



Improving Efficiency and Understanding of Criminal Investigations: Toward an Evidence-Based Approach

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Various investigative techniques and methods available to investigators following the commission of a crime can have a great impact on the ability of police forces to adequately respond to such a crime. This impact can take many forms, ranging from the identification, arrest, and charge of the perpetrators to their conviction. Every case where the alleged perpetrator is not tried for lack of evidence poses a risk to community safety. Similarly, when an individual is wrongly convicted of a crime, it undermines the community's confidence in the police forces responsible for protecting it, as well as its faith in the criminal justice system.

Nowadays, the realities of investigative work have profoundly changed: investigators are confronted with emerging phenomena and increasingly sophisticated crimes that present multiple (and new) challenges (e.g., economic crime, cyber-crime, dark web, terrorism, online sexual exploitation). The type and nature of evidence required to take these cases through the criminal justice chain, and the way in which this evidence can be gathered, have also become more complex. Various legal, ethical, and practical issues have also contributed to the technicalization and greater systematization of crime scene analysis, intelligence, and everything related to evidence and information gathering. As a result, investigative work is becoming increasingly specialized (e.g., Maguire 2003; Police Executive Research Forum 2018).

As such, it is important to conduct research aimed at improving the effectiveness of evidence collection, identification, and prioritization of potential suspects, investigative interviews, and, ultimately, the charging and conviction of perpetrators.

It has been noted, decades ago, that the criminal investigation is however one of the least examined areas of police studies (Skogan and Frydl 2003). Unfortunately, this has not necessarily changed much since then. In fact, knowledge about police investigation generally comes from “how to” books (sometimes of a more scholarly nature) or books which present the state of knowledge on specific aspects of investigations or techniques rather than presenting empirical and innovative results. Moreover, most books or collective work place a particular emphasis on its forensic aspect, as well as on the analysis and contribution of physical evidence. However, in case of limited physical evidence, other methods must also be used by police forces but there are few researchers working to scientifically measure and improve the efficiency of these techniques and methods. A careful review of the scientific literature shows that research having a genuine and valuable impact on police practices are in fact relatively infrequent. Applied research that moves police practices beyond common sense, tradition, experience, and flair to evidence-based practices remains a challenge (Mitchell and Huey 2019).

In recent years, we are, however, witnessing a growth of empirical studies that aim at providing support to police forces and specialized investigation units, and improving the efficiency of their practices using a proactive and evidence-based approach. This particularly true for sexual crimes and homicides (e.g., Beauregard and Martineau 2013; Chopin et al. 2020; Fortin et al. 2018; Woodhams et al. 2021). In the last decade, partnerships between academia and police agencies have emerged and detailed information on offender behaviors has been analyzed to facilitate police investigations as well as suspect prioritization and identification efforts. Despite this, evidence-based research in the field of criminal investigation is still lacking. Good and emerging research is being conducted and published on this topic, but there are only but a few collective works showcasing such research at the international level.

Several examples support the relevance of a vision that would for example use investigative and forensic science not only to study a single situation in depth, as usually done

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with cases presented in court, but to apply it to the entire criminal phenomenon or *modus operandi*. These new ways of approaching criminal phenomena offer an innovative way of appropriating criminological knowledge. As an example, in a study on “forensic drug intelligence” by Esseiva et al. (2007), the authors applied the *chemical profiling technique* to drug seizures made by the police. For each of these seizures, experts performed a chemical analysis to determine the nature of the substance, its level of purity, and its chemical properties. By collating this information and keeping an “organized memory” of all seizures, a certain amount of information can be uncovered: this technique can provide clues as to the path taken by the drug, from production to distribution on the street. In addition, this study demonstrated, among other things, the potential of this intersection between forensics and intelligence (Esseiva et al. 2007).

