

Converting Evidence Into Data: The Use Of Law Enforcement Archives As Unobtrusive Measurement

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The newly emerging area of Investigative Psychology provides a behavioural science basis for crime detection by examining investigative processes and criminal behaviour. It draws upon a range of material collected by law enforcement agencies that is not widely utilised in the social sciences. This may be regarded as a form of non-reactive, unobtrusive data that has many of the advantages originally promoted by Webb, Campbell, Schwartz and Sechrest (1966) and more recently explored by Lee (2000). The value of such data, derived from police sources, has been demonstrated in a variety of Investigative Psychology studies. However, law enforcement material is not usually collected as data but rather as evidence. Consideration is therefore given to how to address the challenges this poses. The unobtrusive measures derived from police investigations provide a different perspective on crime and other aspects of human actions from that based on more conventional sources of data such as questionnaires and interviews. To assist in the effective use of measures derived from police information a framework for considering this material is proposed reflecting the range of sources of measures that Lee (2000) identified; personal records, running records, physical traces, and simple observation. As in other areas, close attention to the methods of collecting such material can considerably improve its utility. The measures being utilized in Investigative Psychology therefore offer some fruitful directions for other areas of social science research. Development of these measures can also improve the effectiveness of criminal investigations. Key words: Offender Profiling, Investigative Psychology, and Archives

Investigative Psychology and Unobtrusive Measures

As described by Canter and Youngs (2003), the newly emerging field of Investigative Psychology grew out of the need to provide a scientific basis to replace the anecdotal activity of 'offender profilers'. It sets out to provide an understanding of the processes of collection of investigative information and how that can be most effective, the development of models for making appropriate inferences from that information, and the contribution to and study of police decision-making. The central

questions of this field are therefore about the salient aspects of criminal activities, the basis for linking a series of crimes to a common offender, and procedures for guiding the prioritisation of suspects (Canter & Alison, 1999a).

Although the research questions central to Investigative Psychology share concepts and methodologies with other areas of psychology, most notably the study of individual differences (Canter, 2000a), they form a distinct subset of issues that differ from those focal to the more general area of Forensic Psychology (cf. Wrightsman 2001). Forensic Psychology tends to focus on the treatment and management of offenders once they are caught. Investigative Psychology focuses on how behavioural science can help in the detection of offenders or the investigative issues that could aid the defence or prosecution of suspects.

In order to develop their research methods Investigative Psychologists have found it fruitful to draw on a wide variety of sources of information. This is most often the information available to law enforcement agencies collected for the purpose of police investigations. To make effective use of the information it has to be *captured, found, or retrieved* in ways that are directly analogous to the broader development of ‘unobtrusive’ and ‘non-reactive’ measures that Lee (2000) describes.

This material is typically ‘unobtrusive’ in the sense proposed by Webb, Campbell, Schwartz, and Sechrest (1966) to refer to “data gathered by means that do not involve direct elicitation of information from research subjects” (Lee, 2000, p. 1). They are also in many cases non-reactive because the absence of the person carrying out the study at the time the information is generated removes the possibility of any direct influence from that researcher (Webb, Campbell, Schwartz, Sechrest, & Grove, 1981). The consideration of the measures utilised by Investigative Psychologists therefore offers an interesting set of exemplars of unusual research instruments that respond to Webb et al.’s 1966 call for more innovation in the social science and Lee’s more recent 2000 advocacy of that approach. They may therefore be of value in indicating the possibilities for similar studies in many other areas of social and behavioural science.

The Potential Wealth of Police Material

Across police investigations a great deal of information from a wide range of sources is collected. This data acquisition reflects all three modes reviewed by Lee (2000). This includes the *retrieval* of victim, suspect and witness statements and criminal histories of offenders and a variety of other clandestine and official records. Information is *captured* from crime scenes through photographic and other records, including pathologists reports and how the scene was disturbed by the offender and what was taken from there. Details of offenders’ patterns of association with others are also *captured* from surveillance and covert telephone auditing. A considerable amount of material is also *found* by police officers and others involved in investigations, such as offensive and other relevant letters, for example suicide notes, files from suspects’ computers, information on victims, their life styles and patterns of activity. All this material has great potential for a number of different areas of social science.

