

CHAPTER OUTLINE

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LEARNING OUTCOMES

BY THE END OF THIS CHAPTER, YOU SHOULD BE ABLE TO:

1. Understand the theories underpinning crime linkage and offender profiling
2. Appreciate the variation in methods that come under the umbrella term of offender profiling
3. Appreciate the limitations of the research into crime linkage and offender profiling.

10.1 INTRODUCTION

It is a truism in criminology that a minority of offenders commit the majority of crime (Bennett & Davis, 2004, Farrington & West, 1993; Wolfgang, Figlio, & Sellin, 1972). These so-called *serial offenders* are, therefore, a priority for law enforcement agencies around the world due to the considerable costs they impose on our society, both in human and financial terms. For example, a sample of just 2,093 serial offenders in London cost the taxpayer more than £163 million in a three-year period from 2012 to 2015 (Snelling, 2015). Another reason for focusing investigative efforts on serial offenders is that this offers a potentially cost-effective means of reducing crime because a large number of offences can be cleared up by apprehending just a few of the most prolific offenders in a local area (Karn, 2013). In times of austerity and police budget cuts, a move towards more cost-effective, intelligence-led policing would seem logical.

While physical trace evidence, such as DNA or fingerprints, is one of the most objective ways of identifying serial offenders, such trace evidence is not always left at a crime scene (Davies, 1991) and, even if it is, the time it takes to process such information and the associated financial burden can be significant (Santtila, Junkkila, & Sandnabba, 2005). This raises the following question: in the absence of physical trace evidence, what other evidence from the crime scene exists that could be used to assist in detecting the offender and determining the extent of his/her offending? Offender profiling and crime linkage, the subjects of this chapter, are two psychological procedures that have the potential to assist in this regard.

Before going further it is necessary to consider what we mean by “crime linkage” and “offender profiling”. *Crime linkage* is “a form of behavioural analysis used to identify crimes committed by the same offender, through their behavioural similarity” (Woodhams, Hollin, & Bull, 2007, p. 233) and sometimes their geographical or temporal proximity. It is also called *case linkage*, *linkage analysis*, and *comparative case analysis*.

Offender profiling is also known by many names, including *psychological profiling*, *criminal profiling*, *behavioural investigative advice (BIA)*, *investigative profiling*, *crime scene analysis* and *criminal investigative advice*. Definitions of offender profiling also vary from the relatively narrow definition of deducing an offender’s characteristics from his/her crime scene behaviour (Ainsworth, 2000) to a much broader conception including estimating an offender’s future level of threat, providing the police with advice regarding how to interview a suspect, media advice, veracity assessment, search advice and crime linkage (Alison & Rainbow, 2011). For the sake of clarity, in this chapter the term “offender profiling” refers to the practice of inferring an offender’s characteristics from crime scene behaviour.

10.2 CRIME LINKAGE

Although rarely mentioned in popular dramatisations of forensic psychology, crime linkage is conducted in many countries, including the United States, Canada, Australia, the United Kingdom, South Africa and New Zealand. It is practiced by police employees,

such as crime analysts, behavioural investigative advisors and police officers, as well as by consultants, such as academic psychologists. It aims to identify crimes that have been committed by the same offender, using similarity in offender crime scene behaviour as the basis for this decision. For this to work, offenders must behave in a relatively similar way each time they commit a crime of that type, which is referred to as the *offender consistency hypothesis* (Canter, 1995). However, it is important to note here that offenders do not have to commit their crimes in a perfectly consistent manner for their crimes to be linked using crime scene behaviour (Bennell, Jones, & Melnyk, 2009). In fact, as long as two crimes committed by the same offender are more consistent than two crimes committed by different offenders, there is support for the underlying assumptions of crime linkage. Thus, it is *relative* behavioural consistency rather than *absolute* behavioural consistency that is necessary for crime linkage to work.

As well as needing offenders to be relatively consistent in the way they commit their crimes, it is also necessary that offenders have a degree of distinctiveness in their offending behaviour. For example, if burglars committed their burglaries in exactly the same way, it would not be possible to tell one burglary series from another. This requirement of crime linkage is referred to as *behavioural distinctiveness* (Woodhams, Hollin et al., 2007) or *discrimination* (Bennell & Canter, 2002), which assumes that intra-individual behavioural variation will be less than inter-individual behavioural variation (Alison, Bennell, Mokros, & Ormerod, 2002).

Identifying crimes that have been committed by the same serial offender has several advantages, including the efficient deployment of limited police resources and the pooling of witness descriptions and physical evidence from different crime scenes (Grubin, Kelly, & Brunsdon, 2001). Some crime types, such as sex offences, are notoriously difficult to prosecute and victim credibility can be pivotal in the successful prosecution of a case (Ellison, 2005). With such cases, crime linkage can help to increase victim credibility because it allows an offender to be charged with multiple offences, thereby meaning there are several victims and each victim can gain credibility from the others (Davies, 1992). While typically used in an investigative context, crime linkage analysis has been presented in legal proceedings in the United States, Australia, the UK, South Africa and New Zealand (e.g. see Case Studies 10.1 and 10.2).

CASE STUDY 10.1 THE NEWCASTLE MURDER SERIES (LABUSCHAGNE, 2006)

From February 2004 to January 2005 in the town of Newcastle in the KwaZulu-Natal province of South Africa, two young heterosexual couples were attacked by a lone male offender in the same park whereby the female victims were raped and the male victims murdered. During the same time period, the bodies of two males were also recovered from the same area. There was no DNA evidence linking the four rapes and murders; however, the surviving rape victims from the first two crimes identified the

accused during identity parades and the accused confessed his involvement in the murders to a witness, which led to the arrest of Themba Anton Sukude. Evidence of behavioural similarity was used to support charging the accused for the third and fourth murders. Some of the similar and dissimilar behaviours identified by Brigadier Labuschagne in his linkage analysis can be seen in Table 10.1. Labuschagne's linkage analysis report was used as evidence during the trial and the accused was found guilty of all charges.

Table 10.1 The Newcastle murder series

Crime 1 Murder and rape	Crime 2 Murder and rape	Crime 3 Murder	Crime 4 Murder
Occurred at night	Occurred at night	Occurred at night	Occurred at night
Female rape victim threatened with knife	Female rape victim threatened with knife		
Male victim killed with rock (from scene)	Male victim killed with rock (from scene)	Male victim killed with rock (from scene)	Male victim killed with rock (from scene)
Blitz (sudden) attack	Blitz (sudden) attack	Blitz (sudden) attack	Blitz (sudden) attack
Rape of female	Rape of female	Male victim found undressed (potential female rape victim?)	
No property stolen	Property stolen (telephones, purse)		No property stolen

CASE STUDY 10.2 STEVEN FORTIN (HAZELWOOD & WARREN, 2003)

Steven Fortin was tried for the murder of Melissa Padilla on several occasions (Meyer, 2007). He was finally convicted and sentenced to life imprisonment without parole for her murder in June 2010. In his first trial retired FBI profiler, Roy Hazelwood, presented evidence of behavioural similarity between the actions of the perpetrator who murdered Melissa Padilla and the behaviour displayed during a sexual offence in the state of Maine for which Steven Fortin had been convicted. Fifteen similarities in *modus operandi* (behaviour necessary to commit the offence) were identified, which included characteristics of the victims, the environment in which they were attacked, the use of force and the injuries they sustained as a result. In addition, five ritual behaviours, which reflect motive, were highlighted as being common to both crimes: both victims were brutally beaten about the face, manually strangled from the front, raped anally, and bitten on

their chin and breast. Roy Hazelwood concluded that the 15 shared modus operandi behaviours alongside the five shared ritual behaviours formed a unique signature across the two crimes.

