

Investigative Psychology

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Investigative Psychology seeks to improve our understanding of criminal behavior and the investigative process. It emerged in response to early experiential approaches to ‘offender profiling’ and a desire to formulate an alternative, empirical method of supporting police investigations (Canter, 2000). From the beginning, Investigative Psychology distinguished itself from other forms of profiling by relying on the systematic exploration of how offenders and investigators behaved during their offenses and investigations. This empirical approach led researchers to utilize novel data on offenders’ behavior (e.g., derived from case files) and to develop new ways of analyzing this ‘real-world’ data. It also required theoretical developments, such as a specification of the conditions necessary to allow accurate inferences from snapshots of offender behavior. This historical background and the unique conceptual contributions of Investigative Psychology are discussed in the first two sections of this Chapter.

The third section of this Chapter expands on these foundations by discussing four prominent areas of Investigative Psychology research. The first area, arguably most synonymous with Investigative Psychology, concerns the differentiation of offenders on the basis of their offense behavior, and the association of such distinctions to offender characteristics. We review the unique methodology that researchers have used to analyze offense behavior, and the common behavioral tendencies that have emerged across different types of crime. The second area concerns the social psychology of criminal groups and the process of leadership within such groups. This work has contributed to our understanding of the processes that compel and inhibit gang crime and, by drawing on the sociological technique of social network analysis, it has shed light on how online and offline networks structure criminal activities.

The third and fourth areas of research we discuss move away from offender behavior and concern themselves with the investigative process. We begin with research that has examined investigators' expertise and decision-making. Drawing on cognitive theories of reasoning, this research has challenged the view that investigative judgments are often flawed, showing instead that many decisions are fueled by appropriate heuristics that suffice in a world of heightened time pressure and high stakes. Finally, we consider a number of contributions that have used empirical data to develop specific investigative practices, such as crime linkage and the negotiation tactics used in hostage situations. We show how a combination of experimental research and field studies has enabled Investigative Psychology to develop solutions to real-world problems whilst making important contributions to psychological science.

We conclude by examining the impact of Investigative Psychology on policy and practice. We contrast examples of investigative interviewing and hostage negotiations, where research has had a dramatic impact, with major crime linkage systems, where research has raised concerns over reliability but not yet led to changes in practice. We argue that such latter examples exist, in part, because of a disconnect between the nature of experiments and what occurs in practice, and we conclude by discussing how Investigative Psychology has sought to breach this divide.

Importance of the Problem

The contribution of psychology to the investigations of law enforcement and security organizations is not new. During the 1970s, the Federal Bureau of Investigation provided 192 recommendations about the characteristics and/or motives of perpetrators of serious crime, by means of an "examination of the crime scene and the extrapolation of certain relevant psychological material" (Pinizzotto, 1984). By the 1980s, psychologists had begun not only to

give advice on cases but they had also proposed new techniques that were based on psychological principles. Frank Boltz and Harvey Schlossberg drew on clinical principles of therapeutic listening and persuasion to define an approach to negotiating with hostage takers that now forms the basis of modern crisis negotiation practice (Vecchi, Van Hasselt, & Romano, 2005; Wells, Taylor, & Giebels, in press). Fisher and Geiselman's (1992) analysis of police interviewing led to the development of the 'cognitive interview,' which utilizes principles of memory to enhance the recall of witnesses (see Volume 2, Chapter 7 for a review of research on eyewitness memory).

While there was clear value in applying cognitive and social psychology to the investigative process, the integration of psychology into practice did not come without its problems. The use of offender profiling, in part spurred on by media portrayals (e.g., the film *Silence of the Lambs*), popularized a form of consulting that took good deductive inference to the level of unsubstantiated claims and personal opinion. In the UK, this was exemplified by the case of murdered Rachel Nickell, where a clinical psychologist's profile of Nickell's killer made some arguably gratuitous assertions that led to an undercover investigation against an innocent man (Alison, Bennell, Mokros, & Ormerod, 2002). Such reliance on unsubstantiated inference has since been shown to be common within major UK investigations (Alison, Smith, Eastman, & Rainbow, 2003). By coding each statement in the profiles using Toulmin's (1958) method of categorizing argument, Alison et al. showed that of all the 4,000 claims made, nearly 80% were unsubstantiated and less than 31% were falsifiable. It is not surprising, then, that Torres, Boccaccini, and Miller's (2006) survey revealed that fewer than 25% of trained psychologists and psychiatrists viewed profiling as scientifically reliable or valid.

Investigative Psychology emerged in response to the issues surrounding offender profiling and as part of an effort by a number of psychologists to ensure that future contributions were grounded in theoretically and empirically informed analysis. Indeed, the term Investigative Psychology was coined by David Canter to reflect the growing contributions of psychology to police investigations. The early focus of Investigative Psychology was the differentiation of serious crime offenders based on their behavior at the crime scene: a 'scientific' offender profiling (Snook, Cullen, Bennell, Taylor, & Gendreau, 2008). The field has since grown to make significant contributions to our understanding of gang violence and property crime, investigator reasoning and decision-making, and investigative techniques such as crime linkage and hostage negotiation. Its scope remains related to, but distinct from, forensic psychology because it is concerned with what happens prior to the penal systems and not with how offenders are treated once convicted. It is also defined, at least in part, by its innovative use of archival material (e.g., police investigative files) as the basis for data on offenders, and by its techniques for quantifying and analyzing this data in a way that allows for meaningful inferences about otherwise hard-to-reach populations (Alison, Snook, & Stein, 2001).

Alongside providing insights that improve investigations, Investigative Psychology has also been instrumental in highlighting dubious practices. One area of such contributions concerns the early framework for 'offender profiling.' For example, Canter, Alison, Alison, and Wentink (2004) showed that the FBI's method of classifying murderers as 'organized' or 'disorganized' was not consistent with the behavior of 100 offenders, who used behaviors characteristic of organized offending and disorganized offending in the same offense. Other work has sought to provide retrospective evaluation of actuarial aids deployed in investigations. For example, Snook, Taylor, and Bennell (2004) showed that predictions about a serial offender's home

location based on the location of the crime sites—a technique known as geographic profiling—can be made accurately by students, without the help of expensive computer software. Based on these results, they argued that police services should be open to trusting investigators' judgments when the utilization of computer solutions is not viable.

