

Questioning the validity of criminal profiling: An evidence-based approach

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Abstract

Criminal profiling is used in complex investigations, and, in a number of jurisdictions, as expert evidence in criminal trials. This article seeks to move beyond the many anecdotal accounts of success by profilers and examine the evidence available as to the discipline's validity. As it stands, profiling is based on theories that are uncertain at best, and little research has been undertaken to assess the actual accuracy of generated profiles. This absence of validation is in part due to genuine difficulties associated with designing appropriate testing models. It is exacerbated by the reluctance of profilers to engage in such a process, relying instead on the well-rehearsed, yet somewhat circular argument that the continuing demand for profiling advice is in itself reassuring evidence of the method's validity. It is the lack of objective evidence of validity in this area that will be critically considered in this article.

Keywords

Behavioural consistency, behavioural differentiation, criminal profiling, homology assumption, offender profiling, profiler

Introduction

Criminal profiling, also referred to as offender or psychological profiling, designates a process by which evidence, in particular that found at the crime scene, is analysed with a view to determining probable offender characteristics. The overall purpose is to identify an unknown offender's significant personality and demographic characteristics through an analysis of their crimes (Douglas, Ressler, Burgess, & Hartman, 1986). In other words, profiling is the process by which a portrait of an offender is drawn from all available elements of the crime scene (Muller, 2000). Profiling is not an individuating exercise; rather, it aims to discern the *type* of person likely to have committed the particular crime (Pinizzotto & Finkel, 1990).

Not so long ago, criminal profiling was little more than an ad hoc practice. Police have for some time turned to psychologists and psychiatrists to assist in complex criminal investigations, and in that context, received profiling advice from individual

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practitioners otherwise providing a range of clinical services (Bartol, 1996). These practitioners are often regarded as the precursors of criminal profiling (Wilson, Lincoln, & Kocsis, 1997), perhaps the most emblematic of such profiles being that offered by Dr James Brussel in the 'mad bomber' case. In the 1940s and 1950s, the 'mad bomber' set off numerous explosions across the city of New York, which he accompanied with threatening letters. Dr Brussel was asked to analyse the case materials, including the letters, and to provide an opinion as to the likely personality characteristics of the offender. Dr Brussel diagnosed a number of mental disorders, including paranoia and delusions, and provided demographic and physical characteristics of the unknown offender. Upon the arrest of the mad bomber, these characteristics were determined to be generally accurate, and Dr Brussel enjoyed some fame as a result. His profile is most mythically remembered for a prediction he claimed to have made that upon arrest, the 'mad bomber' would be wearing a buttoned double-breasted suit. When the 'mad bomber', George Metesky, was eventually arrested at home, in his pyjamas, he indeed changed into a double-breasted suit which he buttoned (Brussel, 1968).

Over the past two decades, criminal profiling has evolved from what was once described as mere educated guesswork, and scholarly attention has increased (Dowden, Bennell, & Bloomfield, 2007). Seemingly scientific methodologies have developed, and specialised profiling services have emerged (Alison, Goodwill, Almond, Van den Heuvel, & Winter, 2010). The Federal Bureau of Investigation (FBI) in the United States has undoubtedly influenced this impetus, by developing a law enforcement approach to profiling since the 1970s based on qualitative research conducted by the FBI's National Center for the Analysis of Violent Crime. The resulting Crime Classification Manual, proposing a taxonomy of violent offences and psychological profiles of the likely offenders, is the text of reference summing up the research outcomes and used by FBI profilers both for training and operational purposes (Douglas, Burgess, Burgess, & Ressler, 1992). Of particular significance to this typology is the fundamental dichotomy between organised and disorganised offenders, and what are described as corresponding personality characteristics. In practice, the development of an FBI profile is viewed as an art and essentially relies on the talent of intuition and investigative experience of the individual profiler (Douglas et al., 1986; Hazelwood & Michaud, 2001).

Since the mid-1980s, other profiling methodologies have been developed, proposing different processes and techniques, and involving a diversity of skills and qualifications. The Investigative Psychology model, for instance, was initiated by an academic psychologist, Professor David Canter, who argues that investigative inferences about an offender based on behaviour at the crime scene ought to be tested and supported by empirical evidence as to the prevalence of a particular pattern. His methodology is therefore underpinned by the scientific collection and analysis of empirical data with a view to establishing statistical patterns and supporting inferences that may be made about the unknown offender (Canter, 2000). This is a fundamentally nomothetic methodology, i.e. a methodology that relates to the general rather than the individual (Petherick & Turvey, 2008). However, an essential strength of this approach is, undoubtedly, that its degree of reliability lies with the process rather than the individual profiler (Canter, 2004). A further profiling model, referred to as Behavioural Evidence Analysis, was developed in the late 1990s by a forensic scientist, Brent Turvey. This form of

profiling emphasises reliance on the collection and analysis of forensic and physical evidence to draw inferences about the offender, and claims to proceed deductively to test possible offender characteristics against the actual evidence of a particular case (Turvey, 2012).

The use of criminal profiling in criminal investigations has continued, and attempts have been made, at times successfully, to adduce profiling evidence in criminal trials (Meyer, 2007; Snook, Cullen, Bennell, Taylor, & Gendreau, 2008). However, this has prompted calls for caution and given rise to strong criticism, mostly on the ground that very little empirical research exists that decisively supports profiling as a valid science (Kocsis, 2006; Risinger & Loop, 2002). Indeed, much of the published evidence about the validity of the discipline comes in the form of anecdotal testimonials and memoirs that predictably focus on stories of achievement rather than failure, and personal accounts of successful profiles abound in the literature (see, for example, Douglas & Olshaker, 1995; Ressler & Shachtman, 1992). They do not, however, offer much insight into the validity and reliability of the processes involved in offender profiling.

A review of the existing literature reveals a far less glowing picture, and the purpose of this article is to provide a comprehensive analysis of the available evidence of the validity of offender profiling. It is argued that such evidence is embryonic at best. First, the discipline is underpinned by an undeveloped theoretical framework that is yet to be scientifically validated. Second, there are inherent conceptual complexities in defining an appropriate measurement of validity. Should the validity of profiling be measured by the accuracy rate of the predictions; by their specificity and utility to the investigation; by the subjective satisfaction of the agency receiving the opinion; or, by the superior skills of profilers in offering accurate advice? Most of the research to date has focused on the latter two avenues, leaving largely unexplored the issues of accuracy and actual utility.