Hazelwood also considered behavioural differences between the crimes that might have suggested the offences had been committed by different people. In this case, Hazelwood identified 11 differences, which included the locations of the offences, the time/weekday on which they occurred, and physical characteristics of the victims (e.g. their height and weight). He explains in his article with Janet Warren, however, that these differences can be attributed to the opportunistic nature of the crimes and the attack in Maine being disturbed by a third party, and therefore they "pose no threat to the signature opinion" (Hazelwood & Warren, 2003, p. 316). Hazelwood, therefore, concluded that the two crimes were committed by the same person.

While the case studies show how crime linkage has been used in court proceedings, it is more commonly used in an investigative context. Within this context, there are several different scenarios in which crime linkage might be conducted (see Figure 10.1). An analyst might be provided with a specific index crime (that is either solved or unsolved) and then asked to find other crimes that may be committed by the same person from within police crime databases (scenario 1 in Figure 10.1, where the orange dots represent crimes that are linked to the index crime). Alternatively, an analyst might be presented with a pre-defined group of offences (e.g. 10 rapes) and asked to decide whether the crimes are committed by the same person or not (scenario 3). These two scenarios are described as *reactive crime linkage* because the analyst is responding to a specific request to link crimes (Woodhams, Bull, & Hollin, 2007). In scenario 2, however, the analyst proactively searches for potentially linked offences amongst a larger database (with the orange dots in Figure 10.1 representing one crime series committed by a particular offender and the purple dots a second series committed by a different offender).

Where the crime linkage practitioner suspects they have identified two or more crimes that might have been committed by the same offender they conduct a detailed analysis of the behaviour displayed at each crime scene. They identify behaviours that are common to the crimes and they consider how the behaviour displayed might differ. Where repeated behaviours are identified, the practitioner must also consider how often these behaviours are displayed by all offenders. For example, if within a series of stranger rapes the offender always tied up the victim, the practitioner would need to consider how often this behaviour occurs in all stranger rapes. This relates to the assumption of crime linkage that offenders must be relatively distinctive in their offending styles. If a behaviour is relatively rare and it occurs across all offences in the potential series the practitioner can be more confident that these crimes were committed by the same offender. The practitioner would, however, normally take into account multiple behaviours when arriving at such a decision.

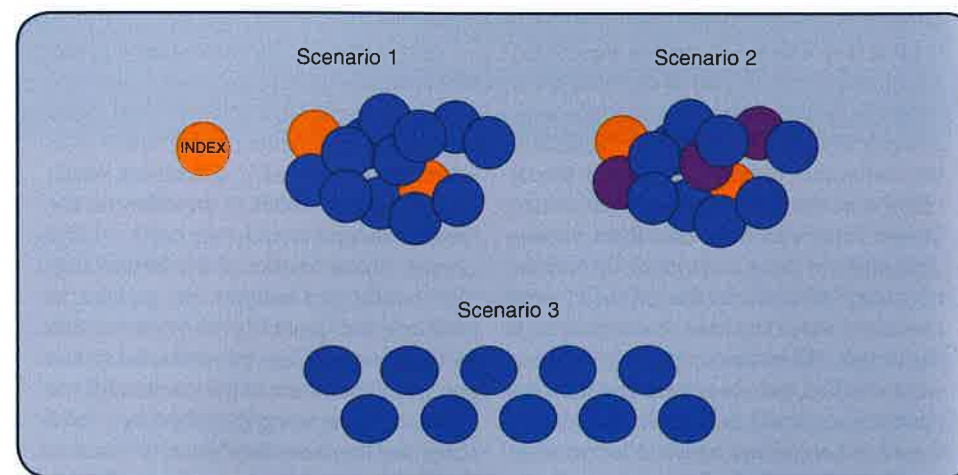


FIGURE 10.1 Three different crime linkage scenarios



PHOTO 10.1 Information about how offenders behave at crime scenes, whether that comes from witness/victim accounts or CCTV footage, is used by crime analysts to conduct crime linkage.

Source: © ERproductions Ltd/Getty Images

The practitioner might also consider the *geographical proximity* of the offences, which is thought to be a good indicator of whether crimes are committed by the same offender because offenders tend to commit their offences within well-defined areas with which they are familiar (Bennell & Jones, 2005). If the geographical areas in which offenders commit their crimes don't overlap a great deal, crimes by the same offender should be located close together as well as being a distance away from the crimes of different offenders.

In some countries, there are large-scale police databases that hold information about the crime scene behaviour displayed by the offender, geographical location and time/date of each crime in the database. These can be used to support crime linkage analysis since the database can be searched for crimes that are close together in time and space, and similar in crime scene behaviour.

10.2.1 Evidence-based Practice

The use of crime linkage analysis to support decision-making in police investigations, as well as its use in legal proceedings, means that the implications of incorrectly linking crimes are significant (Grubin et al., 2001). Psychologists' professional practice guidelines emphasise the importance of engaging in *evidence-based practice* and using the best research evidence (e.g. American Psychological Association, 2014; Health and Care Professions Council, 2010). It is therefore important that the principles

underpinning crime linkage are demonstrated to be empirically supported and that research findings continue to inform how crime linkage is conducted in practice. As stated above, crime linkage rests on two assumptions; those of behavioural consistency and distinctiveness. Research studies have been accumulating since the 1970s (Green, Booth, & Biderman, 1976) to the present day on the consistency and distinctiveness of criminal behaviour and a considerably larger body of research spanning many decades exists regarding the *consistency* and *distinctiveness* of non-criminal behaviour (Pervin, 2002).

10.2.2 Empirical Evidence

In terms of the consistency and distinctiveness of criminal behaviour, a range of crime types have been investigated by researchers including murder (e.g. Bateman & Salfati, 2007), sexual offences (e.g. Bennell, et al., 2009), commercial and personal robbery (Burrell, Bull, & Bond, 2012; Woodhams & Toye, 2007), commercial and residential burglary (e.g. Bennell & Jones, 2005), car-theft (e.g. Tonkin, Grant, & Bond, 2008), and arson (e.g. Santtila, Fritzon, & Tamelander, 2004). Broadly speaking, studies of *acquisitive crime* have found only limited evidence for consistency and distinctiveness in crime scene behaviour (with some notable exceptions discussed below). In contrast, studies of interpersonal types of crime report being able to identify, with a good degree of accuracy, crimes from the same series using similarity in crime scene behaviour. This provides support for the two underlying assumptions of crime linkage with interpersonal types of crime. This doesn't mean, however, that offenders who commit acquisitive forms of crime are not consistent and distinctive too; it may simply be that police records of crime scene behaviour in acquisitive crime do not contain enough accurate and reliable information to identify meaningful patterns of consistency and distinctiveness.