The harnessing of this material as the basis for the emerging field of *Investigative Psychology* (Canter & Alison, 1999a) grew out of the popular expositions of *Offender Profiling* (Ainsworth, 2001). In order to go beyond the

anecdotes on which 'profiling' was based and produce reliable, scientific results of direct assistance to law enforcement agencies it was necessary to develop ecologically valid accounts of criminality. This required the exploration of the patterns of criminal and victim behaviour and of detective decision making as they occurred. In making use of the material available to the police Investigative Psychology provides many examples of interest beyond the boundaries of law enforcement.

Official statistics on crime and criminals has been the mainstay of criminology from its earliest days. However, studies of such data have tended to be at the aggregate level, facilitating the understanding of the societal processes that underlie criminality, the impact of different government policies on the management of crime or the significance of judicial decisions for patterns of offending. By contrast forensic psychology and psychiatry has tended to focus on offenders once they have been through the judicial process and find themselves as 'patients' or 'clients'. They are concerned with psychological explanations of criminality, often seeking to relate these to abnormal mental processes. The practical tasks these forensic practitioners face are often concerned with decisions about individual 'patients', such as their fitness to plead in court, or their ability to control their actions during the crime. The data for such research therefore relies heavily on interviews with offenders and their assessment using psychometric procedures (cf. Blackburn, 1993; Wrightman, 2001).

From their different perspectives, the aggregate data drawn from official statistics and the cognitive and emotional details of individual offenders, are somewhat removed from the actions that occur in crimes and the experiences of the offenders and their victims. Yet agents of law enforcement often record these aspects of crime most immediately. Furthermore, both the official statistics and the presence of a person within a forensic setting are a product of the material collected during criminal investigations. Therefore studies that draw directly on the material available to law enforcement agencies have the potential for contributing an important and distinct perspective that complements those of other areas.

Utilising police information reflects a research tradition that is rather different from the experimental, laboratory research that characterises much of psychology. So although the concerns of Investigative Psychologists focus on the individual their approach to data often has more in common with anthropology, archaeology, or that other essentially non-experimental science, astronomy. All these disciplines emphasise the building of models of the phenomena they are studying. The focus is on giving an effective account of what naturally occurs rather than on the very precise details of what specific variable causes what other variable. Where specific causal mechanisms are being postulated then the careful controls of the laboratory are usually considered essential. But the precision and control of the laboratory is always paid for by a reduction in the ecological validity of the processes being studied. As a consequence the same issues are often explored using both field and laboratory methods, so that the advantages and disadvantages of each can counteract each other. For example Byrne's (1961) artificially tested examination of interpersonal attraction allowed some clear causal processes to be proposed. Whereas, Schwartz and Lever's (1976) naturally occurring examination of interpersonal attraction provided fuller details of the day to day practices that were in operation.

Researchers working "in the field" can rarely apply models that recognise independent and dependent variables. They must rely instead on making sense of complex, multivariate phenomena. The actions of criminals cannot be reduced to

artificial laboratory conditions. The complex interconnection of criminals, their victims and their settings have to be examined as and where they happen. Therefore researchers interested in the psychology of crime have to follow similar tactics to police officers. The utilisation of data derived from naturally occurring events is not simply an alternative or a supplement to laboratory techniques, but rather is often borne out of necessity. Making use of material that is collected as part of the process of investigations into crime brings the research and detective traditions closer together.

Beyond the enhancement of theory, by providing a different perspective on crime and criminals, the use of police material also has the potential of increasing the practical applicability of any results that emerge. As Canter (1996) has argued findings that are derived directly from the sort of information with which a practitioner has daily commerce are far more likely to make sense to that practitioner and are far more likely to be relevant to her/his concerns than are findings based upon some special, arcane form of data collection. For instance, police officers are more likely to take note of psychological studies of what goes on in police interviews than results derived from trained observers' assessments of micro-movements revealed on video recordings of student subjects.

However, the utilisation of the material drawn from police investigations is not without many difficulties. The challenge, then, is to work with police data and establish a framework that will aid the development of robust scientific measures derived from these data.