Uncertain underpinning theories

Traditional approaches to profiling assume that inferences can be made about the characteristics of an offender based on the behaviour, or crime scene actions, exhibited during the commission of the crime. Typologies or classification systems that associate particular crime scene behaviours with particular offender characteristics have flourished in the profiling literature (Snook et al., 2008; see also Bourque, Leblanc, Uzschneider, & Wright, 2009). Theoretically, this translates into three fundamental assumptions: (1) offenders exhibiting similar criminal behaviour will possess similar characteristics (homology assumption); (2) offenders behave in a generally consistent manner each time they offend (behavioural consistency) and (3) the manner in which a particular offender behaves is distinguishable from that of another offender (behavioural differentiation) (Alison, 2005; Alison, McLean, & Almond, 2007; Canter, 2000; Mokros & Alison, 2002; Youngs, 2008). These theories are very much intertwined. If offenders who display similar behaviour bear similar characteristics (homology assumption), then necessarily different offenders will be expected to engage in different behaviour (behavioural differentiation). Another logical consequence is that offenders being 'self-similar', they should exhibit largely similar behaviour over a range of offences (behavioural consistency) (Mokros & Alison, 2002). Mokros and Alison (2002, p. 26) explain the interrelationship between these assumptions in the following way:

The assumption of behavioural consistency does not subsume the second assumption (i.e. that of a correspondence in similarity of offence behaviour and characteristics between offenders). If, however, the homology assumption is found to be valid, the assumption of behavioural consistency must be valid as well. The reason for this is the self-similarity of individuals. One person has to remain rather consistent in his or her actions if the correspondence of similarity associations holds between a person's characteristics and behaviour.

Initially, the development of offender profiling coincided with a seemingly blind acceptance of these assumptions. The words of Douglas et al. in the first edition of the FBI's Crime Classification Manual vouch for this impression of simplicity and certainty: '[t]he crime scene is presumed to reflect the murderer's behavior and personality in much the same way as furnishings reveal the homeowner's character' (Douglas et al., 1992, p. 21). Over the years, the practice developed without any meaningful explanation of the underlying principles that may support the predictions being made (Pinizzotto & Finkel, 1990).

In the past decade, however, the complexities attached to these theories have been the focus of a growing attention and understanding. This development benefited from advances in the discipline of personality psychology (Alison, 2005), and nascent research efforts have commenced to empirically test the validity of these profiling assumptions, the results of which raise some concerns (Mokros & Alison, 2002). Despite this, some authors suggest that many involved in profiling remain oblivious to the limitations of the discipline's theoretical framework (Petherick & Ferguson, 2013).

The homology assumption – that there is a stable concordance between configurations of offender behaviours and characteristics – lies at the core of any typology-based approach to profiling (Alison, Bennell, Mokros, & Ormerod, 2002; Homant & Kennedy, 1998). Indeed, the way in which the three underlying assumptions interconnect appears to centre on the homology assumption. The literature tends to focus on homology as the primary theory, while behavioural consistency and differentiation complement or supplement the analysis. The remaining discussion will therefore follow a similar pattern.

In typology-based profiling, offenders are classified into broad personality types, and behaviour is attributed to 'underlying, relatively context-free dispositional constructs within the offender' (Alison et al., 2002, p. 117). Thus, two offenders exhibiting similar behaviour will be associated with similar personality and demographic attributes:

If it is possible to infer something about the person from what happened at the crime scene then any two persons who commit a particular type of crime in roughly the same way should be rather similar to each other. (Mokros & Alison, 2002, p. 25)

The explanation proposed for this link is that the dispositions or traits that are reflected in an offender's criminal behaviour will also be apparent in his or her non-criminal life.

However, the homology assumption has not fared well in empirical research (Bateman & Salfati, 2007; Doan & Snook, 2008; Mokros & Alison, 2002). Very few attempts have been made to evaluate the feasibility of inferences between criminal behaviour, personality traits and demographics (Alison et al., 2002). Perhaps the most directly relevant study is that conducted by Mokros and Alison (2002) of a

sample of 100 British stranger rapists. The crime scene actions were examined and correlated with three areas of offender characteristics commonly found in profiles – namely age, socio-demographics and prior criminal convictions. The analysis failed, however, to reveal any support for the homology assumption with respect to these characteristics. These generally discouraging findings are congruent with the few other studies that attempted to address this issue and yielded only fragments of homology:

At best, small pockets of psychologically meaningful consistency have been identified, whereby a specific crime scene behavior is found to relate to a specific background characteristic. For example, Davies et al. (1997) found that rapists who forced entry into premises were four times more likely to have prior convictions for property offenses than those who did not engage in that behavior... Even when ignoring the requirement for an underlying theoretical account for a behavior-characteristic relationship, Mokros and Alison (2002) and Woodhams and Toye (2007) were still unable to find compelling evidence of consistency. In general, profilers seem unaware of this empirical research and its implications. (Snook et al., 2008, pp. 1261–1262)

The absence of a demonstrated causality link between traits and criminal behaviours raises a number of issues. First, Alison et al. (2002) have pointed to the ‘tautological’ trap in which profilers often find themselves. Essentially, because personality traits are not directly observable, they are ‘both inferred from and explained by behaviour’ (Alison et al., 2002, p 117). The authors illustrated their contention with the example of a violent crime scene that might lead a profiler to conclude that the offender is aggressive while simultaneously relying on the aggressive disposition of the offender to account for the violence of the crime. This form of circular reasoning is commonly found in profiling advices. Some authors have suggested that from a scientific point of view, the causality link between crime scene evidence and offender characteristics would be best approached in the reverse, i.e. by assuming that patterns of evidence are the result of offender characteristics rather than the other way around (Hicks & Sales, 2006) Accordingly, the best way to inform this causality link would be, they say, to conduct a large-scale study of the characteristics of known offenders across a variety of crime types, in order to determine what characteristics lead to what crime scene behaviours. No such study has yet been undertaken (Hicks & Sales, 2006). Other observers have highlighted a further difficulty encountered when relying on typologies as a pathway between crime scene actions and offender characteristics. They argue that the initial classifying of a particular offender in a particular personality type based on the available crime scene material is not a process informed by research, and therefore is not necessarily reliable (Prentky & Burgess, 2000).