Nevertheless, while the majority of offender behaviour has not demonstrated high levels of consistency and distinctiveness in acquisitive crimes, there are notable exceptions. Research has demonstrated, for example, that the geographical distance and number of days between offences is shorter for crimes committed by the same person than crimes committed by different people, which means that the so-called inter-crime distance and temporal proximity might be used to facilitate crime linkage (e.g., Davies, Tonkin, Bull, & Bond, 2012; Goodwill & Alison, 2006; Markson, Woodhams, & Bond, 2010). The inter-crime distance is also good at predicting whether crimes belong to the same series for interpersonal forms of crime, such as commercial and personal robbery (Burrell et al., 2012; Woodhams & Toye, 2007). However, the effectiveness of geographical proximity for linking varies for different crimes. For example, Bennell and Jones (2005) found it to be more effective for residential burglaries than commercial burglaries. As reported above, geographical proximity will best identify series when the geographical areas in which criminals offend overlap the least (the distinctiveness element of crime linkage). As explained by Bennell and Jones, commercial properties tend to be clustered together, therefore the spaces in which commercial burglars commit their crimes overlap to a greater degree.

Returning to the issue of evidence-based practice, it is too early in the research process to make firm recommendations for conducting crime linkage. However, what researchers have found so far suggests that for acquisitive forms of crime, geographical proximity (and to a lesser extent, temporal proximity) should be used for deciding if crimes form part of the same series. The research findings for interpersonal forms of crime, at least in terms of robbery and sexual offences, are more promising in terms of using crime scene behaviour to identify crime series. There are, however, important limitations to this research that should be considered.

10.2.3 Limitations of the Research on Crime Linkage

While it is not possible to give a comprehensive review of limitations (see Tonkin, 2015, for more detail), there are some important limitations of the literature that will be briefly described. One primary limitation is that much of the crime linkage literature has relied on samples of solved crime. This is problematic because the crimes may have been solved in the first place due to having been committed in a highly consistent and/or distinctive manner (e.g., Bennell & Canter, 2002; Sorochinski & Salfati, 2010). Consequently, research that relies on solved offences might overestimate the likelihood of crime linkage working successfully in practice. While research has begun to test the assumptions of crime linkage with unsolved offences (e.g. see Woodhams & Labuschagne, 2012, and www.crimelinkage.org), much more research is needed in this area.

A second limitation is that much research has focused on examining crime linkage within specific crime types (e.g. is it possible to link two residential burglaries committed by the same person?). This is despite the fact that many offenders (particularly the most prolific) do not restrict themselves to committing just one type of offence (Farrington, Snyder, & Finnegan, 1988; Piquero, Farrington, & Blumstein, 2007). Fortunately, however, recent investigations have begun to test whether offenders are consistent across crimes of different types too (Tonkin & Woodhams, 2017; Tonkin, Woodhams, Bull, & Bond, 2012; Tonkin, Woodhams, Bull, Bond, & Palmer, 2011). In the future it may therefore be possible to identify serial offenders who are versatile in their offending behaviour.

Third, more research is needed to test crime linkage in practice, including how analysts identify behavioural consistency and distinctiveness, what factors they use to link crimes and whether their decision-making can be improved using statistically-based decision-support tools. Future work of this nature is vital if the research literature on crime linkage is to have a meaningful impact on police practice.

10.2.4 Conclusions on Crime Linkage

Identifying crime series has several advantages to the police and can benefit society. However, if a crime linkage practitioner gives the police or the courts inaccurate

advice the consequences are significant. It is therefore important that crime linkage is assessed and shown to be a valid practice. Studies testing the principles of crime linkage are accumulating and suggest that accurate crime linkage should be possible if appropriate indicators of series membership are attended to. What this area of forensic psychology is lacking at present, however, is a real-world assessment of crime linkage whereby predictions about series membership are made and systematically followed up to determine accuracy. Until studies of this nature are conducted we will not know the true contribution that crime linkage research can make to the investigation of prolific serial offenders.

10.3 OFFENDER PROFILING

In contrast to crime linkage, offender profiling is the topic of a considerable number of scholarly articles and book chapters as well as forms of popular media. It is a contentious area and strong opinions exist. As you will see, "offender profiling" does not refer to a uniform practice and how it is conducted has evolved over time and continues to evolve. In researching it, we often have to use data that are held and collated by police forces, which presents its own difficulties in terms of data quality (Alison, Snook, & Stein, 2001). If you are considering studying this field, the sheer volume of literature to get to grips with can be quite daunting. While it is an exciting area to research and study, it is also challenging.

Quite a lot of the debate within this field relates to whether offender profiling is, or should be, an art or a science. As psychologists, our practice should be evidence-based and therefore empirical research into the underpinnings of offender profiling is crucial. Before considering this empirical research, the history of offender profiling and some of the major ways in which it has developed will be briefly outlined.

The roots of offender profiling have been traced back to Dr. Thomas Bond who provided the UK police with an opinion regarding Jack the Ripper's physical appearance, likely dress, state of mind and motivation for a series of murders in London in 1880 (Canter, 2004). However, as Canter (2004) explains, it was through the activities of the Federal Bureau of Investigation (FBI) in the United States that offender profiling gained its fame. The use of offender profiling (and BIA) to guide police investigations has since spread to other countries including Australia, Canada, Finland, Germany, Sweden, the Netherlands and Singapore (Alison, Goodwill, Almond, van der Heuvel, & Winter, 2010; Davis & Bennett, 2006; Snook, Cullen, Bennell, Taylor, & Gendreau, 2008).

Offender profilers come from a variety of professional backgrounds. A study in 1995 in the UK of 184 instances of profiling advice reported that the advice had been sought from forensic, clinical and academic psychologists, forensic and clinical psychiatrists, police officers and police scientists (Copson, 1995). A recent international review of the admittance of expert evidence on offender profiling and crime scene analysis in the courts (Bosco, Zappala, & Santtila, 2010) produced similar