Relevant Psychological Theory and Principles

The theoretical underpinnings of Investigative Psychology are drawn from many areas of social science. Contributions to our understanding of offender behavior have drawn on theories from social and personality psychology and related disciplines such as criminology and geography. For example, the ideas that underpin geographic profiling rest on criminological work on crime pattern theory (Brantingham & Brantingham, 1981) and routine activity theory (Cohen & Felson, 1979). Similarly, efforts to understand the factors that draw people into terrorism are grounded in social psychological theories (e.g., social identity theory; Ysseldyk, Matheson, & Anisman, 2010) and clinical perspectives (e.g., static and dynamic risk factors; Jacques & Taylor, 2013). Contributions to our understanding of investigative processes have drawn on theories from cognitive psychology. For example, much of the research on investigator decision-making considers the role of heuristics (Gilovich, Griffin, & Kahneman, 2002) or uses concepts of situation awareness and assessment (Klien, 1989). Similarly, research on interrogation has embraced 'cognitive load' as an explanation for why suspects find it difficult to lie when giving their account in reverse order (Vrij, Granhag, Mann, & Leal, 2011; see Volume 2, Chapter 10) or when challenged with actual evidence in a strategic way (Hartwig, Granhag, Stromwall, & Kronkvist, 2006).

However, alongside embracing theories from other areas of psychology, Investigative Psychology has been instrumental in clarifying thinking about the link between an offender's

behavior and his or her characteristics (see Volume 1, Chapter 18 for a review of theories of crime and criminal behavior). This 'actions-to-characteristics' relationship, often referred to as a 'profiling equation' (Canter, 2000), hypothesizes that actions at a crime scene reflect more fundamental interpersonal tendencies of the offender, which will be born out in how she or he acts in other contexts of life. This account of criminality is different from explanations that focus on psychological deficiencies or the life events that provide the 'tipping point' into crime (Loeber & Dishion, 1983). Thus, unlike forensic psychology, which usually concerns itself with the factors that predict crime in order to provide risk assessments and therapeutic interventions, Investigative Psychology focuses on uncovering the relationship between aspects of offending and aspects of the offender's non-criminal life.

As Alison et al. (2002) identify, this focus implies two conditions about the nature of offense behavior. The first condition is that offenders must act in a way that is consistent enough to allow them to be differentiated from other offenders. If the behavior of the same offender varies more than the behavior of multiple offenders, then classification based on behavior would be illogical. This condition is often referred to as the consistency assumption. The second condition is that differences in offense behavior must relate in a predictable way to distinctions in offenders' characteristics or broader 'pattern of life.' If information about an offender (e.g., occupation) cannot be inferred from his or her crime scene behavior in an organized and consistent manner, then the profiling equation breaks down because there is no clear link between the actions and characteristics. This condition is often referred to as the homology assumption.

The importance of these assumptions becomes clear when considering some of the tasks undertaken by investigators. One task, known as 'crime linkage,' involves determining whether

or not a single offender is responsible for a series of offenses, based on the existence of a discernable and common pattern in behavior across the offenses (Bennell, Snook, MacDonald, House, & Taylor, 2012). If there were no patterns of consistent and differentiable behavior over a series of offenses, then any attempt at crime linkage would be fruitless because it would not be possible to differentiate the offenses of one offender from those of another.

Research Review

Although the topics of research in Investigative Psychology are diverse, the most of most studies fall into three broad areas: the nature of offender behavior, the social psychology of group crime, and the cognitive psychology of investigator decision making. We review contributions in each of these areas in this section.

Offender Differentiation

Investigative Psychology was originally motivated by the problem of differentiating the ways in which offenders behave during their offences, on the basis that these variations may reflect underlying differences in the offender's motivations or interpersonal tendencies (Canter, 2000). This required an identification of the salient behavioral features of the offense and then an attempt to relate these behavioral features to specific offender characteristics. In the first published study to use the methodology synonymous with Investigative Psychology, Nutch and Bloombaum (1968) examined 37 observed behaviors of 598 members of delinquent gangs. By exploring the inter-correlations of gang behaviors through multidimensional scaling, they found that gang members could be classified as one of three distinct types: the 'Retreatist,' the 'Authority-protest,' and the 'Good-boy activities and developing alienation.' Each type was associated with a cluster of background features, previous convictions, and an approach toward life that distinguished it from the other two types. Thus, Nutch and Bloombaum's analysis

encapsulates the notion that offense behaviors instantiate the offenders' wider approach to social interactions.

Since this early work, researchers have classified the offense behavior of many offense types, including homicide (Salfati, 2000), rape (Canter, Bennell, Alison, & Reddy, 2003; see Volume 1, Chapter 15), arson (Canter & Fritzon, 1998), hostage taking (Wilson, 2000), and computer hacking (Kjaerland, 2005). The approach taken in the majority of this work follows Nutch and Bloombaum's method of coding information about the offense behavior and examining the co-occurrences of these behaviors to identify types of offending. A popular method of performing such analyses, which in many ways is quite unique to Investigative Psychology, is to use multidimensional scaling. In this approach, the behaviors that occur and do not occur in an offense are coded as variables, and the multidimensional scaling analysis produces a visual presentation of the aggregate pattern of co-occurrences among the behaviors across multiple offenses. Behaviors that regularly co-occur in offenses appear close together in the visual presentation, while those that seldom co-occur appear further apart. This makes it possible to identify groups of behaviors that may be interpreted as reflecting a common approach to offending. Predictions about offenders' motivations for offending can then be tested by searching for evidence or otherwise of regions of highly co-occurring behaviors that instantiate the underpinning motivation. Such regions typically occur as wedge-like divisions, with behaviors central to the majority of offenses appearing at the mid-point where all the wedges touch, and behaviors specific to the styles of offenders appearing toward the outer edge of each wedge. In the literature, these divisions are typically described as 'themes' to demark them as fuzzy sets of behavior rather than absolute classifications, in the same way that the colors red, green and blue are labels used to define segments of a color wheel rather than exact sections of

the wheel.

As research on offender differentiation has matured, it has become clear that the co-occurrence of behaviors across a variety of crime types is remarkably consistent. This has allowed researchers to propose meta-theories of the different themes that distinguish offender behavior and motivations (Canter & Fritzon, 1998; Salfati & Taylor, 2006; see Volume 1, Chapter 15, 16, & 18). One compelling account argues for three themes, which reflect the various destructive personal narratives that drive offenders' behavior (e.g., Canter, 1995; Canter & Youngs, 2012). These themes are "victim as an object," characterized by indifferent and often frenzied, excessively violent actions; "victim as vehicle," characterized by self-serving actions made possible through the victim, such as sexual acts; and "victim as a person," characterized by pseudo-intimate behaviors in which the offender plays out a desire for personal closeness or control. Each of these narratives reflects a fundamental difference in how offenders think about their interpersonal lives, which is instantiated in different behaviors at the crime scene.