This special issue was proposed to the Editorial Board of the Journal of Police and Criminal Psychology with a main objective in mind: to bring together, in a single issue, innovative research on a relatively unknown and underdeveloped field of research usually looked at in a fragmented way. In other words, to create the synergy that is needed to comprehensively move forward investigative practices and techniques towards a more “scientific,” evidence-based police. The current issue includes 11 articles that represent the diversity of research on the topic and that fit well with the objectives and focus of this special issue. These 11 articles can be regrouped under three main topics related to police investigations: (1) the understanding of the processes involved in an investigation, the challenges related to it, and ways to improve investigative decision-making; (2) investigative techniques and the pivotal role of the spatiotemporal patterns of offenses for suspect prioritization and identification; and (3) investigative interviewing and new techniques and approaches to improve information and evidence gathering.

Understanding and Prioritizing Investigations

This first three articles of this special issue pertain to the understanding and prioritizing investigations (Rossmo; Jurek et al.; Henning et al.). Recalling the lack of scholarly literature on investigation noted earlier, Rossmo first proposes to outline the anatomy of a criminal investigation: the underlying structure of an investigation, its main purposes and objectives, and, by the same token, why it can fail (e.g., failure to solve the crime; miscarriage of justice). Using the example of the Canadian investigation into the murder of Gail Miller that led to the wrongful conviction of David Milgaard, Rossmo highlights the systemic problems in the investigation that lead to these failures, and emphasizes the

unconditional importance of the relevance, reliability, and robustness of the evidence. In doing so, Rossmo’s article highlights areas for improvement in order to maximize the likelihood of success of an investigation, while minimizing its risks of failure.

In the second article, Jurek et al. aim at measuring and describing key activities police investigators take when working sexual assault cases and identifying factors influencing investigative actions. To date, relatively little is known about the specific actions that police investigators take after a sexual assault report is made that could potentially explain the high attrition rate for sexual offenses. Using a sample of sexual assault case files from a larger project on unsubmitted sexual assault kits, their study highlights factors that shape the way the investigation unfolds and provides insights into factors related to case attrition and progression in the criminal justice system.

The last article of this section addresses the prioritization of intimate partner violence investigations. In their study, Henning et al. seek to assess whether domestic violence recidivism can be reliably predicted using data that most law enforcement agencies already have access to in their standard police report. Their findings support the use of currently available records for the automation of risk triage tools that could be done at the earliest stage of the criminal justice process (i.e., police response). The 10-item scale put forth in their study pave the way for further improvements in the identification and predictive accuracy of high-risk intimate partner violence, investigative decision-making efficiency, and allocation of police resources.

Investigative Techniques and the Spatiotemporal Patterns of Offenses

So far, empirical studies in the field of police investigation have been primarily conducted to improve understanding and knowledge of criminal behaviors and to support techniques and methods that facilitate case resolution – particularly by supporting investigators in identifying and prioritizing suspects. In the absence of confessions, eyewitnesses, or forensic evidence to quickly identify the perpetrator, other methods must be used to assist investigators in identifying and prioritizing potential suspects. The following five articles of this special issue (Salfati and Sorochinski; Bennell et al.; Woodhams et al.; Chopin et al.; Hewitt) aim at improving suspect prioritization and identification techniques and showcase the pivotal role of the spatiotemporal patterns of (sexual) offenses. In the first study, Salfati and Sorochinski aim at having an applied utility for the investigative process of offender profiling. Based on a sample of sexual homicide crime series (i.e., all sex worker victims, mixed victims, all non-sex worker victims), key differences in the types of

offenders who commit different types of homicide series were identified. Their findings provide a classification model for future research on offender profiling, as well as an example of how research on offender profiling may help support investigative practice by narrowing the pool of potential suspects based on crime scene actions.

In the second study, Bennell et al. set out to improve investigative crime linkage of serial crimes. Using a sample of serial offenders having committed stranger sexual assaults, their study uses domains of crime scene behaviors to distinguish between crime pairs committed by the same or by different offenders, and tests four different statistical approaches to predict linkage status. Their findings add to the scant literature aimed at determining the most suitable statistical method to link crimes and provide methodological improvements on how practitioners link serial crimes using the statistical approaches. Their study therefore represents a first step towards an empirically informed decision-making approach to link crimes.