Police Information as 'Unobtrusive' Measures

As noted above, the information available to the police can be regarded as a form of 'unobtrusive measurement'. The general advantages of such measurements across the social sciences was first advocated by Webb et al. (1966) and more recently promoted once again by Lee (2000). They have argued that the use of interviews, questionnaires and traditional laboratory experiments represented an over-reliance on a limited, fallible approach to psychological and related social science research. Their primary criticism of these traditional research methods grows out of the extensive studies of 'experimenter effects' (Rosenthal, 1966) that revealed just how much the experimenter can distort the results of research by experimental interventions.

So although traditional research methods benefit from controlling the relationship between cause and effect, and can provide precise indexes of the topics the researcher first sets out to study, the very fact that the researcher designs the experiment and formulates in advance exactly what is to be assessed creates a 'foreign' element to the behavioural context within which the phenomenon is observed. As a consequence all procedures that rely on this type of intervention run the risk of distorting what it is that is being studied by the very process of studying it. This distortion is also likely to be inadvertently biased in the direction of the researcher's expectations.

These criticisms of experimental procedures in psychology are reflected in other social sciences, most notably anthropology, by the caution that the theories that researchers have may distort how they collect and examine their central material. Strauss and Corbin (1990) in particular has argued for a 'grounded' social science in which the concepts and models of the researcher grow as naturally as possible out of

actual observations and experiences in natural settings, minimising any preconceptions of what to look for or why.

Material that is collected as part of police investigations therefore have the advantage of not being open to the bias of the researchers at the point that it is collected. It is therefore non-reactive in the strict sense that Webb et al. (1966) use the term; it is not distorted by respondents' reactions to the researchers' involvement. Much of the material is also collected in an 'unobtrusive' way in the sense that the actions being recorded are carried out in ignorance of the fact that they are being recorded. Indeed some of the material is unobtrusive in the very strong sense that every attempt is made to ensure that there is no public knowledge that the information is being collected at all. The material therefore has potential for being the basis of a rather unusual form of data that can add fresh insights into crime and criminals as well as opening the way to other forms of research in related areas.

In the criminal context there is the added need to use ways of finding out about crimes and criminality that does not rely upon the answers to questions asked directly of offenders or, in many cases, agents of law enforcement. Whereas in the conventional interview some form of social desirability response bias may be anticipated it is normally reasonable to assume that the respondent will attempt to give an honest answer. Such cannot be assumed of criminals. For police officers, and others associated with them, possible dishonesty is not a primary assumption but there may well be pressures from the sensitivity of the material and associated security concerns that will mean answers to questions cannot be as full or as detailed as would be assumed with other respondents. As a consequence Investigative Psychologists have had to be innovative in finding data sources that will reveal patterns of criminal activity that do not rely on respondents answering questions from interviewers or filling in questionnaires.

Despite these advantages Webb and his associates were careful to emphasise that the use of unobtrusive measures should not replace conventional controlled research paradigms, but should be regarded as additional tools to supplement and cross-validate such methods. They also made clear the many weaknesses that data derived from unobtrusive measures can have. The weaknesses and difficulties inherent in the use of these methods are even more extensive in the context of police investigations.

Challenges of Police Information

Evidence not data

Information collected in police investigations is not gathered for the purpose of scientific research. It is collected usually either because it is required by central government to monitor crime and police activities or because it may provide evidence that can be used to bring a culprit to justice. There is also a general collection of material that may assist an investigation, such as the names of people who have been interviewed on suspicion of being offenders. This latter information is often destroyed after an enquiry and so is less likely to be available for researchers than the official records or the evidence collected with a view to being presented in court.

The information available and the form in which it is stored is thus very different from that normally available for conducting research. An experimenter

usually tries to set up tightly controlled conditions (e.g., questionnaire, interview, laboratory experiment, etc.) and measure pre-determined variables. The study is often established so that the effect of variables on each other can be clearly identified. By contrast Investigative Psychologists have to be more 'opportunistic' in the positive sense of taking scientific advantage of opportunities for data as they emerge (Canter, 2000b)

The collection of information for police purposes, not directly for research, poses many challenges to researchers who would use the information. Thus although the lack of research bias in the material and its legal and unobtrusive quality increases its potential utility and validity it also introduces many possible police biases into the material. Effective utilisation of the material therefore requires a careful consideration of these biases and the introduction of processes to reduce them.