Although this systematic approach to understanding criminal behavior is more robust than early descriptive accounts, it is not without limitations. One common concern is the high number of offenses that involve behaviors from multiple themes within a model. This is a concern because it brings into question the extent to which the classifications offered by thematic models provide the basis for a homogenous link between type of actions and type of characteristics. For example, using the criterion that two-thirds of the behaviors in an offence had to be associated with one theme over the other themes, Salfati and Bateman (2005) were only able to assign 41% of murder cases to a particular offence. Conversely, in their analysis of homicide offenders, Trojan and Salfati (2012) found evidence of the behavioral themes described above, but found that 95% of their offenders fell into only one theme. In this case, the thematic

classification of the behaviors was not able to usefully differentiate offenders.

There have also been some direct tests of whether or not the homology assumption holds when using thematic models. These studies often fail to find compelling evidence of a link between actions and characteristics (e.g., Häkkänen, Puolakka, & Santilla, 2004; Santilla, Häkkänen, Canter, & Elfgren, 2003; Woodhams & Toye, 2007). For example, conceptualizing homology as a dimension, Mokros and Alison (2002) reasoned that there should be a positive association between the similarity of offenders' crime scene behaviors and the similarity of their background characteristics. In this clever design, the homology assumption is tested by the degree of similarity across offenders, with a greater similarity affording more support to the idea that certain types of offenders use certain groups of behavior. However, in their examination of 100 male rapists, Mokros and Alison did not find a positive relationship between the similarity in rapists offending patterns and the rapists' age, socio-demographic features, or criminal records. More recently, Doan and Snook (2008) classified 87 arsonists and 177 robbers using established thematic models, and then compared the backgrounds characteristics of these classified offenders. Their analysis found that the homology assumption was violated in 56% of comparisons for arsonists and 67% of comparisons for robbers.

A second set of problems with the thematic models stem from the data and analytical approach used in their derivation. In many studies, the data that researchers examine comes from police reports captured in crime databases such as the Homicide Investigation Tracking System (HITS) and Violent Crime Linkage Analysis System (ViCLAS). Yet, the reliability and validity of these databases has not been robustly examined, opening up the possibility that published research and the resulting knowledge is based on a 'nonsense in'—'nonsense out' analysis (Bennell et al., 2012). Indeed, in a recent study of this issue, Canadian police officers using the

ViCLAS system to code a crime scene report managed to achieve an acceptable level of inter-rater agreement on only 10% of offense behaviors (Snook, Luther, House, Bennell, & Taylor, 2012). This low reliability raises questions about the legitimacy of using such data for research.

In terms of analytical approach, Taylor, Donald, Jacques, and Conchie (2012) have demonstrated that the method typically used to measure the co-occurrence of behaviors within offenses operates in a way that is not independent of the frequency with which behaviors occur across offenses. Specifically, most studies measure the association among offense behaviors using Jaccard coefficient because it omits joint non-occurrences in its calculation. The rationale for this is that Jaccard reduces the potential bias that occurs when non-occurrences in data reflect a failure to observe the behavior at the crime scene, rather than actual non-occurrence. However, this omission means that Jaccard's measure of co-occurrence is linked with variable frequency, with high frequency variables having a greater opportunity to co-occur. In this circumstance, the outcome of a multidimensional scaling analysis is in part driven by the artifact of using Jaccard coefficient and does not solely reflect the behavioral tendencies of offenders.

A number of researchers have been getting around such limitations by using alternative methodological and conceptual approaches. For example, Goodwill, Alison, and Beech (2009) compared the degree to which three established methods of classifying offender behavior were able to predict the criminal history of 85 stranger rapists. Their results revealed a clear difference in effectiveness, with the FBI's power and anger model (Hazelwood, 1987) outperforming both the MTC:R3 (Knight & Prentky, 1990) and the thematic model proposed by Canter et al. (2003). Interestingly, however, they also found that a regression of single behaviors on characteristics outperformed the predictions of the three classification models (see also Goodwill, Stephens, Oziel, Yapp, & Bowes, 2012). This, they argue, suggests that more effort should be made to

understand the links between individual behaviors and background characteristics, since the link between the two may be more idiosyncratic than first assumed. In this spirit, researchers have been isolating the links between offender characteristics and key offense behaviors such as degree of violence (Beauregard, Lussier, & Proulx, 2005), and offense planning (Goodwill & Alison, 2007). Others have argued that the assumption of consistency may be relaxed to one in which offenders must show predictable change or development in their offending over time (Sorochinski & Salfati, 2010). This opens up the possibility of finding discrete classes of offending trajectories; a possibility that resonates with research on criminal careers (Sampson & Laub, 1993).

Groups and Networks

While much of Investigative Psychology considers crimes that are social in nature, most studies of such crimes (including those considered so far) treat offenders at the individual level. This is, of course, a simplification of reality, since offenders often act in concert, be it as dyads, groups, or structured criminal networks. This social dynamic is important to the nature of offending and it introduces a layer of complexity to investigations of offender consistency and homology. A researcher may take the 'group' as the unit of analysis and make comparisons across groups. Or, he or she may consider individual members as the unit of analysis and make comparisons both within and across groups. Both approaches are relevant to practice. Investigators may need to know the behaviors that distinguish a particular criminal group (e.g., which terrorist group is responsible for an attack?) or they may need to identify a specific member from within a group (e.g., who perpetrated an armed robbery?).

Just as psychological principles have informed studies of individual offending, so social and organizational psychology has informed our understanding of group offending. Indeed,

research in these areas points to properties of groups that may *increase* the applicability of Investigative Psychology principles. For example, group formation seldom occurs at random but is, instead, the result of a process of ‘social selection’ where those with similarities, such as interpersonal attractions or a common goal, come together (Forsyth, 2009; Glueck & Glueck, 1950). Similarly, group members do not act in isolation but rather ‘socialize’ one another into a set of behavioral norms that produce an internal order to their behavior (Donald & Wilson, 2000; Stott, Adang, Livingstone, & Schreiber, 2008). Given these dynamics, it is perhaps not surprising that studies drawing on theories relating to social identity (Mullins, 2009), leadership (Porter, 2008), and work team cohesion (Donald & Wilson, 2000) have observed empirically the kinds of stable patterns in behavior that define Investigative Psychology research. Moreover, other studies have turned these principals on their head by showing that offenders can be identified precisely because they do not conform to the social norm displayed by other group members (Rashid, Greenwood, Walkerdine, Baron, & Rayson, 2012; Taylor et al., in press)

So what of Investigative Psychology’s consistency and homology assumptions at the group level? Examining offender consistency within groups introduces a further complexity of *within-group* behavior. For example, inconsistency arises if half of the group members behave in a gratuitously aggressive manner while the other half act in a more intimate or pseudo-cooperative way. One way to address this question is to examine whether or not individual group members are consistent in taking on particular task roles within offenses, or have their own place in an internal hierarchy. Task roles between criminal group members have been identified in property crimes such as robbery (Einstadter, 1969; McCluskey & Wardle, 2000) and ram raiding (Donald & Wilson, 2000). Power differentiation, or leadership, has also been demonstrated in criminal groups, leading researchers to produce a method for identifying criminal leadership

behavior. Porter and Alison (2001, 2005, 2006b, 2008; see also Woodhams, Cooke, Harkins, & da Silva (2012) developed a Scale of Influence that identified leaders in approximately 98% of rape and robbery groups by coding group members in terms of their decision-making, actions, and order-giving behaviors. Group members who score higher on the scale are considered more influential and leader oriented in their offense behavior.