Developments in personality psychology are also relevant to understanding the limitations inherent in both the homology assumption and the theory of behavioural consistency. The intuitive readiness to invoke stable and latent traits, or disposition, to support the proposition that behaviour remains roughly consistent across time and varying situations (naïve trait theory), has long been negated by empirical research in this field. Current theories of personality psychology acknowledge that situational factors affect behaviour and that behaviour may not be a fixed and repetitive reflection of an individual’s latent traits (person \times situation equation) (Alison et al.,

2002; Woodhams, Hollin, & Bull, 2007; Woodhams & Toye, 2007). There is a dearth of knowledge, however, on how situational circumstances affect criminal behaviour and which crime scene actions may be most susceptible to which of these influences (Woodhams et al., 2007; Woodhams, Hollin, & Bull, 2008). Thus, predicting personality from behaviour without adequately accounting for situational influences is unlikely to be a sound exercise. It is all the more so, Alison et al. say (2002), that some of the characteristics typically inferred in offender profiles (such as age, marital status or ethnicity) do not fit the psychological definition of traits.

Turvey (2012) also contends that the profiling assumptions do not consider the multi-dimensional nature of criminal behaviour, whereby offenders may act in a similar manner for multiple or inherently different reasons. While the research tends to support the reverse proposition that offenders vary from one another in their criminal actions (behavioural differentiation), which behaviours distinguish between offenders and which do not remains unclear. Any attempt to link crime scene behaviours with offender characteristics ought therefore to consider how frequently the particular behaviour is known to occur within a population base (Woodhams et al., 2007). No such conclusive research exists as yet.

These considerations have serious adverse implications for the theoretical foundation of offender profiling. At worst, offender profiling is based on a system of flawed assumptions, a view shared by a number of authors (Petherick & Ferguson, 2013; Snook et al., 2008). At best, the underlying theoretical framework ought to be envisaged anew and refined to provide a sounder foundation to the practice of profiling. Mokros and Alison (2002, p. 40) have articulated the need for such theoretical reconceptualisation:

[T]he pragmatic approach of assuming a homology of actions and characteristics is likely to fail if there is no clarification of why such a homology should exist. A theoretical framework has to be devised that is empirically testable and that explains why certain aspects of an individual's circumstances of living should correspond with the way in which the individual commits a crime if he or she should do so.

In the search for possible new avenues to devise a sound theoretical basis for profiling, Snook et al. (2008) have invited profilers to turn their attention to the available research on recidivism, which they claim might reveal more accurate and empirically derived predictors of criminal behaviour, including anti-social attitudes and cognitive abilities. While these predictors of criminal behaviour appear more soundly established in criminological research, it is unclear how they might be transposed to crime scene interpretation so as to become a valuable and reliable foundation for profiling.

The theoretical weaknesses of profiling have also resonated through the discussions of the competing methodologies available. Specifically, the resulting debate is focused on whether profiling should be approached ideographically or nomothetically. An ideographic analysis focuses on the facts of the individual case and the features of the specific crime and offender, while a nomothetic profile relies on the study of groups of offender to predict what characteristics may be typically inferred (Petherick & Turvey, 2008). Different profiling methodologies advocate different emphases, with the Behavioural Evidence Analysis school standing at the ideographic end and Investigative Psychology at the nomothetic end of the continuum. One of the reasons invoked by

Behavioural Evidence Analysts for their ideographic approach is that it essentially avoids the pitfalls of profiling's uncertain theoretical bases (Petherick & Ferguson, 2013). It does so, they claim, by abstaining from relying on group studies to predict individual behaviour or characteristics, the consequence being that consistency and homology are never assumed in any particular case. It is true that this approach does generally adhere to this ideographic undertaking for substantial aspects of the profiling process, including crime reconstruction. Some ultimate inferences on offender characteristics, however, are premised on a motivational typology, a process inherently nomothetic and therefore still reliant on the shaky theoretical assumptions it claims to circumvent.

In essence, the uncertain theoretical underpinning of offender profiling may well be the reflection of the inherent dangers associated with methods of generalisation:

Every mental event must have its corresponding physical event in some form, and is therefore capable of being sensed, or known to be indicated by some trace. Identical inner states do not, of course, invariably have identical bodily concomitants, neither in all individuals alike, nor in the same individual at different times. Modern methods of generalisation so invariably involve danger and incorrectness that one cannot be too cautious in this matter. (Gross, 1968, p. 42)

Validity measurement dilemma

In spite of the absence of a validated theoretical framework, offender profiling continues to flourish and to be used in investigations and legal proceedings. This has encouraged a number of attempts to assess its validity as a practice. The ensuing research has revealed a new set of issues, at the core of which lies the difficulty of identifying an appropriate measurement criterion (Wilson & Soothill, 1996). Would validity be best tested using strict accuracy as an evaluation standard, or should considerations such as the utility and investigative relevance of the profile, or the skills of the profiler, also be examined? Each of these approaches sheds some light on the strengths and weaknesses of the practice, yet none is satisfactory on its own. A consequence of this is that the validation research is highly fragmented and often fails to convincingly demonstrate that offender profiling stands as a sound discipline that may safely be used in the criminal context.

Accuracy and the 'hits and misses' approach

Retrospectively measuring how close predictions in a profile are to the actual convicted offender is seemingly a straightforward task. One could simply compare the respective characteristics and list the hits and misses in the profile, thereby assessing the accuracy rate of the predictions. Replicating this procedure over a large sample of profiles could arguably provide insight into the validity of the process across the different methods available. Despite vague assertions of high accuracy rates being commonly made by profilers affirming that they 'have not been wrong yet', no such study has ever been undertaken (Homant & Kennedy, 1998; Muller, 2011). Even the general claim by the FBI that its profiles have an accuracy rate that exceeds 80% appears to be based on little

more than unverifiable speculation, as supporting evidence has never been made publicly available (Pinizzotto, 1984; Wilson & Soothill, 1996).

There are likely to be many reasons for this dearth of systematic evaluation. Perhaps the most evident one is that independent examiners typically do not have access to many actual profiles (Homant & Kennedy, 1998). FBI profilers, for instance, do not commonly provide written profiles that may be subsequently examined (Hicks & Sales, 2006). Arguments have been advanced to justify this reluctance on the part of profilers or agencies involved in profiling to disclose the necessary material, including a concern for the privacy of victims or, less convincingly, an apprehension that such disclosure might assist offenders in their crime scene staging efforts (Homant & Kennedy, 1998).