Along the same lines, in the third study, Woodhams et al. aim to fill a significant gap in the literature by investigating the temporal and geographical proximity of crimes committed by serial stranger sex offenders in the UK. Their findings provide an empirical update regarding the periods of time and space over which serial sex offenders commit their offenses. They also offer insights relevant to analysts, decision-making, and search strategies for interrogating databases (such as ViCLAS) that could enhance the detection and apprehension of sex offenders.

In the fourth study of this section, Chopin et al. innovatively examine the geographic mobility patterns involved in what they call “Motiveless” homicides — homicides with no apparent motive. Despite the obvious challenges this type of homicide poses to law enforcement, motiveless homicides have rarely been studied with the aim of facilitating their investigation. Using a sample of solved cases of motiveless homicide from France and based on the criminal mobility triangle approach, their findings suggest that these crimes present distinct patterns compared to “motivated” homicides. Their study also provides easily observable information that could help investigators to prioritize their search for a potential suspect or to recover useful evidence in cases where no clear motive is discernable.

Finally, Hewitt’s study reaffirms the fact that sex crimes reported to the police are spatially concentrated on a very small number of street segments. Unlike past studies on the topic that use aggregated or crime-specific data, this study allows to further knowledge on this topic by using a substantial sample of sex offenses that occurred in Austin, Texas, broken down by victim age and type of sexual acts perpetrated by street segment. By disaggregating offenses this way, differences in the degree of spatial concentration are revealed and specific (micro)locations for certain subtypes of sexual offenses are highlighted.

Investigative Interviewing

Police interviews can influence the criminal investigation process, including the ultimate outcome of a case. Effective interviewing of suspects, victims, and witnesses allows investigators to gather a greater volume of information related to the crime and the probable suspect and can increase the credibility of the evidence being collected. The last three articles of this special issue focus on this vital part of criminal investigations (Izotovas et al.; Otgaar et al.; Van Beek et al.). In the first study, Izotovas et al. step away from the much common laboratory-based research to examine a sample of real-life police interrogations with suspected sex offenders. Aiming to standardize the language used across investigative interviewing settings, their study examines these interrogations using Kelly et al.’s (2013) taxonomy of interrogation techniques to assess whether the six domains of techniques could be applied to interviews carried out by PEACE-trained investigators from the UK. Their study provides a better understanding of the dynamics of interviews with suspects and supports the need to examine interviews more holistically.

In the second study, Otgaar et al. experimentally assessed whether empirically based interviewing — the National Institute for Child Health and Development (NICHD) Protocol — would affect the reporting of misinformation in children. In many countries, children with an alleged experience of abuse are often interviewed by many different organizations and practitioners. Their findings suggest that when children are interviewed about possible traumatic experiences, the first interview should ideally and immediately be conducted using empirically based guidelines, such as the NICHD Protocol.

Along the same line, the study of Van Beek et al. which closes this special issue, further investigates the impact of misinformation and inaccurate information presented by investigators during interviews, this time conducted with suspects. Using an experimental design, they seek to examine the responses that police interviewers provide to suspects when such suspects claim that information or evidence presented to them is incorrect. Their findings highlight the need for police interviewers to be aware that some of the evidence/information they present to suspects may be incorrect due to a variety of reasons that are inherently part of the criminal investigation process. Their findings also put forward that expertise may perhaps be more important in this regard than experience and support the importance of evidence-gathering training before conducting this complex cognitive task of interviewing suspects.

This special issue brings together 11 original articles, all of which, in their own way, make an important contribution to the field of police investigation and investigative techniques. It regroups empirical studies conducted by researchers from various countries (Canada, Netherlands, Switzerland, UK, and the USA), mostly carried out in partnership with police organizations, covering a variety of

themes related to criminal investigations, and highlighting the efforts and expertise of emerging and established researchers. In this regard, this is, to our knowledge, one of the first special issues of its kind. We hope that this issue will be of interest to researchers, students, and practitioners in this field, that it will pave the way for other special issues and collective works, and that it will stimulate research in this understudied area.

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