A second way to address this question is to examine whether or not groups demonstrate consistent behavior. To date, this group-level analysis has been conducted for robbery co-offenders (Porter & Alison, 2006a) and rape co-offenders (Porter & Alison, 2004). In these studies, the behavior of offenders was coded at the level of the offence and examined for evidence of themes equivalent to those observed for single offender crimes. However, critically, in this case, such themes would only emerge if the offenders of the same group showed a degree of consistency in their behaviors that was greater than the between-group differences. In both studies, Porter and Alison found this to be the case. They showed not only that there are specific themes of behavior in these crimes, but also that offenders from the same group act in thematically consistent ways within any one offense.

Interestingly, the themes identified by Porter and Alison (2004; 2006a) were different from the narrative explanations that dominate single offender models. Given the social nature of the crime, they tested the structure proposed by Leary's (1957) interpersonal 'circumplex' theory. This structure proposes that behavior differs along the dimensions of dominance-submission and co-operation-hostility, which intersect at right angles to form four behavioral themes: cooperative-dominance, cooperative-submission, hostile-dominance and hostile-submission. As with other behavioral models, the circumplex is intended to be thematic rather than typological. Thus, while the groups in these studies show behavioral consistency to the

point of forming the hypothesized behavioral structure, the structure does not necessarily allow groups to be classified as a specific type. The implication of this becomes particularly apparent when group consistency is considered across offenses. Many criminal groups, particularly delinquent groups, are not stable in their membership over time (Sarnecki, 1990). Changes in membership can seed changes in the group's dynamics, which in turn can affect the behavior of group members (Jordan, 2009; Warr, 1996). This will likely affect the consistency of behavior over time and, therefore, reduce the possibility of differentiating one group from the next.

However, group consistency over time has been shown for some more formal groups. For example, Wilson (2000) found similarities between incidents of terrorism carried out by the same terrorist organization. She found that multiple barricade siege incidents by the same group showed similarities in the way they were conducted, to the point that organizations could be differentiated based on their behavior. Consistent with Wilson's results, Prentice, Taylor, Rayson, Hoskins, and O'Loughlin (2011) have shown that terrorists groups such as Al-Qa'ida, Hamas, and Hezbollah are differentiable based on the kinds of rhetoric they use to argue for their cause and promote violence. Similarly, Bohm and Alison (2001) demonstrated that it is possible to differentiate destructive cults according to their articulated beliefs and practices. In a very different area, Canter (2004) explored the possibility of differentiating criminal groups based on six structural properties of social network. He identified three levels of organizational structure—ad hoc groups, oligarchies, and organized criminals—that were characterized by differences in relative group size and centrality of leadership. Interestingly these types were also somewhat related to the criminal activities of the group, with hooligans tending to be loosely structured and drug networks the most structured.

There is also some tentative evidence to suggest that behavioral consistency stretches into the homology of offenders' lives. Leaders in multiple perpetrator rapes have been shown to experience significantly higher levels of emotional problems compared to followers ('t Hart-Kerkhoffs, Vermeiren, Jansen, & Doreleijers, 2011). Similarly, members who fulfill particular roles in ram raiding teams tend to have commensurate criminal histories (Donald & Wilson, 2000). Specifically, in Donald and Wilson's study, those who took on the violent roles of controlling and intimidating victims/bystanders tended to have more convictions for violent offences than those with other roles (e.g., drivers). Such findings point to the possibility of identifying clear and stable patterns in the social dynamics of group offending, though the complexities of such analyses and the difficulties of obtaining group level data make this area of Investigative Psychology a particular challenge.

Investigative Expertise

A substantial portion of Investigative Psychology research considers the nature of investigative decisions and the contextual factors that influence them. Much has been learned through systematic observation of investigators performing their tasks. For example, Morley, Ball, and Ormerod's (2006; see also Ormerod, Ball, and Morley, 2012) ethnographic studies of insurance fraud investigations identified three elements that impact investigator's decisions. These ranged from organizational influences, such as the companies' priorities on customer satisfaction, to individual influences, such as the extent to which the investigator operated within a 'hypothesis testing' framework. Barrett and Hamilton-Giachritsis (in press) had detectives express their thoughts about documents drip-fed to them as part of a simulated rape investigation. They found that detectives orientated toward the victim as a source of information rather than a person in need of emotional support. However, this behavior was not due to a lack

of awareness of the victim's needs, but a decision to address them through a professional and thorough investigation.

One observation that stems from this research is the importance of studying investigative decisions as a process, where prior knowledge and expectations are important. Investigators view evidence inconsistent with their working hypothesis as less reliable (Marksteiner, Ask, Reinhard, & Granhag, 2011), they change their depth of processing to match implied occupational norms (Ask, Granhag, & Rebelius, 2011), and they are most likely to shift their mindset with regard the guilt of an offender when confronted with specific individual and situational events (e.g., information availability, see Fahsing & Ask, in press). Ormerod, Taylor, and Barrett (2008) refer to the process of assimilating and evaluating evidence as investigative 'sense-making.' Across three investigative tasks (e.g., homicide investigations), they showed that sense-making is driven by a combination of internalized cognitive frames and externally imposed legal scripts that determine the likely courses of events.

A second observation made in many of the descriptive accounts, and implied by Ormerod et al.'s (2008) analysis, is that investigators do not always engage in a methodical analysis of all the available evidence. They often appear to use heuristics; simple mental strategies that operate through principles such as salience, anchoring, and representativeness rather than through an exhaustive evaluation of information. For a long time, cognitive psychology was dominated by a "heuristics are bad" view that stemmed from research showing that people's decisions often deviate from idealistic, statistics-based solutions (Kahneman, Slovic, & Tversky, 1982; Nisbett & Ross, 1980). This negative view of heuristics permeated Investigative Psychology. For example, the use of heuristics was assumed to produce reasoning errors that contributed to investigative failures (e.g., Findley & Scott, 2006), and this led researchers to heavily promote

sophisticated actuarial solutions as the alternative (e.g., Canter, Coffey, Huntley, & Missen, 2000; Rossmo, 2000).