Another reason may be that the comparative process of determining how well an offender fits the profile is inherently subjective. Different examiners will assess the accuracy of offender characteristics from their own perspective. Bennell, Jones, Taylor, and Snook (2006) illustrate this with the example of a profiling inference that the offender is tall, which is likely to be perceived differently by different examiners of varying heights. Furthermore, an examination of the extent of inaccuracy in predictions – i.e. was the inaccurate prediction reasonably close to the mark or entirely off it? – might be an informative exercise (Pinizzotto & Finkel, 1990). These are not necessarily fatal constraints for profiling research; they ought, however, to be accounted for in future research designs.

A more profound complexity is that statements in profiles are often ambiguous and unverifiable (Muller, 2011). Alison, Smith, Eastman, and Rainbow (2003) examined a sample of 21 profiles adopting different methodologies and found that 24% of the claims contained in them were ambiguous and 55% were not verifiable. Typically, such claims concern an offender's inner thoughts, fantasies or personal abilities, emotional or social skills, as evidenced in the following extract from an oft-cited FBI profile:

The killer is a seriously disturbed individual. . . The manner in which he cuts the parts of the body shows determination and anger plus making the victim less than a human being: "Not only are you nothing, now you are little bits of nothing." What is especially interesting is that the person has kept, or at least it has not been found, the skin from the neck to the waist. This is the most important part for him. I can see him skinning this body part and wearing it at night around the house where he lives alone. (Holmes & Holmes, 2002, p. 22)

As in this extract, a significant proportion of statements in profiles are either unverifiable or open to interpretation. This has manifest consequences on the feasibility and effectiveness of a simple 'hits and misses' approach to validity assessment for offender profiling.

In this regard, Alison, Smith, and Morgan (2003) have also considered the common propensity to interpret vague or ambiguous statements in a profile as relatively accurate. In their study, two groups of police officers were given the same profile, and each group was asked to compare it to a different offender, only one being the actual offender. Surprisingly, both groups found the profile overall accurate even though it related to discernibly different offenders, suggesting that there appears to be a tendency to 'selectively attend to hits in the profile with relatively less attention to misses or the fact that the profile is sufficiently ambiguous to potentially refer to quite different individuals';

they liken this inclination to the psychological phenomenon known as the 'Barnum effect', which refers to the common proneness to construct vague and general personality descriptions as being specifically meaningful (Alison et al., 2003, p. 192).

Finally, the failure of some profilers to articulate the specific basis for their claims further complicates the accuracy assessment process. Indeed, some of the predictions made in profiles are mere repetitions of facts that have emerged from the investigation. To the external examiner who does not have access to the case material, however, these claims may suggest a higher degree of insight on the part of the profiler than is really the case (Homant & Kennedy, 1998). For instance, whilst strictly accurate, a prediction regarding an offender's ethnicity in a profile may not be reflective of the validity of the profiling process if the profiler relied on the physical evidence that enabled the investigators to reach that conclusion in the first place.

Alison et al. (2003) have proposed a more qualitative evaluation system that focuses on deconstructing the arguments advanced in profiling reports using Toulmin's philosophy of argument as a framework for analysis. Toulmin's approach to evaluating arguments consists in closely scrutinising the constituents of any claim, including its statistical probability, underlying basis and the conditions under which the claim may no longer be valid. For a claim to be substantiated, these constituents must be accounted for. Alison et al. initially evaluated 21 profiles and found that over 80% of the claims made therein were not adequately substantiated. A subsequent study of 47 profiling reports issued by the National Policing Improvements Agency in the United Kingdom revealed more encouraging results (Almond, Alison, & Porter, 2007). While this type of review says little about the accuracy of the predictions per se, it could certainly contribute to profilers engaging in a more rigorous process of argumentation and substantiation. That in itself may ultimately assist in assessing the reliability of the advice.

Utility, investigative relevance and consumer satisfaction

Accuracy is not the only possible measure of validity in the profiling process. In fact, it has been suggested that strict accuracy may be an inherently flawed standard or, as expressed by Petherick (2013, p. 114), a 'fallacy'. This is in part for the reasons detailed above that impede a meaningful assessment of profiling accuracy. In essence, however, the 'fallacy of accuracy' argument revolves around the idea that the validity of a profile is also dependent on its investigative relevance, i.e. the extent to which a profile can actually assist the particular investigation. Indeed, a profile may be strictly speaking accurate, yet so general or indiscriminating that it lacks any real utility. A meaningful evaluation of the success of a profile ought therefore to go beyond strict accuracy and account for the base-rate probability of the predictions occurring within a given population: rare characteristics are more useful than common ones in identifying an offender (Petherick, 2013; Villejoubert, Almond, & Alison, 2011). On the other hand, a predicted characteristic may prove to be inaccurate, and yet lead to new investigative avenues being successfully pursued. It should be noted that profiling tends to be used in cases that are inherently difficult to solve and where traditional investigation techniques have failed; the standard for a profile to be of assistance is therefore necessarily a high, and perhaps skewed, one (Muller, 2011).

Ferguson (2013) has proposed that to be useful or relevant to a criminal investigation, identified offender characteristics must (1) not be the product of guesswork or intuition; (2) be capable of being acted on; (3) distinguish the offender from the general population; (4) not simply restate conclusions already available and (5) go beyond merely describing the criminal behaviour. Applying these criteria, Ferguson claims that only five offender characteristics can be considered relevant, namely motive, special skills or knowledge of methods and materials, relationship to the victim, knowledge of the crime scene or location, and criminal skill or forensic awareness. Interestingly, the demographic characteristics traditionally found in profiles, such as age, marital status or intelligence, do not emerge as relevant under these standards. In her study of 59 profiles across the major methodologies, Ferguson found that a large proportion of profiles neglected to provide one or more of these five characteristics.