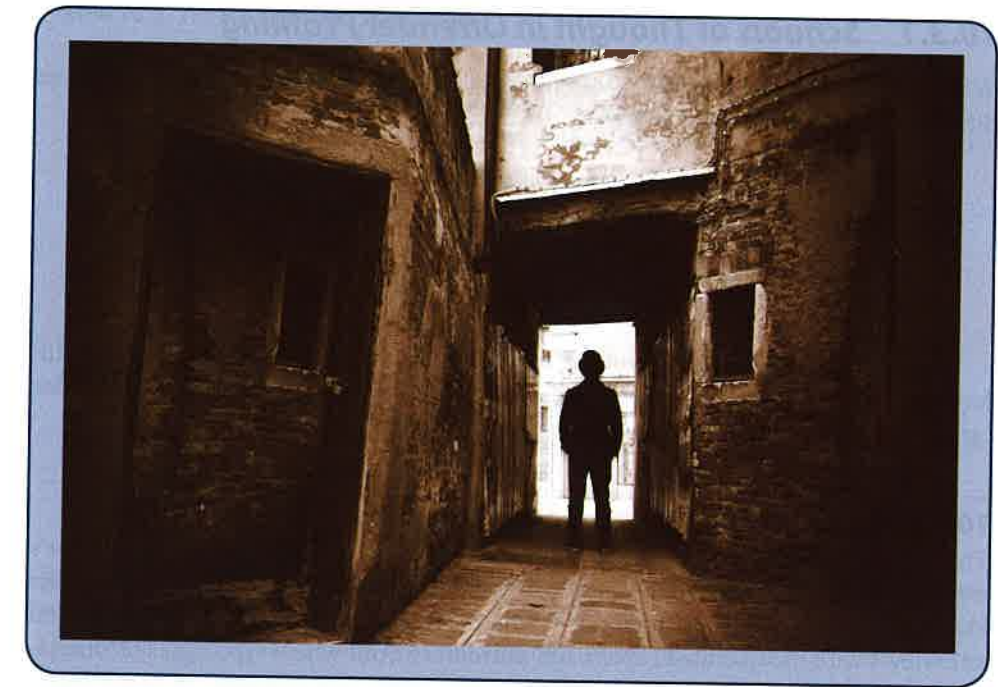


PHOTO 10.2 Dr. Thomas Bond provided the UK police with an opinion regarding Jack the Ripper's physical appearance, likely dress, state of mind and motivation for a series of murders in London in 1880.

Source: © frankie's/Shutterstock

results: criminologists, psychiatrists, psychologists and FBI special agents had all served as expert witnesses regarding offender profiling. The three main areas on which they had testified were motivation for the crime, whether the behaviour of an offender corresponded with particular personal characteristics, and evidence of linkage between crimes.

With such a long history, we might expect offender profiling to have been the subject of a considerable body of scientific research. Unsurprisingly, then, Dowden, Bennell, and Bloomfield (2007) identified 132 articles related to offender profiling that spanned 31 years; however, most articles were "discussion pieces" with only the minority of articles reporting inferential statistics. Similarly, a narrative review by Snook, Eastwood, Gendreau, Goggin, and Cullen (2007) of 130 articles concluded that most writing on the subject used "common-sense" rationales rather than empirically-based rationales. This lack of empirical research is a cause for concern in light of psychological principles of evidence-based practice. As Dowden et al. (2007) argue, empirical research is needed for offender profiling to be seen as a "legitimate field of study within the behavioral sciences" (p. 52). The few empirical studies of the principles underpinning offender profiling will be discussed below, but first a brief history of offender profiling will be sketched.

10.3.1 Schools of Thought in Offender Profiling

When talking about the history of offender profiling, it is often categorised into three different schools of thought (Alison et al., 2010):

1. The *criminal investigative approach* (also called the *FBI approach*, *criminal investigative analysis* or *crime scene analysis*)
2. The *clinical-practitioner approach* (also known as *diagnostic evaluation*)
3. The *statistical approach* (sometimes *investigative psychology*).²

A very brief and simplified outline of each approach is given below. The key difference between these three approaches is the *knowledge base* used by the offender profiler to make inferences about an offender's characteristics.

10.3.1.1 The criminal investigative approach

The criminal investigative approach to profiling is informed by the investigator's extensive knowledge developed from exposure to a large number of cases and their experience of criminal investigations (Canter, 2004). In addition, the FBI conducted interviews with incarcerated rapists and murderers from which typologies of offenders were developed (Wilson, Lincoln, & Kocsis, 1997). For example, in-depth interviews with 36 convicted sexually motivated serial murderers were incorporated with the extensive investigative experience of members of the FBI Behavioral Science Unit to produce a typology of murderers (Jackson & Bekerian, 1997). This typology distinguished between murderers who were classified as organised, disorganised or mixed, based on their crime scene behaviour. An organised murderer would show evidence of having planned the crime, of having committed the crime in a controlled manner, leaving few or no clues and with a stranger as a target (Jackson & Bekerian, 1997). In developing the typology, offender characteristics were associated with each classification and thus predictions could be made about an offender's characteristics by classifying the murder into one of three types. For example, an organised murder would be committed by someone who lived an orderly life, was of average to high intelligence, socially competent and likely be engaged in skilled employment (Canter, Alison, Alison, & Wentink, 2004).

As explained by Jackson and Bekerian (1997), the steps followed in constructing an offender profile according to the FBI approach are as shown in Table 10.2.

10.3.1.2 The clinical approach

Several authors have noted that there is no one approach to "clinical profiling" (Mullen, 2000; Wilson et al., 1997). Some clinical profilers (Copson, Badcock, Boon, & Britton, 1997) have likened their approach to that of the original FBI profilers,

² Other approaches that are referred to are *crime action profiling* (Kocsis, 2007) and *behavioural evidence analysis* (Turvey, 2008). These are not discussed further here but the interested reader can find out more from the cited sources.

Table 10.2 The FBI approach to profiling

<i>Data assimilation</i>	At this stage the profiler must collate all available information about the crime. This can include written materials (e.g. victim or witness statements, autopsy reports) or visual materials (e.g. CCTV or photographs).
<i>Crime classification</i>	The crime is classified into a type using the collated information.
<i>Crime reconstruction</i>	Hypotheses about how the crime unfolded are developed in terms of the sequence of events and the behaviours of the different parties (e.g. victim, offender/s).
<i>Profile generation</i>	The profile is generated including hypotheses about the offender's socio-demographic characteristics, his/her habits and personality. According to Jackson and Bekerian (1997) the profiles produced tend to be written in a standardised manner.

interpreting the offender's motive and drawing on psychological literature (e.g. personality theory, Boon, 1997) to make predictions about the offender's characteristics. Boon (1997) has stressed that the aim of clinical profiling is not to solve a case, but to provide "insight into the nature of both the case and the offender(s)" (p. 46). Like the criminal investigative approach, as well as using psychological theory, clinical profilers draw on their accrued experience. Rather than this being experience of criminal investigations, clinical profilers draw on their experience of working with clients in a forensic mental health setting that can be applied to the case under investigation (Alison, West, & Goodwill, 2004).

According to Boon (1997) and Copson et al. (1997), the clinical profiler begins by collating all information available about the crime including details of the victim, the crime scene and the circumstances of the offence. This might include visiting the crime scene itself. From this the profiler must identify the "crime type at a fundamental level (e.g. murder) and then move on to be more specific about its character", in terms of the weapons used, the nature and extent of the victim's injuries and so on. The profiler must attempt to understand what happened, how and to whom, and thereby reconstruct the criminal event (Copson et al., 1997). Copson et al. (1997) explain that the clinical profiler will be looking for evidence of emotion, desires, moods and psychopathology in the case material. Having identified the salient elements of the offence, the profiler selects a personality theory or theories that will help explain the offence in question as well as being appropriate to the operational needs of the police investigation (Boon, 1997). The psychological literature is drawn upon to understand the offender's motive and suggest offender characteristics (Copson et al., 1997).

10.3.1.3 The statistical approach

The statistical approach to profiling is attributed to David Canter and his colleagues, which "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" (Alison et al., 2010, p. 118). Canter (2000) sees offender profiling as

being firmly rooted in the discipline of psychology and argues that offender profiling is similar to other areas of psychology. In occupational psychology, for example, psychologists try to predict someone's future behaviour in the workplace based on what we know about their characteristics (as ascertained from psychometric tests). Canter (2000) argues that this is not dissimilar to what the offender profiler is trying to achieve whereby they are attempting the reverse; to predict someone's likely characteristics based on what we know of their behaviour.