However, inspired by research showing that heuristics work well in natural environments (Gigerenzer, 2000; Todd & Gigerenzer, 2000), Investigative Psychology researchers have also studied the positive side of heuristics. One task that has received much attention is the geographic profiling (GP) task, which involves using information about the location of a series of crimes to predict the offender's home location. In the first of a series of studies, Snook, Canter, and Bennell (2002) found that untrained university students could make predictions about where a serial offender lived with a level of accuracy equal to the predictions of a 'sophisticated' software algorithm. More importantly, they showed that almost everybody achieved this performance when taught two 'heuristic' principles about offender spatial behavior. Their finding has since been replicated with different types of crime (Snook, Taylor, & Bennell, 2004), different numbers of crimes (Taylor, Bennell, & Snook, 2008), the inclusion of topological information (Bennell, Snook, Taylor, Corey, & Keyton, 2007), police officers as participants (Bennell et al., 2007), and with prediction techniques of varying complexity (Paulsen, 2006; Snook, Zito, Bennell, & Taylor, 2005). Critically, these studies have also shown that people adapt to different distributions of crime scenes by using different heuristics. When these adaptations were 'ecologically valid' in the sense that they fit the nature of the offenders' behavior, then their predictions were accurate. More recent research on this task has examined the extent to which human are also able to make judgments about search patterns and take into account crime ordering. Taylor, Bennell, and Snook (2009) found that people can go beyond making "x-marks the spot" predictions and make accurate predictions using search areas, in the same way as the geographic profiling software produces a likelihood surface. Bennell, Emeno,

Snook, Taylor, and Goodwill (2010) demonstrated that simple prediction strategies were able under some conditions to making spatial predictions that match the performance of novel, yet complex approaches, such as Bayesian methods.

Investigative psychologists have also recently shown that heuristic models capture the decision-making of offenders and police officers. For example, Snook, Dhimi, and Kavanagh (2010; see also Garcia-Retamero & Dhimi, 2009) found that a non-compensatory decision strategy (i.e., Matching Heuristic) was a better predictor of burglars' judgments about residential occupancy than a compensatory strategy that considered all information (i.e., Franklin's Rule). Burglars were able to predict occupancy beyond chance levels, and cue use in the simple heuristic model corresponded better with how they achieved this. In a similar fashion, Snook and Mercer (2010) found that the Matching Heuristic outperformed Franklin's Rule when modeling investigators decisions about the veracity of suicide notes. Their finding is compelling because they avoided the use of unrepresentative stimuli (e.g., where cue values are equally distributed) in order to allow participants to demonstrate their natural decision policies. When decisions are studied in this more ecologically valid way, heuristics appear to give a very strong account of the decisions made by investigators and offenders.

Investigative Practices

By contributing to the three areas of research described above, Investigative Psychologists have not only sought to make fundamental conceptual contributions, but they have also sought to make direct and useful contributions to law enforcement practice. This has typically taken the form of providing new solutions to discrete investigative tasks. We describe research on these of these tasks in this section.

Linking crimes. Crime linkage uses offense behaviors to identify crimes that have been committed by the same offender (Grubin, Kelly, & Brunsdon, 2001). The technique has proven especially useful when hard physical evidence, such as DNA, is not available at the crime scene. The goal when conducting linkage analysis is to identify patterns within the actions of offenders that allow crimes committed by different offenders to be distinguished from one another. For the necessary patterns to emerge, offenders must exhibit similar behaviors across their crime series (i.e., behavioral stability) while also exhibiting behaviors that are different from other offenders (i.e., behavioral distinctiveness; Bennell & Canter, 2002). Effective crime linkage can increase the efficiency of criminal investigations by allowing evidence to be pooled from multiple crime scenes (Labuschagne, 2006), and it is a precursor to the effective use of other investigative tools such as geographic profiling (Rossmo, 2000).

Like offender profiling, early attempts at crime linkage analysis were experiential in nature, and largely relied on a detective's ability to recognize similarities in the modus operandi (MO) or behavioral 'signatures' of offenders (Gross, 1906; Keppel, 1995). In order to systematize the analysis of offense behaviors, sophisticated computer databases were constructed to facilitate cross-crime comparisons of behavioral information (Bennell et al., 2012). With the advent of standardized data collection protocols came the possibility for researchers to examine empirically the degree to which behavioral information coded from crime scenes could be used to reliably link crimes to the same offender (Bennell, Woodhams, & Mugford, in press). Much of this research has focused on determining whether evidence exists to support the primary assumptions underlying crime linkage analysis (i.e., behavioral consistency and distinctiveness). Across a range of crime types this evidence is beginning to emerge (Bennell, Mugford,

Ellingwood, & Woodhams, submitted; Woodhams, Hollin, & Bull, 2007), although not necessarily in relation to the kinds of MO behaviors that investigators have historically used.

In one of the first studies to address this issue empirically, Bennell and Canter (2002) found only low levels of linking accuracy when using behaviors related to standard MO domains such as entry decisions, property stolen, and target selection. However, when the average distance between offense locations was considered, high levels of linking accuracy were observed (i.e., crime committed by the same offender were characterized by shorter inter-crime distances). The value of inter-crime distance as a predictor has since been replicated in studies of different crime types (e.g., Tonkin et al., 2008) and with alternative methodologies (e.g., Goodwill & Alison, 2006). Bennell et al. (submitted) suggest that the effectiveness of inter-crime distance is a product of two factors. The first, in line with findings from the field of personality psychology (e.g., Funder & Colvin, 1991), is that inter-crime distance is largely under the control of the offender (e.g., where to commit a crime) rather than a product of the situation (e.g., property stolen). The second is that inter-crime distance may be coded by the police in an accurate and reliable fashion, whereas coding offense behaviors such as type of entry typically relies on potentially problematic data sources, such as testimony of victims or inferences drawn from evidence at the crime scene (Alison et al., 2001).