Recorded for the courts

In the UK police reports of burglary, for example, usually include the offender's method of entry, type of property stolen, behaviours within the dwelling and methods of disposal – all features that will help to solve and prosecute the case. Other details that might have been relevant to researchers such as the location in which the crimes take place (e.g., amount of street lighting, whether the dwelling had observable security features, level of road traffic, socio-demographics of the area, the amount of undergrowth surrounding the dwelling, etc.) are rarely recorded because they are not relevant issues for the investigation and prosecution. The information collected therefore does need to be examined in relation to the objectives in collecting it rather than assuming it is data like any other to which the researcher may have access.

Distortion. An additional consideration regarding the limitations of unobtrusive measures derived from police work is that the researcher and the police officer often only have partial information on any given offence. This lack of comprehensive information increases the potential for distortion. Many distortions are a product of different individuals' agendas. For example, each person's version of a crime, whether as a witness or victim may affect the content of the statement taken. Furthermore, these different perspectives are likely to be influenced by the type of requirements placed upon the report. In other words, police officer(s), offender(s), victim(s) and witness(es) are likely to construct different accounts of an offence because of the different motives for giving the account. Moreover, accounts may vary over time and are likely to be strongly influenced by whom they are given to.

The primary objective for the police is to secure the arrest and conviction of the individual responsible for a crime. They therefore collect information with a view to how it may be presented in court. Information considered irrelevant to pursuing a case may be ignored. For example if a shoe print is found the police may go to considerable trouble to find the make and type of shoe it was. They may also carry out extensive house-to-house enquiries to see who recognises the shoe, but the information obtained along the way of the sort of people of who buy shoes of that type will not be recorded. Detectives are only interested in the identity of the perpetrator not in any general trends in human actions.

Furthermore, the information will be collected with a view to its utilisation. Therefore, for example, most police forces will hold quite different records on the

details of crimes from the records they hold on the perpetrators. Bringing these two sets of information together in order to see how trends in one may relate to trends in another is often an administratively complex task.

Inherent Omissions and Distortions

The focus of the police investigation is on evidence gathering. It is therefore to be expected that the information collected will be weighted towards that which can be used in court. Information that could work against a conviction, for example, may not be recorded. So for example the rape statement written down by a police officer will emphasise those factors that could be used to demonstrate lack of consent on the part of the victim, and not even record that information that could be taken advantage of by the defence such as the victim's previous sexual history. Further, if a number of crimes are committed together, such as setting fire to premises (arson) in the course of burglary and thereby killing an occupant (homicide) the police records may only focus on one of these crimes and that the most serious.

Quality and Validity

The collection of information by people who are not trained researchers also is a matter that needs to be carefully considered in evaluating data obtained from police records. The consistency with which information is recorded and the attention to detail will not be of the standard that is often taken for granted in a research environment. Farrington and Lambert (2000) have pointed out, for example, that even the gender of an offender is not recorded with 100% accuracy and that many less objective pieces of information are likely to be recorded with less accuracy. Data cleaning and checking is therefore essential in any use of information recorded by the police.

However, the information collected by law enforcement agencies is often collected a number of times by different people under different conditions. For example a witness may sign a written statement but then give evidence in court where she goes over the same ground and is cross-examined on it. There therefore may be various ways of corroborating or cross-validating information in order to improve its over all quality and validity.

One interesting and important point here is that there are often overt outcomes to police enquiries and the resulting legal decisions. For example, offenders may be found guilty, an accusation may be withdrawn or not acted on because it is considered false, it may be decided that a fraud has been perpetrated even though there is not enough evidence to secure a conviction, and so on. Each of these outcomes can be considered as a criterion for validating measures and testing hypotheses derived from the study of those measures. For instance Canter and Fritzon (1998) established systematic relationships between the targets arsonists selected and their background characteristics, thereby supporting an action system model of arson. The crucial criteria were the targets of fires for which the arsonist had been convicted. The convictions provided one external validation for the studies. Such convictions may be regarded as objective external criteria that are rather more stringent than many that are used in psychology. However, given the vagaries of the legal system it is also

possible that not all convictions are safe. Therefore, as in all other areas of science, replication with other data sets is crucial.