In constructing his/her profile, the statistical profiler will use statistically derived relationships between crime scene behaviour and offender characteristics that have been generated from databases of similar solved crimes and apprehended criminals to make predictions about the characteristics of the suspect in question (Snook et al., 2007). The statistical approach to profiling is therefore a research-oriented approach to profiling and many studies exist which have tried to identify bivariate relationships between single crime scene behaviours and single offender characteristics (e.g. Davies, Wittebrood, & Jackson, 1998; House, 1997) or which have clustered together crime scene behaviours to identify styles of offending with the aim of investigating whether particular offender characteristics are more often associated with a particular style of offending (e.g. Canter & Fritzon, 1998; Canter & Heritage, 1990).

Several studies of different crime types, including rape, paedophilic sex offences, and homicides, have reported similar "modes of interpersonal transaction" (Canter, 2000, p. 37) between the offender and the victim. These modes are the offender treating the victim as a *person* (where there are attempts at building rapport or a relationship), as an *object* (where the victim is used and controlled for the offender's gain) and as a *vehicle* for the offender's emotional state. The statistical profiler can therefore make predictions about an offender's characteristics based on the observation of him/her displaying one or more single crime scene behaviours (e.g. the use of bindings or the use of gloves) or they could determine the offender's dominant style of offending, or mode of interaction, and refer to the research literature regarding the common characteristics found to be associated with this style or mode.

The dominant schools of thought in offender profiling that have evolved differ from one another in terms of their incorporation of research findings to justify the predictions being made in the offender profile, and the emphasis they place on psychological theory and/or practitioner experience. In 1997, Bekerian and Jackson expressed concern that the offender profiling field might become fractured and argued that offender profiling would better develop as a field if consideration were given to "hybrid profiling techniques" incorporating the statistical analysis of large databases as well as experience of salient case studies. To an extent, this is being realised; according to Alison et al. (2010), such divisions are less relevant nowadays due to the emergence of "a more pragmatic, interdisciplinary practitioner-academic model" (p. 115).

10.3.2 The Assumptions of Offender Profiling

As was mentioned above, literature reviews have highlighted the dearth of empirical research on offender profiling. One area where some empirical research has been conducted is the investigation of the assumptions of offender profiling. Offender profiling shares two assumptions with crime linkage – those of offender behavioural

consistency and distinctiveness – and thus the empirical research on these assumptions has already been described above. In addition, offender profiling assumes a relationship between the way someone behaves at a crime scene and their characteristics. This has been called the A(ctions) → C(haracteristics) relationship (Canter, 1995) or alternatively the homology assumption (Mokros & Alison, 2002). If such relationships exist, it follows that offenders who behave in a similar way when committing their offences should be similar in terms of their characteristics, and conversely, that offenders with differing offending styles should differ in their characteristics. A review by Doan and Snook (2008) outlined six studies of the homology assumption, which had sampled arsons, rapes and robberies. Little supporting evidence for the homology assumption was found.

As explained by Goodwill and Alison (2007), one reason for the failure of studies to find support for the homology assumption might be because some studies have lacked an underpinning theoretical framework that can explain why certain socio-demographic variables would be associated with certain crime scene behaviours (Mokros & Alison, 2002). The offender characteristics tested in studies of the homology assumption (e.g., age, ethnicity, employment, education) were selected because they are commonly predicted in offender profiles (Mokros & Alison, 2002). However, it is questionable whether, based on models of personality, we should expect relationships between crime scene behaviour and demographic characteristics. Instead, relationships between crime scene behaviour and someone's developmental history (e.g., past learning experiences) or how they act in non-criminal situations are more likely (Woodhams & Toye, 2007).

One attempt in this regard utilised theories from evolutionary psychology, consumer psychology, social psychology and criminology to explain why we might expect to find relationships between the cost of footwear worn to the crime scene by burglars (as ascertained from *shoemark evidence* left at the scene) and their characteristics (age and gender, employment status, relative deprivation of his/her residence) (Tonkin, Bond, & Woodhams, 2009). The *homology assumption* was tested in terms of assessing (1) whether offenders who wore footwear of a similar cost were of a similar age and lived in a residence of similar deprivation, and (2) whether offenders of different genders and different employment status wore footwear of a significantly different cost. Support for the homology assumption was found for the offenders' employment status and the deprivation of their residences. Other such theoretically-informed investigations of the homology assumption might be fruitful in the future.

In addition, it has been argued that it's naïve to expect crime scene actions to map onto offender characteristics in a simple manner and instead we should develop our understanding of the processes (e.g., personality) that underlie the relationship between criminal actions and characteristics (Youngs, 2004). Similarly, Goodwill and colleagues (Goodwill & Alison, 2007; Goodwill, Alison, & Beech, 2009) have called for studies that investigate variables that moderate our ability to predict characteristics from crime scene behaviour. For example, in their study, Goodwill and Alison (2007) demonstrated that it was possible to predict offender age from victim age, but only where the offender had engaged in planning and where excessive violence was used.

It might therefore be possible to predict *some* offender characteristics from *some* crime scene behaviours, where we have a theoretical framework which accounts for such a relationship, and perhaps only in certain circumstances. This shifts the focus

onto individual crime scene behaviours, which also better reflects how some practitioners conduct profiling (e.g., see Ter Beek, van den Eshof, & Mali's (2010) account of offender profiling in the Netherlands).

10.3.3 Evaluations of Offender Profiles

The content of offender profiles is another area that has been the recipient of scrutiny and subsequent criticism. In 2003, Alison, Smith, and Morgan analysed 21 offender profiles written from 1992 to 2001 by profilers from the United States, the UK and other European countries where the offender had subsequently been convicted. The three main schools of thought (i.e. statistical, criminal investigative and clinical) were all represented in the sample. The profiles contained nearly 880 claims about offenders' characteristics. These reports came under criticism because Alison et al. found that over half of the claims made could not be verified post-conviction because, for example, they pertained to how the offender was feeling at the time of the offence. More than 20% of claims were vague or open to interpretation, and for more than 80% of the claims the profiler failed to provide any justification for the advice offered.

In 2007, Almond, Alison, and Porter conducted a similar analysis of 45 reports written in 2005 by behavioural investigative advisors employed by the then National Policing Improvement Agency (NPIA). These reports pertained to predictions of offender characteristics, the veracity of victim allegations, crime linkage, and geographical profiling. The reports contained 805 claims, 96% of which were accompanied by some form of justification, but only 34% were formally supported, 70% of which were verifiable, 43% were falsifiable, and only 8% were ambiguous.

In summary, whilst criticisms have been made regarding the contents of offender profiles, steps are being taken to establish professional standards and assessments suggest the quality of some offender profiling reports are improving. For published examples of actual offender profiling reports the interested reader is referred to Alison et al. (2004) and Alison (2005).

