comprehensively accomplished though important steps have begun.

The NPIA's 'BIA Roadmap' seeks to make explicit the type of knowledge and core competencies which are required for BIAs to fulfil their role successfully, and provides a framework to assess those competencies. It therefore provides a first attempt at an evidence-based framework that provides a clear, transparent, and documented system of achievement for all BIAs (Rainbow, 2008). However, beyond this 'Roadmap', there is as yet a scarcity of research attempts to tap in to the respective expertise or tacit knowledge of BIAs.

Different approaches and methodologies may be adopted to achieve this aim. For example, in terms of cognitive processing, it is known that experts, compared to novices, are able to integrate and process complex information into meaningful chunks, (Chase & Simon, 1973), ignore more information than do novices (Gigerenzer, 2000) and can

more accurately and expeditiously notice missing information or inconsistencies (Militello, Hutton, Pliske, Knight, & Klein, 1997). This has also been classified as automaticity - the ability to perform a task so easily it no longer requires effortful attention, thereby greatly reducing cognitive load and increasing speed and accuracy of processing. Thus, further research would be required to unpack the component parts that constitute experts' 'rules of thumb' used in all of their daily operations.

We have found applied cognitive task analysis (ACTA, developed by Klein Associates, Inc; Militello *et al.*, 1997; Schraagen, Chipman, & Shalin, 2000) helpful in this regard. ACTA specifically focuses on the cognitive elements that are central to decision making, judgments, and goal generation (Militello & Hutton, 1998). The technique consists of three distinct parts: the *task diagram*, in which the expert is asked to break their contribution into six consecutive subtasks (and those into further sub-subtasks, respectively) the *Knowledge Audit*, in which many skills associated with expertise are probed, including the ability to detect patterns, anomalies, and opportunities, as well as identify expert strategies and potential novice errors; and the *Simulation Interview*, in which the expert is guided through a specific scenario they might encounter during their work whilst the interviewer probes the cognitive processes the expert is going through as s/he engages with the task (see Militello *et al.*, 1997 for further details).

By way of illustration, Knabe (2008) recently conducted and analysed the output of ACTAs conducted with six geoprofilers and found that even experienced detectives, although relying on some basic heuristics, did not appear to have the same domain specific knowledge as geoprofilers. Knabe established that much of a geoprofiler's work entails performing temporal and spatial analyses to provide an overview of when and where offences took place. This illustrative study went on to make explicit the elements of expertise in one particular specialism within contemporary BIA (see Knabe, 2008 for more details) and provides the first in, hopefully a line of, thick descriptive studies of the cognitive processes and the identification of domain specific knowledge of BIAs with a view to rendering their contribution more explicit.

### **Concluding comments**

The aim of this article has been to draw a line under the early beginnings of an emerging field of psychology, criminological, and investigative exploration commonly referred to as offender profiling. It has been argued that the definition of offender profiling relates to a narrow view of a field which now encompasses a broad range of scientifically based yet pragmatic activities related to assisting police investigations. The current - still developing field - widens the scope from the specific (i.e. offender profiling: predicting offender characteristics from crime scene information) to the broad, namely BIA (e.g. provision of investigative recommendations), based on replicable, transparent, and valid knowledge and research. The impetus on the emerging field of BIA is to contribute to police investigative methods parsimoniously, pragmatically, and above all with scientific scrutiny and validation.

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Received 12 December 2008; revised version received 5 June 2009