Utility and relevance also warrant a discussion of the statistical averages consistently found in Investigative Psychology profiles. This form of inductive profiling is sometimes referred to as statistical or actuarial profiling, as it focuses on the general attributes that may be expected of a typical offender. Such a profile will generally set out all or most of the existing research concerning a particular type of crime and empirically associated offender characteristics. These characteristics are inferred empirically, and probability caveats are generally attached to the claims provided. Such methods often yield larger numbers of offender characteristics based on the variety of possible attributes noted in different cases. They are, however, somewhat at odds with the fundamental focus of the investigative process on individuation and proof in the particular case. According to Canter, this is one of the core differences between psychology and law that impede a smooth collaboration between the two professions and their practitioners (Canter, 2008). Understandably, caution is needed when relying on general knowledge and actuarial evidence to make determinations in an individual case, and all the more so if the sample relied upon is small (Muller, 2011). According to Petherick and Ferguson (2013, p. 47), inductively inferred statistics do not allow for the drawing of specific conclusions in any given case; at best, they enable the identification of possible theories that ought to be tested against the available evidence:

The general “problem of induction,” ... is that one can never know if one is dealing with a statistical average or a statistical anomaly (reliability). In reality, any inductive inference is an untested theory based on what has happened in the past; it may or may not have been studied or recalled properly, and it may or may not happen again. Hoping does not make it so.

Given the importance of these issues in offender profiling, it is not surprising that a significant proportion of the validity research has focused on what are essentially consumer satisfaction studies as a means to measure the relevance and utility of profiles. Typically, the recipient of the profile is asked to evaluate whether the advice received was useful. At the heart of this lies the well-rehearsed, yet somewhat circular argument that is often put forward by profilers that the enduring demand by policing authorities is in itself reassuring evidence of the method’s validity: if police agencies continue to request profiling advice, then it must be valid (Kocsis, 2003a; Snook et al., 2008; Wilson et al., 1997).

The earliest of these consumer satisfaction surveys was piloted by the FBI and conducted by Pinizzotto (1984). He found that the investigation was deemed to have benefited from the FBI profiling advice in the resolution of cases in 46% of the 192 instances examined, although it assisted in the identification of a suspect only in 17% of those cases. A similar research conducted for the Home Office in the United Kingdom revealed that when using the contribution to the arrest of a suspect as a criterion, 'little evidence was offered that profiles . . . had contributed to any arrest' (Copson, 1995, p. 6).

The collections of the opinions of detectives regarding the utility of offender profiling all yield more positive results. In studies conducted in the Netherlands (Jackson, Kopen, & Herbrink, 1993), United Kingdom (Copson, 1995), United States (Trager & Brewster, 2001), Canada (Snook, Haines, Taylor, & Bennell, 2007) and Australia (Goldsworthy, 2001), the feedback received was overwhelmingly positive with a significant proportion of surveyed police officers finding profiling useful to varying degrees and declaring themselves prepared to seek advice again. Preliminary explorations of how profiling assisted investigations suggest that it is deemed most useful to identify interrogation strategies, while the identification of a suspect appears to be the investigative goal least assisted by profiling (Trager & Brewster, 2001).

By contrast, the few studies that have examined the opinion of other professionals that may come into contact with profiling have revealed less favourable results. Bartol (1996) found that 70% of the surveyed police psychologists seriously questioned the validity of profiling as a discipline. This finding was almost perfectly mirrored in the subsequent study conducted by Torres, Boccaccini, and Miller (2006) into the perception of profiling among forensic psychologists and psychiatrists. Yet, despite the negative impressions harboured by the surveyed practitioners regarding the reliability of profiling, the vast majority admitted to its utility in the law enforcement context. An explanation advanced by Torres et al. (2006) for this apparent paradox is that the perception of utility of profiling may be strongly influenced by its ever-growing use.

Woskett, Coyle, and Lincoln (2007) sought the opinions that lawyers held of profiling. The 26 participating Australian lawyers were found to have a low understanding of profiling, of the different types of advices encompassed and of the various methodologies available. Nevertheless, or perhaps as a result of this limited knowledge, the majority of lawyers surveyed were of the view that profiling had little validity, utility and evidentiary value.

While this type of research sheds light on the perceived validity of the discipline among the professionals involved to a lesser or greater extent in its practice, it remains a profoundly subjective assessment tool that does not in itself establish that profiling is a valid and worthwhile exercise. A number of observers have commented on the factors that bear upon this perception of validity. In relation to police officers, Kocsis and Hayes (2004) contend that accuracy may be in the eye of the beholder, i.e. strongly related to the perceived identity of the author of the profile. The profiler's apparent or presumed expertise and reputation are also likely to influence the accuracy attributed to a profile (Snook et al., 2008; Devery, 2010). Snook et al. (2008, p. 1267) further caution against 'after-the-fact' impressions that profiling contributed to a particular investigation which arose simply because a profile was used and the resolution was successful, highlighting that '[m]any events follow sequential patterns without being causally related; *after this* does not necessarily mean *because of this*'.

Perhaps the most pervasive consequence of these surveys, however, is that they become a form of marketing tool conveying the questionable message that profiling is a valid technique despite the absence of conclusive empirical evidence to that effect. The resulting 'social contagion' is one of the explanations advanced for the continuing demand for the discipline among law enforcement agencies (Snook et al., 2008, p. 1268).

Skills and abilities of the profiler

As yet, criminal profiling is not a regulated discipline with a clear and well-defined set of qualifications (Snook et al., 2008; Kocsis & Coleman, 2000). Its fragmented development and the competing existing methodologies mean that profiling is practised by a very diverse range of professionals exhibiting fundamentally different skills. Often, however, this assortment of abilities and qualifications translate into a fierce rivalry and debate between researchers and practitioners as to what skills are best suited to the exercise of the discipline and how this may impact on its validity.

Hazelwood, Ressler, Depue, and Douglas (1995) compiled a list of the key attributes required. Successful FBI profilers, they claim, have an appreciation of the criminal mind, possess investigative experience, are able to exhibit isolation of affect for greater objectivity, have intuition and can engage in logical reasoning. As they stand, these submissions are contentious in nature rather than empirically grounded.

Yet, the literature reveals a number of empirical studies attempting to assess how the profiler's skills may relate to the accuracy of the predictions offered. All these studies essentially compare the accuracy of the profiling inferences made by various groups of professionals in one or more solved cases through the use of multiple-choice questionnaires. The earliest of these studies was undertaken by Pinizzotto and Finkel (1990) who endeavoured to test the 'professional profiler's claim of expertise' by comparing the accuracy and utility of their inferences with that of control groups of experienced detectives, clinical psychologists and college students in one homicide case and one sexual offence case. They found that professional profilers outperformed the control groups in the sexual offence case, but not in the homicide case. Overall though, the results could not statistically support the conclusion that profilers performed better than non-profilers.