Bennell et al.'s observations may explain why investigators experience difficulties linking serial crimes (i.e., they may rely on non-diagnostic behaviors). Indeed, investigators tend to perform relatively poorly in laboratory-based linking tasks. For example, Santtila, Korpela, and Häkkänen (2004) examined the ability of experienced car crime investigators, experienced and novice general investigators, and naive participants to correctly link mock car crimes. They found that investigators were significantly more accurate than naive participants, but that there

were no differences in accuracy among the different types of investigators. Each group identified about half of all possible links. However, performance on mock linking tasks can be improved when people are trained to focus their decision-making strategies on ecologically valid heuristics. For example, Bennell, Bloomfield, Snook, Taylor, and Barnes (2010) examined the performance of university students, police professionals, and a logistic regression model on a linking task involving burglaries. As well as giving all participants information about offense behavior, Bennell et al. informed half of the participants about the value of inter-crime distance to linking. Participants who were taught to use inter-crime distance made more accurate predictions compared to participants who did not receive this information, although even the trained participants were outperformed by a purely statistical approach. In crime linkage there may be value in using the actuarial solutions that investigative psychologists are currently developing (e.g., Yokota & Watanabe, 2002).

Investigative interviewing. The interviews that police officers carry out with victims, witnesses, and suspects often provide the foundation for successful criminal investigations. The information elicited from witnesses and victims can lead to the identification of suspects and the gathering of leads, while the information provided by suspects allow investigators to obtain evidence and seek the truth about criminal offences (Kebbell & Milne, 1998; Milne & Bull, 2003). Given the central role of interviews, it is not surprising that much effort has been put into developing, implementing, and evaluating interview protocols (e.g., Dando, Wilcock, Benkle, & Milne, 2011; Fahsing & Rachlew, 2009; Snook, Eastwood, Stinson, Tedeschini, & House, 2010).

Perhaps the most well recognized and studied protocol is the cognitive interview (CI; Fisher & Geiselman, 1992). Briefly, at its heart, the CI uses four retrieval prompts that are designed to restore the original state in which the experience was encoded, and tap into multiple

parts of the same memory. These prompts—‘report everything,’ ‘reinstatement of context,’ ‘describe the event in reverse order,’ and ‘describe the event from other perspectives,’—have been shown to be effective at improving the memory of a witness under a variety of conditions. In their meta-analysis of 55 comparisons between the CI and control interviews, Kohnken, Milne, Memon, and Bull (1999) found a large overall effect size ($d = 0.87$) for the amount of correct information recalled by the CI. A decade later, Memon, Meissner, and Fraser (2010) found a similar increase in the amount of correct information elicited by a CI ($d = 1.20$), but also a small but significant increase of incorrect information recalled ($d = 0.24$).

One ongoing line of research in Investigative Psychology involves isolating the factors that contribute to the elicitation of incorrect information without negatively impacting the amount of correct information recalled. This work has developed along three strands. One target of this analysis is the individual effect of each mnemonic. For example, Boon and Noon (1994) explored the functional utility of each individual mnemonic component and found all but the *change perspective* mnemonic was able to elicit additional information from interviewees after an initial attempt to ‘report everything.’ A second target of this analysis is the police interviewer and how to ensure they apply the full CI protocol appropriately (Dando, Wilcock, & Milne, 2008; Kebbell & Milne, 1998; Memon, Holley, Milne, Kohnken, & Bull, 1994). Dando, Wilcock, Milne, and Henry (2009) found that modifying the CI, by asking witnesses to first talk through a sketch of the witnessed event and then recall the event again, produced as many details of the event as the full CI. A third target of this analysis has been the adaptation of the CI for different contexts. Hope, Gabbert, and Fisher (2011) have developed the self-administered interview (SAI) that allows witnesses to write their own statement, and is particularly useful when a traditional interview is not possible (e.g., multiple witnesses of a pub fire). Hope et al.

report that the SAI is effective at both eliciting a comprehensive initial account from witnesses and, critically, at inoculating them against loss of memory associated with delayed interview.

In undertaking analyses in each of these areas, researchers are also uncovering other benefits of the CI approach. For example, Powell, Hughes-Scholes, and Sharman (2012) demonstrated that interviewers skilled in the use of the open-ended questions were less likely to seek to confirm what they already knew (i.e., they avoided a confirmation bias). Vrij, Mann, Fisher, Leal, Milne, and Bull (2008) have found that police officers were more accurate at spotting liars when suspects were telling their lie under the reverse order recall mnemonic than when telling their lie in chronological order. This was because liars' accounts contained more cues to deception under the reverse order condition, arguably because of the additional cognitive load associated with backward fabrication. See Volume 2, Chapter 7 for a review of research on eyewitness memory.

Another interesting line of CI research pertains to the use of a Strategic Use of Evidence technique (SUE technique) to detect deception. Users of the SUE technique follow up their initial open-ended questions (e.g., the 'report everything' mnemonic) with a series of specific questions pertaining to the available evidence, without revealing the exact nature of the evidence. It is assumed that liars will avoid talking spontaneously about the evidence and will contradict themselves if they deny the evidence, while truth tellers will do the opposite. Hartwig, Granhag, Stromwall, and Kronkvist (2006) experimentally tested the SUE technique and found that SUE-trained interviewers were 85% accurate whereas their naïve counterparts were merely 56% accurate. Similar results have been reported in subsequent studies (see Clemens et al, 2010; Hartwig, Granhag, & Stromwall, 2007). See Volume 2, Chapter 10 for a review of research on the detection of deception.

Arguably a special case within investigative interviewing is children (Hagborg, Stromwall, & Tidefors, 2012; see Volume 2, Chapter 16). The *National Institute of Child and Human Development* (NICHD) protocol was developed to ensure that child witnesses are interviewed in a way that makes their testimony useful and reliable (Lamb et al., 2008). The protocol is based on what psychologists' know about children's memory, social norms, suggestibility, and language development. Interviewers are instructed to move through eleven phases of interaction that, amongst other things, ensure that the child understands what it means to tell the truth, attempt to build rapport, familiarize the child with open-ended prompts, and move the child through a series of progressively more suggestive prompts that seek a free narrative account. Lamb et al. (2008) found that 50% of forensically relevant information and 80% of disclosure of child abuse were provided in response to the kinds of open-ended prompts incorporated in NICHD. However, such open-ended prompts are used rarely with children (e.g., Myklebust & Alison, 2000). Lamb Herskowitz, Sternberg, Esplin, Hovav, Manor, and Yudilevitch (1996) found that only 2% of dialogue in interviews conducted by Israeli youth investigators was open-ended in nature, and that most questions were directive (the WH questions) or option-posing questions (e.g., forced-choice). Lamb, Sternberg, Orbach, Herskowitz, Horowitz, and Esplin (2000) suggest that this problem may be overcome by having interviewers regularly attended workshops, discuss best practices, and review their own interviews.