Reactive

Although the recording of information by the police may be unobtrusive in the research sense of not being driven by the hypotheses of the researcher, in some cases they are still reactive in the sense that the information obtained is distorted by the processes used for collecting that information. Victims and suspects may be expected to offer up the sort of information that they believe the police to want. Even when the police are collecting information covertly people may be alert to that possibility and distort the way they act and/or speak to take account of their vulnerability to surveillance. So although the people being studied may not be assumed to be reacting to the researchers' interests it cannot be assumed that their actions are the normal ones that they would exhibit if they did not think they might be being observed.

Dealing with the challenges

All these aspects of police information serve to alert researchers to the need to consider carefully the particular qualities of the material they are using and to develop procedures that will enable their methodologies to be as robust as possible. One way of doing this is to seek information from a number of different sources in the way advocated by Campbell (1957) in his multi-method approach. Researchers also need to actively consider the possible biases introduced by the evidence/data collection procedures the police employ. In particular consideration should be given to pressures on police officers, and those they record information from or about, when collecting material that will be used for research.

Access

Beyond the potential problems associated with the material available from the police it is important to recognise other difficulties that researchers can face when seeking to use this potentially very rich source. One is the matter of being given access. The police and the courts around the world are not part of a culture for which providing ready access to all-comers is the norm. The police in particular are usually part of an environment in which confidentiality is an unchallenged habit and exclusion of people who are not part of the inner team is a matter of course.

Police forces around the world are employing an increasing number of graduates, but the concept of social science study and research is still alien to many police officers. They therefore do not necessarily accept the unspoken assumption of academia that research is fundamentally a 'good thing'. In many cases they may even assume that the researcher has a hidden agenda to discredit the police in general or particular police officers. Building up trust and the maintenance of the highest professional standards is therefore fundamental to carrying out effective research in this area.

Furthermore, some of the information that researchers would like to have may be extremely sensitive. For example studies of blackmail and extortion against companies could make available information that would influence the company's

share price if it became public. Another important example would be research on informants. If the informants inadvertently became aware that they were a topic for study this might be expected to quickly lead to them withdrawing their services. It is therefore not enough for researchers to state that they will keep information confidential. They must also demonstrate that they will maintain confidential information securely by, for example, ensuring it is not stored on computer networks and that any files are kept in metal cabinets that are protected in locked rooms to which there is limited and controlled access.

Legal and Ethical Limitations

The final challenge that researchers ignore at their peril is that there will often be legal and ethical limitations on the information to which they may gain access. In British law, for instance, it is illegal to reveal the identity of a rape victim or of a juvenile offender. The locations of victims or offenders' residences are likely to be especially open to abuse if they fell into the wrong hands. So although there may not strictly be legal limitations on access and storage of such information there are certainly ethical considerations to which law enforcement agencies would be alert. Researchers therefore need to demonstrate to those who would provide them with information their awareness of the issues at stake and the procedures in place to take account of them.

Table 1. Challenges of Police Data and Strategies for Dealing with Them

CHALLENGES	STRATEGIES FOR COPING
Recorded for Courts	Access as wide a range of information as possible in the official records.
Distorted to Provide Evidence	Take account of any biases introduced to make the material 'evidential'.
Quality and Validity limitations	Examine exactly how material is collected and seek out potential weaknesses. <ul style="list-style-type: none"> a) Determine internal validity of material and b) Cross-validate wherever possible
Reactions to Police Procedures	Study Procedures and distortions introduced.
Access	Maintain the highest standards of professional and ethical practice.
Legal and Ethical Limitations	Be aware of the legal constraints and establish ethical guidelines before research commences.

A summary of the challenges posed by the unobtrusive material available for social research and the strategies for coping with those challenges are given in Table 1.