10.3.4 Evaluations of the Effectiveness of Offender Profiling

Within the popular literature on offender profiling, one does not have to look far to find reports of the effectiveness of offender profiling. Several authors have highlighted that there is a "plethora" of positive anecdotes about the use of offender profiling but that empirical support for these claims is lacking (Snook et al., 2008; Woskett, Coyle, & Lincoln, 2007). Snook et al. (2008) also caution that these anecdotes can be misleading, for example, where profilers report the *number* of correct predictions made rather than the *proportion* (which would take account of incorrect predictions). They illustrate this point with an example of where authors of a profile reported that they made 11 correct predictions; however, Snook et al. (2008) note that the profile was actually only 38% accurate when the 18 incorrect predictions were also taken into account.

Several assessments of offender profiling advice from the perspectives of the users also exist, which have been conducted in different countries including the UK and the Netherlands. In 1995, Copson surveyed 126 detectives in the UK who had received offender profiling advice from 29 different profilers. This advice included predicting

the characteristics of unknown offenders, advice regarding interviewing strategy and crime linkage. Over 50% of the detectives felt that the advice had provided them with new information but it was uncommon for the detectives to act on the advice directly or for the advice to assist in solving the case. Despite this, over two-thirds of the detectives said they would seek the advice of a profiler again. Similar findings were reported by Jackson, van Koppen, and Herbrink (1997) following their survey of 20 detective teams in Belgium and the Netherlands who had received offender profiling advice. Of the 42 evaluations made, only two were entirely negative.

As well as seeking the views of users" (Copson, 1995), Gudjonsson and Copson (1997) were able to assess the accuracy of the claims made in 50 offender profiles where the offender had subsequently been apprehended. Of the items of advice that could be assessed for accuracy, 68% offered by "statistical profilers" and 74% by "clinical profilers" were judged to be accurate. Like the more recent studies of the content of profiles (Alison et al., 2003; Almond et al., 2007), Gudjonsson and Copson (1997) criticised the vague nature of some claims that were made. Whilst the users of offender profiling advice seem content with the service received and a number of the claims made have been found to be correct, such evaluations are not without their critics. Canter (2000), for example, has criticised them for being premature, bearing in mind the limited evidence for the underlying assumptions of offender profiling.

10.3.5 Current Provision of Behavioural Investigative Advice (BIA) in the UK

The last decade has seen considerable development in the provision and management of behavioural investigative advice (BIA) in the UK, and it is logical to end this chapter with a brief consideration of these issues.

Within the UK, the provision of BIA is delivered by the National Crime Agency (NCA), with oversight and governance provided by the Behavioural Science Committee of the National Police Chiefs Council (NPCC). All requests for BIA support during ongoing police investigations must be sent via the Specialist Operations Centre at the NCA, who will provide one of their national cadres of NPCC Approved BIAs as part of a wider operational support team. It is important to note that all BIAs on this list are trained and employed by the NCA, so the historical practice of seeking assistance from academics, psychologists and other potentially qualified persons is no longer used in the UK.

Another important development is that all BIAs adhere to a strict set of working conditions, which includes annual auditing of their reports (see Alison & Rainbow, 2011, for further details). Moreover, training to become an ACPO-approved full-time BIA within the NCA involves a two-year (minimum) mentorship programme consisting of work-shadowing, conference attendance and training courses that seek to develop competency in seven areas: (1) interpersonal and verbal communication skills; (2) personal integrity; (3) writing skills; (4) critical thinking skills; (5) managing the work; (6) familiarity with the techniques of behavioural science as applied to criminal investigations; and (7) knowledge of the investigative and legal process.

Thus, the process of providing investigative support that is informed by the behavioural sciences has come a long way since the relatively unregulated cases that characterised the early history of "offender profiling". The current state of BIA

in the UK is instead characterised by a consistent national process for requesting such support and more robust mechanisms for ensuring the consistency, quality and utility of advice given.

10.4 SUMMARY

- Both offender profiling and crime linkage can be of great benefit in detecting offenders, but equally both can divert police investigations down the “wrong track” if the advice given is incorrect (Goodwill et al., 2009; Grubin et al., 2001).
- The linking of crimes together to form a series based on behavioural similarity is called crime linkage analysis. It is widely practiced but rarely discussed in the popular media.
- The prediction of offender characteristics from crime scene behaviour is referred to as offender profiling but its practice is not as uniform as this definition would suggest.
- Several schools of thought regarding how a person’s characteristics should be profiled from crime scene behaviour have developed; however, these are making way for a more integrated approach to profiling.
- A broader range of *behavioural investigative advice* is now offered to the police, which incorporates offender profiling and crime linkage analysis.
- Both crime linkage and offender profiling have been evaluated against the principle of *evidence-based practice*. Whilst the behavioural consistency and distinctiveness assumptions of offender profiling (in its narrowest sense) and crime linkage have received some support from psychological research, these studies have their limitations and do not yet reflect the reality of the task faced by practitioners. Investigations of the *homology assumption* have been less successful.
- The importance of the situation in producing behaviour through its interaction with the person has long been recognised in psychological research of non-criminal behaviour. This suggests that a more complex view of the relationship between criminal actions and offender characteristics is needed.

ESSAY/DISCUSSION QUESTIONS

1. How does the media portrayal of offender profiling differ from actual practice?
2. Critically evaluate the empirical evidence for the assumptions underpinning crime linkage and offender profiling.
3. How do the different schools of thought in offender profiling differ from one another?
4. If you received funding to conduct a research project on offender profiling or crime linkage, what study would you choose to conduct and why? You should critique the scope and quality of the previous research in arriving at your answer.

ANNOTATED READING LIST

- 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.
- A good outline of behavioural investigative advice and how “offender profiling” has evolved.
- Alison, L., & Rainbow, L. (2011). *Professionalizing offender profiling*. Abingdon, Oxon: Routledge.
- Provides a detailed overview of how behavioural investigative advice functions in practice, the underpinning academic literature and future research priorities.
- Alison, L., West, A., & Goodwill, A. (2004). The academic and the practitioner: Pragmatists’ views of offender profiling. *Psychology, Public Policy and Law*, 10, 71–101.
- Proposes the need for integration of the different “factions” within offender profiling and outlines principles for constructing an offender profile with reference to a real case.
- Boon, J. C. W. (1997). The contribution of personality theories to psychological profiling. In J. L. Jackson & D. A. Bekerian (Eds.), *Offender profiling: Theory, research and practice* (pp. 43–59). Chichester, UK: Wiley.
- Using case studies this chapter illustrates how personality theory can be associated with salient case details to generate hypotheses about offender characteristics.
- Canter, D., Alison, L., Alison, E., & Wentink, N. (2004). The organized/disorganized typology of serial murder: Myth of model? *Psychology, Public Policy and Law*, 10, 293–320.
- A detailed critique and empirical test of the organised/disorganised typology.
- Herndon, J. S. (2007). The image of profiling: Media treatment and general impressions. In R. N. Kocsis (Ed.), *Criminal profiling: International theory, research and practice* (pp. 303–323). Totowa, NJ: Humana Press.
- A review of how offender profiling has been portrayed in a variety of popular media.
- Woodhams, J., & Bennell, C. (2015). *Crime linkage: Theory, research, and practice*. Boca Raton, FL: CRC Press.
- The only book dedicated to crime linkage, which contains contributions from leading academic experts and practitioners on a range of topics associated with the behavioural linking of crime.