Crisis negotiations and terrorism. The systematic examination of behavior has also contributed to our understanding of terrorism and crisis/hostage negotiation. One set of contributions has examined the motivations and cognitions that surround such offenses, either by examining the public statements of parties (Saucier, Akers, Shen-Miller, Knezevic, & Stankov,

2009) or by interviewing those involved (Post, Sprinzak, & Denny, 2003). For example, Sarangi and Alison's (2005) narrative interviews of left wing terrorists identified a common narrative (i.e., life story) that showed coherence with the propaganda that was likely consumed by the interviewees. Similarly, in interviews with hostages, Giebels, Noelanders, and Verbaeke (2005) identified a number of distinct 'periods of feelings' that might be the focus of particular interventions by authorities seeking to improve victim wellbeing. Studies in this area have also utilized open-source data. For example, Jacques and Taylor (2013) examined the growing involvement of females in terrorism by examining nearly 500 case histories of male and female terrorists (see Volume 2, Chapter 14 for a review of research on female offenders). They found that females are more likely to be motivated by personal events than males (e.g., death of loved one, Jacques & Taylor, 2008), but that, in contrast to popular myths, females who became involved in terrorism do not differ from the general population in terms of their age, education, employment, and criminal history (Jacques & Taylor, 2013). These broad findings are important because they provide an evidence base from which to begin to think about investigative and treatment interventions.

A second set of contributions in this area looks for patterns in the behavioral make-up of incidents using the same kinds of methodology as used to examine consistency and homology in offender behavior. For example, in their examination of UK prison sieges, Harvey-Craig, Fisher, and Simpson (1997) coded the occurrence and non-occurrence of behaviors such as the nature of the threats made, the degree of agitation and mood swings, and the type of weapons used. Their examination suggested that some incidents involve mainly expressive behaviors, such as verbal aggression and discussions of family issues, while others involve mainly instrumental behaviors, such as demands and more rational discussion. Several authors have also shown how such

behavioral differences can be used to predict the outcome of a crisis negotiation (Taylor, 2002a, Yokota, Iwami, Watanabe, Fujita, & Watanabe, 2004). All crisis negotiations move through periods of escalating hostility and cooperation, but some cross a behavioral threshold that leads to an increased risk of deaths and the likely need for a tactical resolution (Taylor, 2002a).

The behavioral approach has also proven fruitful for understanding terrorist incidents. Wilson (2000) found strong evidence of a consistency in the resources used and demands made by different terrorist groups, which she attributed to differences in the social and historic roots of the groups. Wilson, Scholes, and Broklehurst (2010) took this analysis one step further by showing that the behavior exhibited by terrorists depended on the type of victim that was targeted. This suggests that there is some regularity with respect to the kinds of attack used in various circumstances, implying a degree of planning and goal-driven behavior behind such incidents. Their finding is consistent with Donohue and Taylor's (2003) comparisons of the tactics that terrorists and governments use in aerial hijackings. They showed that aerial hijackings involved more overt power strategies than barricade-siege incidents, and that terrorists with a religious fundamentalist ideology typically used more violence and less compromising behaviors than terrorists with other ideological backgrounds.

A third set of contributions in this area has focused on the language used while negotiating hostage and terrorist incidents. As with the research on investigative interviewing, the contribution here comes from a systematic analysis of the language used over time, and its relationship with outcome. For example, Taylor (2002b; see also Bilsky, Tebrugge, & Webel-Therhorn, 2010; Taylor & Donald, 2004, 2007) demonstrated that the way in which perpetrators and negotiators use language falls into a consistent structure that can be anticipated by negotiators (Taylor & Thomas, 2008). Specifically, Taylor showed that, at any one time, police

negotiators and hostage takers adopt an avoidant, competitive or cooperative orientation to interaction and pursue either identity, instrumental or relational goals with varying degrees of intensity. As an incident progresses, so they move through these different regions of discussion, ideally moving towards a cooperative interaction. On some occasions, for example, a hostage taker may yell abuse and insults as he vents his frustration. At other moments, perhaps when discussing his love for his child, he may revert to more cooperative, instrumental behavior.

A number of studies have evaluated the communicative strategies that negotiators use to navigate this structure. This work has typically coded transcripts for influence strategies using classification schemes such as the Table of Ten (Giebels, 2002). For example, Kamphuis, Giebels, and Noelanders (2006) compared the use of influence strategies in three negotiation phases (initial encounter, problem-solving, and resolution) for crisis negotiations considered effective and ineffective. They found that strategy use differed as a function of outcome across all three periods of interaction, and that some of these variations were dependent on the type of incident being negotiated. Giebels and Taylor (2009) have extended this work to cross-cultural hostage crises. They suggest that many of the strategies used to resolve hostage crises, such as rationale persuasion and empathizing with the others face, are rooted in a Western, 'low-context' perspective and may be less applicable in negotiations with those from 'high-context' cultures where message meaning is more implicit and connected to the social context. Consistent with this idea, they found that high-context hostage takers were less likely to engage in persuasive arguments or respond to them positively, and they were more likely to reciprocate threats, particularly those made about self. This, they argue, is because high-context communicators expect dialogue to emphasize relationship and identity over the exchange of rational arguments, such that they fail to engage in the rational persuasion and respond negatively when the identity

dynamic is challenged. These early findings highlight the challenge that police negotiators face in an increasingly global world.

Practice and Policy Issues

As noted at the outset of this Chapter, one of the motivations of Investigative Psychology is to produce a scientific contribution to law enforcement practice that delivers both evidence-based advice to ongoing investigations and the improvement of investigative strategies and policies. In relation to ongoing investigations, Investigative Psychology has helped move the contribution of psychology away from experiential ‘offender profiling’ and toward a multidisciplinary approach that relies on behavioral analysis alongside tacit expertise (Alison, Goodwill, Almond, van den Heuvel, & Winter, 2010). The contributions of this approach now include suspect prioritization, crime linkage, geographic profiling, providing advice on interview strategies, and risk assessments (e.g., in hostage crises). Indeed, within the UK at least, this change in scope is captured by the use of the term behavioral investigative advice (ACPO, 2006), which also reflects the fact that efforts have been made to professionalize the field and the nature of its contributions.