Kocsis and his colleagues built on this work and conducted a number of controlled experimentation studies with a view to assessing the drawing of criminal profiles by profilers in comparison with other groups (Kocsis, 2003a, 2003b; Kocsis, 2004; Kocsis, Hayes, & Irwin, 2002; Kocsis, Irwin, Haynes, & Nunn, 2000). This was done in the hope of identifying the fundamental skills that may be required for effective profiling (Kocsis, 2003a). They have compared the performance of 'professional profilers' with other groups thought to respectively emulate the individual skills deemed essential by Hazelwood et al. (1995). Thus, control groups included psychologists (appreciation of the criminal mind), more or less experienced detectives (investigative experience), science students (objective and logical reasoning) and psychics (intuition).

A number of important findings emerge from this series of studies. First, Kocsis (2003a, p. 134) contends that overall results show that profilers 'surpassed all of the compared groups in the total number of correct predictions'. While the professional profilers are more proficient at profiling at first glance, their performance is only

marginally superior (Snook et al., 2008). Second, the sampled police personnel performed rather poorly, in particular those with the most experience. This result, Kocsis (2003a, p. 135) argues, fails 'to support the asserted importance of investigative experience as the key skill' in profiling. Perhaps less surprisingly, psychics were unsuccessful in accurately predicting offender characteristics, which suggests that 'the importance of intuitive thinking in the construction of psychological profiles appears limited' (Kocsis, 2003a, p. 138). By contrast, the capacity for objective and logical reasoning stood out as an essential skill, with the sampled students 'actually surpass[ing] the sampled psychologists, making them arguably the most proficient group after the profilers' (Kocsis, 2003a, p. 137).

Despite strong criticism regarding aspects of the methodology used (Bennell et al., 2006), these studies constitute the largest available empirical evaluation of the skills and abilities that may be quintessential to the generation of accurate profiles (Kocsis, 2013). A significant impediment to ongoing and replicating research is the reluctance of profilers to participate in such studies. Indeed, Kocsis (2003a) noted with alarm that over the six years they have devoted to this body of research, they could only secure the participation of 11 profilers. Another concern is that these studies consistently measure the absolute number of correct predictions rather than their relative proportion within the total number of predictions made, thereby leaving open the question of profiling's overall accuracy (Snook et al., 2008).

Also required is a discussion of the nature of a 'professional profiler'. The fragmentation of the discipline is such that profilers may come from entirely different professional backgrounds, including law enforcement, psychology or forensic sciences. This diversity resonates through the ongoing debate among the proponents of the competing profiling methodologies. Each has a different view as to the appropriate qualifications or abilities required to become an effective profiler. For instance, in selecting candidates, the FBI places little value on academic qualifications and seeks instead individuals with investigative experience and such intangible qualities as common sense, intuition, emotional distance and an ability to think like a criminal (Hazelwood & Michaud, 2001). By contrast, the proponents of Investigative Psychology are often academic psychologists possessing a strong empirical research record (Alison & Canter, 1999). Again, there is a marked contrast with the profilers applying the Behavioural Evidence Analysis method who advocate for qualifications in forensic sciences combined with experience of police investigative procedures (Turvey, 2012).

The dearth of regulation in the discipline means that essentially anyone can call him or herself a profiler (Snook et al., 2008; Snook, Eastwood, Gendreau, Goggin, & Cullen, 2007). Some of the profiling schools have attempted to address this concern by creating a professional body regulating the practice of profiling *within* that school. For instance, the founders of the Behavioural Evidence Analysis approach have created the Academy of Behavioural Profiling, whose fundamental mission is to develop and promote a 'multi-disciplinary education and training, practice standards and peer review for those who engage in evidence based criminal profiling' and 'foster the development of a class of practitioners capable of raising the discipline of evidence based behavioral profiling to the status of a profession' (http://www.profiling.org/abp_mission.html). Most schools also offer courses and training within the specific realm of their own practices, some of which resemble little other than self-accreditation programmes (Kocsis & Palermo, 2007).

In these circumstances, perhaps the biggest drawback of the empirical studies described above is their failure to account for this probable diversity of skills within the sampled groups of profilers (Snook et al., 2007). Kocsis (2003a) did comment on the highly heterogeneous performance of the participating profilers whose scores displayed a high statistical variation. A likely explanation for this may well be that in effect the sampled profilers possessed inherently different skills and abilities.

Conclusion

Assessing evidence of the validity of offender profiling does not yield an entirely reassuring picture. There still appear to be fundamental gaps and shortcomings in the theories that serve as a foundation for the discipline as well as in the research undertaken to validate and advance this framework. Furthermore, there is little empirical evidence to conclude unequivocally that profiling works in practice or that profilers offer significantly more accurate predictions than non-profilers. An appropriate criterion to assess the validity of profiles is yet to be defined and the body of existing research is seemingly restricted to discreet aspects of profiling. The focus on the satisfaction of agencies receiving advice and on the continuing demand for profiling, cannot be viewed as an adequate substitute for actual validation of the practice. This has undoubtedly led many to wonder how the discipline succeeded in permeating criminal investigations and legal proceedings. As stated by Kocsis, '[p]ossibly the greatest mystery surrounding criminal profiling has been its growth despite an absence of robust scientific evidence to validate it' (Kocsis, 2006, p. 458). All of this suggests that further research is required to enable objective validation of this practice in its different forms. Until more is known, there is a case for caution in the acceptance and use of offender profiling.

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References

- Alison, L., & Canter, D. (1999). Professional, legal and ethical issues in offender profiling. In D. Canter, & L. Alison (Eds), *Profiling in policy and practice* (pp. 21–54). Aldershot, England: Ashgate Publishing.
- Alison, L. J. (2005). From trait-based profiling to psychological contributions to apprehension methods. In L. Alison (Ed.), *The forensic psychologist's casebook: psychological profiling and criminal investigation* (pp. 3–21). Devon, Cullompton: Willan Publishers.
- Alison, L. J., Bennell, C., Mokros, A., & Ormerod, D. (2002). The personality paradox in offender profiling: A theoretical review of the processes involved in deriving background characteristics from crime scene actions. *Psychology, Public Policy, and Law*, 8, 115–153.
- Alison, L. J., Goodwill, A., Almond, L., Van den Heuvel, C., & Winter, J. (2010). Pragmatic solutions to offender profiling and behavioural investigative advice. *Legal and Criminological Psychology*, 15, 115–132.
- Alison, L. J., McLean, C., & Almond, L. (2007). Profiling suspects. In T. Newburn, T. Williamson, & A. Wright (Eds), *Handbook of criminal investigation* (pp. 493–516). Devon, Cullompton: Willan Publishers.