REFERENCES

- Ainsworth, P. B. (2000). *Psychology and crime: Myths and reality*. Harlow, UK: Longman.
- Alison, L. J. (2005). *The forensic psychologist’s casebook: Psychological profiling and criminal investigation*. Oxford, UK: Willan.
- 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, 115–135.
- 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., & Rainbow, L. (2011). *Professionalizing offender profiling*. Abingdon, Oxon: Routledge.
- Alison, L. J., Smith, M., & Morgan, K. (2003). Interpreting the accuracy of offender profiles. *Psychology, Crime and Law*, 9, 185–195.
- Alison, L. J., Snook, B., & Stein, K. L. (2001). Unobtrusive measurement: Using police information for forensic research. *Qualitative Research*, 1, 241–254.
- Alison, L., West, A., & Goodwill, A. (2004). The academic and the practitioner: Pragmatists’ views of offender profiling. *Psychology, Public Policy and Law*, 10, 71–101.

- Almond, L., Alison, L., & Porter, L. (2007). An evaluation and comparison of claims made in behavioural investigative advice reports compiled by the National Policing Improvement Agency in the United Kingdom. *Journal of Investigative Psychology and Offender Profiling*, 4, 71–83.
- American Psychological Association (2014). Guidelines for prevention in psychology. Retrieved from <http://www.apa.org/pubs/journals/features/amp-a0034569.pdf>
- Bateman, A. L., & Salfati, C. 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.
- Bekerian, D. A., & Jackson, J. L. (1997). Critical issues in offender profiling. In J. L. Jackson & D. A. Bekerian (Eds.), *Offender profiling: Theory, research and practice* (pp. 209–220). Chichester, UK: Wiley.
- Bennell, C., & Canter, D. (2002). Linking commercial burglaries by *modus operandi*: Tests using regression and ROC analysis. *Science and Justice*, 42, 1–12.
- Bennell, C., & Jones, N. J. (2005). Between a ROC and a hard place: A method for linking serial burglaries by *modus operandi*. *Journal of Investigative Psychology and Offender Profiling*, 2, 23–41.
- Bennell, C., Jones, N. J., & Melnyk, T. (2009). Addressing problems with traditional crime linking methods using receiver operating characteristic analysis. *Legal and Criminological Psychology*, 14, 293–310.
- Bennett, D., & Davis, M. R. (2004, November). *The Australian forensic reference group: A multidisciplinary collaborative approach to profiling violent crime*. Paper presented at the Australian Institute of Criminology International Conference, Melbourne, Australia.
- Boon, J. C. W. (1997). The contribution of personality theories to psychological profiling. In J. L. Jackson & D. A. Bekerian (Eds.), *Offender profiling: Theory, research and practice* (pp. 43–59). Chichester, UK: Wiley.
- Bosco, D., Zappala, A., & Santila, P. (2010). The admissibility of offender profiling in the courtroom: A review of legal issues and court opinions. *International Journal of Law and Psychiatry*, 33, 184–191.
- Burrell, A., Bull, R., & Bond, J. W. (2012). Linking personal robbery offences using offender behaviour. *Journal of Investigative Psychology and Offender Profiling*, 9, 201–222.
- Canter, D. (1995). Psychology of offender profiling. In R. Bull & D. Carson (Eds.), *Handbook of psychology in legal contexts* (pp. 343–355). Chichester, UK: Wiley.
- 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., Alison, L., Alison, E., & Wentink, N. (2004). The organized/disorganized typology of serial murder: Myth of model? *Psychology, Public Policy and Law*, 10, 293–320.
- Canter, D., & Fritzon, K. (1998). Differentiating arsonists: A model of firesetting actions and characteristics. *Legal and Criminological Psychology*, 3, 73–96.
- Canter, D., & Heritage, R. (1990). A multivariate model of sexual offences behavior: Developments in offender profiling. *Journal of Forensic Psychiatry*, 1, 185–212.
- Copson, G. (1995). *Coals to Newcastle? Part 1: A study of offender profiling* (Special Interest Series Paper 7). London, UK: Home Office.
- Copson, G., Badcock, R., Boon, J., & Britton, P. (1997). Editorial: Articulating a systematic approach to clinical crime profiling. *Criminal Behaviour and Mental Health*, 7, 13–17.
- Davies, A. (1991). The use of DNA profiling and behavioural science in the investigation of sexual offences. *Medicine, Science & Law*, 31, 95–101.
- Davies, A. (1992). Rapists' behaviour: A three aspect model as a basis for analysis and the identification of serial crime. *Forensic Science International*, 55, 173–194.
- Davies, A., Wittebrood, K., & Jackson, J. L. (1998). *Predicting the criminal record of the stranger rapist*. Special Interest Series Paper 12. London, UK: Home Office.
- Davies, K., Tonkin, M., Bull, R., & Bond, J. W. (2012). The course of case linkage never did run smooth: A new investigation to tackle the behavioural changes in serial car theft. *Journal of Investigative Psychology and Offender Profiling*, 9, 274–295.