In relation to investigative techniques, it is also possible to identify some significant contributions. In investigative interviewing, the development of the cognitive interview and the examination of what occurs in practice have helped shape the training received by law enforcement and promoted a culture of continuous, supportive evaluation and development (Oxburgh & Dando, 2011). This continues to be the case as researchers and practitioners work together to address new challenges in the area of investigative interviewing. For example, working with a Dutch police force, Beune, Giebels, and Taylor (2010) examined transcripts of within- and between-culture interviews, showing that some of the strategies often adopted when

interviewing were not as effective at eliciting information when used across cultures. This kind of evidence provides a basis for the development of training geared toward raising awareness and reducing the potential misunderstandings that come from the use of inappropriate investigative strategies (Taylor, Tomblin, Conchie, & Van der Zee, in press). Similarly, the development of the Self Administered Interview by Hope et al. (2011) was a direct response to a need identified by law enforcement practitioners. The development of this tool was only possible because of the integration of expertise in the cognitive psychology of memory and the opportunity to trial the tool in real investigative situations.

There are also examples of Investigative Psychologists contributing their particular methodological approach to collaborations that were traditionally found at the periphery of the discipline. For example, by drawing on Investigative Psychology practices for examining archival data, Porter has begun to test social psychological explanations for the occurrence of police misconduct (Porter & Warrender, 2009). By working with police forces on this issue, she has been able to identify the organizational and professional development strategies that are effective at reducing police complaints (Porter, Prenzler, & Fleming, 2012). In the corporate domain, there is also increasing application of Investigative Psychology techniques, particularly in the area of cyber security. For example, Taylor et al. (in press) hypothesized that it should be possible to identify insiders trying to steal sensitive information from an organization based on changes in the way in which they interacted with colleagues. Utilizing email behavior as a data source, they showed that insiders' language contained more self-focus and more negative affect compared to the language of co-workers. They also showed that the natural process of language accommodation was lower for insiders interacting with coworkers compared to co-workers interacting amongst themselves. This difference, which suggests an inadvertent social distancing

by the insiders, increased over time and was sufficient to allow 92.6% of insider to be identified.

There are, however, limits to Investigative Psychology's contribution. In large part these limits are characterized by two kinds of 'disconnect' between research and practice. The first kind of disconnect relates to the way in which findings are described by researchers, and what is inferred from such descriptions by users. This issue is illustrated elegantly by Johnson's (1973) study of how 23 NATO officers' interpreted different statements, such as 'highly likely,' 'improbably,' and 'little chance.' Johnson found that the officers gave widely different estimates of the meaning of particular statements on a 0-100% probability scale. Some statements, such as 'we believe' and 'probable,' were associated with differences in interpretation of over 50%. This heterogeneity in interpretation has more recently been shown in the interpretation of offender profiles. Villejoubert, Almond, and Alison (2009) found not only that participants reported a diverse range of interpretations, but also that their interpretations were affected by the framing of the claim and the nature of the object about which the claim was being made. This has implications for those producing specific Investigative Psychology products, such as offender profiles, since their writing may influence how their research is understood and acted upon. It also has wider implications for how researchers convey and translate their findings for different audiences across all areas of forensic psychology.

The second disconnect relates to a gap between how research is conducted and what occurs in practice. For example, some researchers and practitioners understood the results of the studies by Snook et al. (e.g., Snook, Taylor, & Bennell, 2004) as indicating that modern geographic profiling procedures had little to offer (Rossmo, 2005). However, as Bennell et al. (2007) clarified, this is not the message behind such research, not least because the geographic profiling task involves a range of contributions (e.g., qualitative interpretations of evidence by a

geographic profiler) that were not examined as part of those studies. Rather, what this research suggests is that it may be possible to take an alternative, quicker, and more cost-effective approach to completing one aspect of a geographic profile. More importantly, this research also suggests that there may be value in conducting a detailed, *in vivo* evaluation of the wider practice of geographic profiling. This latter message is common to many areas of Investigative Psychology where experimental research hints at possible areas for the testing and development of existing practice. The clear communication of research findings, therefore, is immensely important, not only for furthering research, but also for the development of good practice and for the maintenance of good relationships between researchers and practitioners. Ultimately, undertaking such collaborative *in vivo* studies will serve the common ambition of both investigative psychologists and law enforcement practitioners: to use robust evaluation techniques to identify ways to improve current practice so that offenders are caught and innocents go free.

Summary and Conclusions

The breadth of the issues tackled in Investigative Psychology has grown significantly over the last decade. The initial studies of serious crime have been overtaken by research on other forms of offending, a focus on investigative techniques, and a broadening in methodological approach. For example, early studies of criminal differentiation are now embedded in studies of crime linkage, which continues to test the behavioral stability/distinctiveness principles while also contributing to linkage techniques. Alongside this, a number of researchers are using sequence analysis techniques that enable offender-victim interactions to be examined as an unfolding series of cues and responses (Fossi, Clarke, & Lawrence, 2005; Taylor et al., 2008). This kind of development is allowing researchers to ask a

more sophisticated set of questions about offender behavior, and, in doing so, challenge some of the early models that emerged from the field.

As well as a growing sophistication in the research addressing core questions, there is also a growth in the breadth of the field's interests. For example, there are now emerging lines of research in counter-intelligence interviewing (Granhag, Montecinos, & Oleszkiewicz, in press), the detection of fabricated intentions (Warmlink, Vrij, Mann, & Granhag, 2013), the use of Bayes methods of analysis for linking crimes (Salo, Siren, Corander, Zappala, Bosco, Mokros, & Santilla, in press), the effect of police warning complexity on the comprehension of legal rights (Eastwood, Snook, & Luther, in press; Eastwood & Snook, 2012) and the application of geographic profiling methodologies in military and counter-terrorism contexts (Rossmo, 2012).

The nature of the partnerships between researchers and practitioner has also grown significantly with the field. Investigative Psychologists have always placed value on the insights of practitioners, but partnerships with practitioners are now becoming more formal and, as a result, more beneficial. For example, the Crime Linkage International Network (C-LINK) brings together academic researchers and police practitioners from seven different countries to jointly develop a strategy for carrying out crime linkage research and a research agenda for the future. Such partnerships ensure not only that researchers are undertaking research that is relevant to the user community, but they also ensures an efficient use of available data and available expertise, and they provide a clear mechanism for the user community to stay up to date with research developments in their field.

Finally, the growth of Investigative Psychology is apparent in the emergence of dedicated research centers around the world, in the increasing number of graduate programs that have an investigative focus, and in dedicated outlets such as a periodic journal and bi-annual conference.

The reason for such growth is attributable to the underlying principles of the field; namely, a desire to undertake rigorous testing of psychological theory in a way that has implications for law enforcement practice. This synergy of theory and practice is timely given the current demand on policing to be evidence-based, and research to have a discernable value for society. For it to continue, researchers must strive to communicate the contributions and limitations of their research effectively, and understand the varied ways that different audiences can receive their work. In return, practitioners must strive to engage with and shape research agendas, record and provide access to research-relevant data, and be positive about the benefits of allowing an evaluation of their practices.

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