- Alison, L. J., Smith, M. D., Eastman, O., & Rainbow, L. (2003). Toulmin's philosophy of argument and its relevance to offender profiling. *Psychology, Crime and Law*, 9, 173–183.
- Alison, L. J., Smith, M. D., & Morgan, K. (2003). Interpreting accuracy of offender profiles. *Psychology, Crime and Law*, 9, 185–195.
- Almond, L., Alison, L. J., & Porter, L. (2007). An evaluation and comparison of claims made in behavioural investigative advice reports compiled by the National Policing Improvements Agency in the United Kingdom. *Journal of Investigative Psychology and Offender Profiling*, 4, 71–83.
- Bartol, C. R. (1996). Police psychology: Then, now and beyond. *Criminal Justice and Behaviour*, 23, 70–89.
- Bateman, A. L., & Salfati, G. (2007). An examination of behavioral consistency using individual behaviors or groups of behaviors in serial homicide. *Behavioral Sciences and the Law*, 25, 527–544.
- Bennell, C., Jones, N. J., Taylor, P. J., & Snook, B. (2006). Validities and abilities in criminal profiling: A critique of the studies conducted by Richard Kocsis and his colleagues. *International Journal of Offender Therapy and Comparative Criminology*, 50, 344–360.
- Bourque, J., LeBlanc, S., Uzschneider, A., & Wright, C. (2009). *The effectiveness of profiling from a national security prospective*. Ottawa, Canada: Canadian Human Rights Commission.
- Brussels, J. (1968). *Casebook of a crime psychiatrist*. London, UK: New English Library.
- Canter, D. (2000). Offender profiling and criminal differentiation. *Legal and Criminological Psychology*, 5, 23–46.
- Canter, D. (2004). Offender profiling and investigative psychology. *Journal of Investigative Psychology and Offender Profiling*, 1, 1–15.
- Canter, D. (2008). In the kingdom of the blind. In D. Canter, & R. Žukausnieke (Eds), *Psychology and law: Bridging the gap* (pp. 1–23). Aldershot, England: Ashgate Publishing.
- Copson, G. (1995). *Coals to Newcastle? Part 1: A study of offender profiling*. London, UK: Home Office Police Research Group.
- Devery, C. (2010). Criminal profiling and criminal investigation. *Journal of Contemporary Criminal Justice*, 26, 393–407.
- Doan, B., & Snook, B. (2008). A failure to find empirical support for the homology assumption in criminal profiling. *Journal of Police and Criminological Psychology*, 23, 61–70.
- Douglas, J. E., Burgess, A. W., Burgess, A. G., & Ressler, R. K. (Eds), (1992). *Crime classification manual: A standard system for investigating and classifying violent crimes*. New York, NY: Simon & Schuster.
- Douglas, J. E., & Olshaker, M. (1995). *Mind hunters: Inside the FBI's elite serial crime unit*. New York, NY: Pocket books.
- Douglas, J. E., Ressler, R. K., Burgess, A. W., & Hartman, C. R. (1986). Criminal profiling from crime scene analysis. *Behavioral Sciences and the Law*, 4, 401–421.
- Dowden, C., Bennell, C., & Bloomfield, S. (2007). Advances in offender profiling: A systematic review of the profiling literature published over the past three decades. *Journal of Police and Criminal Psychology*, 22, 44–56.
- Ferguson, C. (2013). Investigative relevance. In W. Petherick (Ed.), *Profiling and serial crime: Theoretical and practical issues* (3rd ed., pp. 167–184). Waltham, MA: Elsevier.
- Goldsworthy, T. (2001). Criminal profiling: Is it investigatively relevant? *Journal of Behavioral Profiling*, 2.
- Gross, H. (1968). *Criminal psychology*. Montclair, NJ: Patterson Smith.
- Hazelwood, R. R., & Michaud, S. (2001). *Dark dreams*. New York, NY: St Martin Press.
- Hazelwood, R. R., Ressler, R. K., Depue, R. L., & Douglas, J. R. (1995). Criminal personality profiling: An overview. In R. R. Hazelwood, & A. W. Burgess (Eds), *Practical aspects of rape*

- investigations: A multidisciplinary approach* (2nd ed., pp. 115–126). Boca Raton, FL: CRC Press.
- Hicks, S. J., & Sales, B. D. (2006). *Criminal profiling: Developing an effective science and practice*. Washington, DC: American Psychological Association.
- Holmes, R. M., & Holmes, S. T. (2002). *Profiling violent crimes: An investigative tool*. Thousand Oaks, CA: Sage.
- Homant, R. J., & Kennedy, D. B. (1998). Psychological aspects of crime scene profiling: Validity research. *Criminal Justice and Behavior*, 23, 319–343.
- Jackson, J. L., Van Kopen, P. J., & Herbrink, J. C. M. (1993). *Does the service meet the needs? An evaluation of consumer satisfaction with specific profile analysis and investigative advice offered by the Scientific Research Advisory Unit of the National Criminal Intelligence Division (CRI) – the Netherlands*. Amsterdam, Netherlands: Netherlands Institute for the Study of Criminality and Law Enforcement.
- Kocsis, R. N. (2003a). Criminal psychological profiling: Validities and abilities. *International Journal of Offender Therapy and Comparative Criminology*, 47, 126–144.
- Kocsis, R. N. (2003b). An empirical assessment of content in criminal psychological profiles. *International Journal of Offender Therapy and Comparative Criminology*, 47, 38–47.
- Kocsis, R. N. (2004). Psychological profiling of serial arson offenses: An assessment of skills and accuracy. *Criminal Justice and Behavior*, 31, 341–361.
- Kocsis, R. N. (2006). Validities and abilities in criminal profiling: The dilemma for David Canter's Investigative Psychology. *International Journal of Offender Therapy and Comparative Criminology*, 50, 458–477.
- Kocsis, R. N., & Coleman, S. (2000). The unexplored ethics of criminal psychological profiling. In M. Godwin (Ed.), *Criminal psychology and forensic technology: A collaborative approach to effective profiling* (pp. 323–338). Boca Raton, FL: CRC Press.
- Kocsis, R. N., & Hayes, A. F. (2004). Believing is seeing? Investigating the perceived accuracy of criminal psychological profiles. *International Journal of Offender Therapy and Comparative Criminology*, 48, 149–160.
- Kocsis, R. N., Hayes, A. F., & Irwin, H. J. (2002). Investigative experience and accuracy in psychological profiling of a violent crime. *Journal of Interpersonal Crime*, 17, 811–823.
- Kocsis, R. N., Irwin, H. J., Hayes, A. F., & Nunn, R. (2000). Expertise in psychological profiling: A comparative assessment. *Journal of Interpersonal Violence*, 15, 311–331.
- Kocsis, R. N., & Palermo, G. B. (2007). Contemporary problems in criminal profiling. In R. N. Kocsis (Ed.), *Criminal profiling: International theory, research, and practice* (pp. 327–345). Totowa, NJ: Humana Press.
- Kocsis, R. N. (2013). The criminal profiling reality: What is actually behind the smoke and mirrors? *Journal of Forensic Psychology Practice*, 13, 79–91.
- Meyer, C. B. (2007). Criminal profiling as expert evidence? An international case law perspective. In R. N. Kocsis (Ed.), *Criminal profiling: International theory, research, and practice* (pp. 207–247). Totowa, NJ: Humana Press.
- Mokros, A., & Alison, L. J. (2002). Is offender profiling possible? Testing the predicted homology of crime scene actions and background characteristics in a sample of rapists. *Legal and Criminological Psychology*, 7, 25–44.
- Muller, D. A. (2000). Criminal profiling: Real science or just wishful thinking? *Homicide Studies*, 4, 234–264.
- Muller, D. A. (2011). Qualitative approaches to criminal profiling as ways of reducing uncertainty in criminal investigations. *Policing*, 5, 33–40.
- Petherick, W. (2013). The fallacy of accuracy in criminal profiling. In W. Petherick (Ed.), *Profiling and serial crime: Theoretical and practical issues* (3rd ed., pp. 113–124). Waltham, MA: Elsevier.