- Davis, M., & Bennett, D. (2006). Criminal investigative analysis in the Australian context. In *Psych, October*. Retrieved from <https://www.psychology.org.au/publications/inpsych/context/>
- Doan, B., & Snook, B. (2008). A failure to find empirical support for the homology assumption in offender profiling. *Journal of Police and Criminal Psychology*, 23, 61–70.
- Dowden, C., Bennell, C., & Bloomfield, S. (2007). Advances in offender profiling: A systematic review of the profiling literature published over the last three decades. *Journal of Police and Criminal Psychology*, 22, 44–56.
- Ellison, L. (2005). Closing the credibility gap: The prosecutorial use of expert witness testimony in sexual assault cases. *The International Journal of Evidence and Proof*, 9, 239–268.
- Farrington, D. P., Snyder, H. N., & Finnegan, T. A. (1988). Specialization in juvenile court careers. *Criminology*, 26, 461–487.
- Farrington, D. P., & West, D. J. (1993). Criminal, penal and life histories of chronic offenders: Risk and protective factors and early identification. *Criminal Behaviour and Mental Health*, 3, 492–523.
- Goodwill, A., & Alison, L. (2006). The development of a filter model for prioritizing suspects in burglary offences. *Psychology, Crime and Law*, 12, 395–416.
- Goodwill, A., & Alison, L. (2007). When is profiling possible? Offense planning and aggression as moderators in predicting offenders' age from victim age in stranger rape. *Behavioral Sciences and the Law*, 25, 823–840.
- Goodwill, A. M., Alison, L. J., & Beech, A. R. (2009). What works in offender profiling? A comparison of typological, thematic and multivariate models. *Behavioral Sciences and the Law*, 27, 507–529.
- Green, E. J., Booth, C. E., & Biderman, M. D. (1976). Cluster analysis of burglary M/O's. *Journal of Police Science and Administration*, 4, 382–388.
- Grubin, D., Kelly, P., & Brunson, C. (2001). *Linking serious sexual assaults through behavior*. Home Office Research Study 215. London, UK: Home Office.
- Gudjonsson, G. H., & Copson, G. (1997). The role of the expert in criminal investigation. In J. L. Jackson & D. A. Bekerian (Eds.), *Offender profiling: Theory, research and practice* (pp. 61–76). Chichester, UK: Wiley.
- Hazelwood, R. R., & Warren, J. I. (2003). Linkage analysis: Modus operandi, ritual, and signature in serial sexual crime. *Aggression and Violent Behavior*, 8, 587–598.
- Health and Care Professions Council (2010). *Standards of proficiency: Practitioner psychologists*. Retrieved from <http://www.hcpc-uk.co.uk/publications/standards/index.asp?id=198>
- House, J. C. (1997). Towards a practical application of offender profiling: The RNC's criminal suspect prioritization system. In J. L. Jackson, & D. A. Bekerian (Eds.), *Offender profiling: Theory, research and practice* (pp. 177–190). Chichester, UK: Wiley.
- Jackson, J. L., & Bekerian, D. A. (1997). Does offender profiling have a role to play? In J. L. Jackson & D. A. Bekerian (Eds.), *Offender profiling: Theory, research and practice* (pp. 1–7). Chichester, UK: Wiley.
- Jackson, J. L., van Koppen, P. J., & Herbrink, J. C. M. (1997). *Does the service meet the needs? An evaluation of the consumer satisfaction with specific profile analysis and investigative advice as offered by the Scientific Research Advisory Unit of the National Criminal Intelligence Division (CRI) – The Netherlands*. Leiden, The Netherlands: NSCR.
- Karn, J. (2013). *Policing and crime reduction: The evidence and its implications for practice*. Retrieved from <http://www.police-foundation.org.uk/uploads/catalogerfiles/policing-and-crime-reduction/police-foundation-police-effectiveness-report.pdf>
- Kocsis, R. N. (2007). Schools of thought related to criminal profiling. In R. N. Kocsis (Ed.), *Criminal profiling: International theory, research and practice* (pp. 393–404). Totowa, NJ: The Humana Press Inc.
- Labuschagne, G. N. (2006). The use of linkage analysis as evidence in the conviction of the Newcastle serial murderer, South Africa. *Journal of Investigative Psychology and Offender Profiling*, 3, 183–191.

- Markson, L., Woodhams, J., & Bond, J. W. (2010). Linking serial residential burglary: Comparing the utility of modus operandi behaviors, geographical proximity and temporal proximity. *Journal of Investigative Psychology and Offender Profiling*, 7, 91–107.
- Meyer, C. B. (2007). Criminal profiling as expert evidence? An international case law perspective. In R. N. Kocsis (Ed.), *Criminal profiling: International perspectives in theory, practice and research* (pp. 207–248). Totowa, NJ: The Humana Press Inc.
- 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, 25–43.
- Mullen, D. A. (2000). Criminal profiling: Real science or just wishful thinking. *Homicide Studies*, 4, 234–264.
- Pervin, L. A. (2002). *Current controversies and issues in personality* (3rd ed.). New York, NY: Wiley.
- Piquero, A. R., Farrington, D. P., & Blumstein, A. (2007). *Key issues in criminal career research: New analyses of the Cambridge study in delinquent development*. New York, NY: Cambridge University Press.
- Santtila, P., Fritzson, K., & Tamelander, A. L. (2004). Linking arson incidents on the basis of crime scene behavior. *Journal of Police and Criminal Psychology*, 19, 1–16.
- Santtila, P., Junkkila, J., & Sandnabba, N. K. (2005). Behavioural linking of stranger rapes. *Journal of Investigative Psychology and Offender Profiling*, 2, 87–103.
- Snelling, M. (2015, February). *From the neighbourhood to Whitehall: Towards a whole system approach to reducing reoffending in London*. Paper presented at the Home Office Integrated Offender Management Conference, Ryton-on-Dunsmore, UK. Slides retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/414803/2015_03_19_Conference_slides_for_publication__2_.pdf
- Snook, B., Cullen, R. M., 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. M. (2007). Taking stock of criminal profiling: A narrative review and meta-analysis. *Criminal Justice and Behavior*, 34, 437–453.
- Sorochinski, M., & Salfati, C. G. (2010). The consistency of inconsistency in serial homicide: Patterns of behavioural change across series. *Journal of Investigative Psychology and Offender Profiling*, 7, 109–136.
- Ter Beek, M., van den Eshof, P., & Mali, B. (2010). Statistical modelling in the investigation of stranger rape. *Journal of Investigative Psychology and Offender Profiling*, 7, 31–47.
- Tonkin, M. (2015). Testing the theories underpinning crime linkage. In J. Woodhams & C. Bennell (Eds.), *Crime linkage: Theory, research and practice* (pp. 107–139). Boca Raton, FL: CRC Press.
- Tonkin, M., Bond, J. W., & Woodhams, J. (2009). Fashion conscious burglars? Testing the principles of offender profiling with footwear impressions recovered at domestic burglaries. *Psychology, Crime and Law*, 15, 327–345.
- Tonkin, M., Grant, T., & Bond, J. (2008). To link or not to link: A test of the case linkage principles using serial car theft data. *Journal of Investigative Psychology and Offender Profiling*, 5, 59–77.
- Tonkin, M., & Woodhams, J. (2017). The feasibility of using crime scene behaviour to detect versatile serial offenders: An empirical test of behavioural consistency, distinctiveness and discrimination accuracy. *Legal and Criminological Psychology*, 22, 99–115.
- Tonkin, M., Woodhams, J., Bull, R., & Bond, J. W. (2012). Linking solved and unsolved crimes using offender behaviour. *Forensic Science International*, 222, 146–153.
- Tonkin, M., Woodhams, J., Bull, R., Bond, J. W., & Palmer, E. J. (2011). Linking different types of crime using geographical and temporal proximity. *Criminal Justice and Behavior*, 38, 1069–1088.
- Turvey, B. E. (2008). *Criminal profiling: An introduction to behavioral investigative analysis* (3rd ed.). Burlington, MA: Academic Press.
- Wilson, P., Lincoln, R., & Kocsis, R. (1997). *Validity, utility and ethics of profiling for serial violent and sexual offenders*. Retrieved from http://epublications.bond.edu.au/hss_pubs/24

- Wolfgang, M. E., Figlio, R. M., & Sellin, T. (1972). *Delinquency in a birth cohort*. Chicago, IL: University of Chicago Press.
- Woodhams, J., Bull, R., & Hollin, C. R. (2007). Case linkage: Identifying crimes committed by the same offender. In R. N. Kocsis (Ed.), *Criminal profiling: International perspectives in theory, practice and research* (pp. 117–133). Totowa, NJ: The Humana Press Inc.
- 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., & Labuschagne, G. (2012). A test of case linkage principles with solved and unsolved serial rapes. *Journal of Police and Criminal Psychology*, 27, 85–98.
- Woodhams, J., & Toye, K. (2007). An empirical test of the assumptions of case linkage and offender profiling with serial commercial robberies. *Psychology, Public Policy & 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. (2004). Personality correlates of offence style. *Journal of Investigative Psychology and Offender Profiling*, 1, 99–119.