- Petherick, W., & Ferguson, C. (2013). Behavioural consistency, the homology assumption and the problems of induction. In W. Petherick (Ed.), *Profiling and serial crime: Theoretical and practical issues* (3rd ed., pp. 37–61). Waltham, MA: Elsevier.
- Petherick, W., & Turvey, B. E. (2008). Nomothetic methods of criminal profiling. In B. E. Turvey (Ed.), *Criminal profiling: An introduction to behavioral evidence analysis* (3rd ed., pp. 75–111). London, UK: Elsevier.
- Pinizzotto, A. J. (1984). Forensic psychology: Criminal personality profiling. *Journal of Police Science and Administration*, 12, 32–39.
- Pinizzotto, A. J., & Finkel, N. J. (1990). Criminal personality profiling: An outcome and process study. *Law and Human Behavior*, 14, 215–233.
- Prentky, A. R., & Burgess, A. W. (2000). *Forensic management of sexual offenders*. New York: Kluwer Academic.
- Ressler, R. K., & Shachtman, T. (1992). *Whoever fights monsters: My twenty years tracking serial killers for the FBI*. New York, NY: St Martin's Press.
- Risinger, D. M., & Loop, J. L. (2002). Three card monte, monty hall, *modus operandi* and 'offender profiling': Some lessons of modern cognitive science for the law of evidence. *Cardozo Law Review*, 24, 193–285.
- Snook, B., Cullen, R., Bennell, C., Taylor, P. J., & Gendreau, P. (2008). The criminal profiling illusion: What's behind the smoke and mirrors? *Criminal Justice and Behavior*, 35, 1257–1276.
- Snook, B., Eastwood, J., Gendreau, P., Goggin, C., & Cullen, R. (2007). Taking stock of criminal profiling: A narrative review and meta-analysis. *Criminal Justice and Behavior*, 34, 437–453.
- Snook, B., Haines, A., Taylor, P. J., & Bennell, C. (2007). Criminal profiling belief and use: A survey of Canadian police officer opinion. *Canadian Journal of Police and Security Services*, 5, 169–179.
- Torres, A. N., Boccaccini, M. T., & Miller, H. A. (2006). Perceptions of the validity and utility of criminal profiling among forensic psychologists and psychiatrists. *Professional Psychology, Research and Practice*, 37, 51–58.
- Trager, J., & Brewster, J. (2001). The effectiveness of psychological profiles. *Journal of Police and Criminal Psychology*, 16, 20–28.
- Turvey, B. E. (2012). *Criminal profiling: An introduction to behavioral evidence analysis*. London, UK: Elsevier.
- Villejoubert, G., Almond, L., & Alison, L. (2011). Interpreting claims in offender profiles: The role of probability phrases, base-rates and perceived dangerousness. In L. Alison L, & R. Lee (Eds), *Professionalizing offender profiling: Forensic and investigative psychology in practice* (pp. 206–227). Hoboken, NJ: Taylor and Francis.
- Wilson, P., Lincoln, R., & Kocsis, R. N. (1997). Validity, utility and ethics of profiling for serial violent and sexual offenders. *Psychiatry, Psychology and the Law*, 4, 1–12.
- Wilson, P., & Soothill, K. (1996). Psychological profiling: Red, green or amber? *Police Journal*, 69, 12–20.
- Woodhams, J., Hollin, C. R., & Bull, R. (2007). The psychology of linking crimes: A review of the evidence. *Legal and Criminological Psychology*, 12, 233–249.
- Woodhams, J., Hollin, C. R., & Bull, R. (2008). Incorporating context in linking crimes: An exploratory study of situational similarity and if-then contingencies. *Journal of Investigative Psychology and Offender Profiling*, 5, 1–23.
- Woodhams, J., & Toye, K. (2007). An empirical test of the assumptions of case linkage and offender profiling with serial commercial robberies. *Psychology, Public Policy, and Law*, 13, 59–85.

- Woskett, J., Coyle, I. R., & Lincoln, R. (2007). The probity of profiling: Opinions of Australian lawyers on the utility of criminal profiling in court. *Psychiatry, Psychology and Law, 14*, 306–314.
- Youngs, D. (2008). Contemporary challenges to investigative psychology: Revisiting the Canter offender profiling equations. In D. Canter, & R. Žukauskiè (Eds), *Psychology and law: Bridging the gap* (pp. 23–30). Aldershot, England: Ashgate Publishing.