Forms of 'Unobtrusive Measures' that can be derived from Police Information

Although psychologists, in particular, have been reluctant to work with data derived directly from naturally occurring phenomena, perhaps with the remarkable and seminal exception of Jean Piaget's studies of his own children, other social science disciplines have been less reticent. Anthropology in particular has been built largely on the examination of rituals, artefacts and documents that have an existence independently of the research process. A number of studies in environmental psychology followed the lead set by anthropologists, for example in Canter and Lee's (1974) study of the differentiation of rooms in Japanese apartments on the basis of 'unobtrusive' records of what furniture was found in each room, or the prediction of school teachers' satisfaction from examination of the number of 'unobtrusive' physical modifications that has been made to their schools (Building Performance Research Unit, 1972). This work did give rise to studies of behaviour in fires with a view to influencing building regulations (Canter, 1990) that drew on police witness statements and thus gave rise directly to other studies derived from victim statements that laid the foundation for Investigative Psychology (Canter, 1995).

Subsequently Investigative Psychologists have taken the use of information that exists prior to any intervention or question formulation by the researcher a stage beyond that common in Environmental Psychology, utilizing a very wide range of different sources of information from which to develop their measures. This has included transcripts of police interviews (Auburn, Willig, & Drake, 1995), crime scene reports - including photographs and pathologist reports (Salfati & Canter, 1999) and scenes of crime officers' reports (Canter & Heritage, 1990), the geographical locations of offences (Canter & Larkin, 1993; Kind, 1987) witness and victim statements (Fielding & Conroy, 1992), suicide notes and related coroners' reports (Grubin, Kelly, & Ayis, 1997 cited in Gregory, 1999) and even surveillance records (McAndrew, 2000).

This growing range of measures developed from an increasing variety of information sources has tended to emerge as *ad hoc* procedures taking advantage of the opportunities, and frequently personal contacts, that make the research possible. Therefore at present, few systematic evaluations or research protocols, agendas or models have been developed to explore the features of this type of information. A framework for considering such material will therefore help to systematise the possibilities and help others to take advantage of the opportunities as well as highlighting the limits and benefits of present research.

Lee (2000) argues that one of the most productive ways of classifying unobtrusive measures is to distinguish the sources from which they are derived. He proposes three sources for unobtrusive measures: Traces, Archives and Observations. Each of these will be considered in turn. They are summarised in Table 2. Traces may be regarded as the most distant from the original actions that generated the material with observations bringing the researcher closest to the actual events under investigation. Archives, or records of what, or who, were involved in the actions sits between the two extremes of closeness to the events. This continuum therefore also reflects the degree of interpretation or inference that is needed to make sense of the material being collected. Traces, such as photographs of a murder scene, may be fundamentally ambiguous because the conditions under which the scene was created may never be fully known. Observations such as audio recordings of a police

interview, on the other hand, do carry direct information of who was saying, and possibly doing, what and so the essential sense of the actions involved is more directly available. These differences in access to the inherent meaning of the actions that produce the measure carry implications for how cautious any inferences derived from them need to be as well as for the demands on validation.

Table 2. Forms of Unobtrusive Measure Available from Police Investigations and an Exemplar Study Using those Measures.

FORMS OF MEASURE	EXAMPLE	AUTHORS
Traces		
Erosion	Goods Stolen	Merry & Harsent, 2000
Accretion	Crime Locations	Canter & Larkin, 1993
Archival Information		
Running Records	FBI Crime Reports	Keppel, 2000
Episodic Records	Case Dossiers	Leyton, 1995
Personal Records	Suicide Notes	Gregory, 1999
Observation		
Conversation	Telephone Recordings	Rogan et al., 1997
Expressive Movement	Videotaped Interviews	Horvath et al., 1994
Temporal Information	Investigation Logs	Keppel & Weiss, 1994
Exterior Signs	Crime Scene Photographs	Salfati & Canter, 1999
Physical Location	Surveillance Records	McAndrew, 2000

Physical Traces

Traces are physical residues that are left by human action. As Lee (2000) points out, typically Webb et al. (1981) see these as objects that have been consumed and therefore consider them in economic terms to reveal what production process gave rise to them. In the investigative context, such an economic perspective is an interesting analogy, for example in considering what has given rise to the disarray of a crime scene, but approaches that model the objectives of offenders in psychological rather than economic terms are likely to be more productive in many cases.

Webb et al. (1966) identified two types of physical trace measurement: (a) erosion measures, where the measure is the degree of selective wear and (b) accretion measures, where the deposit of materials is used as research evidence. It is the processes that give rise to erosion or accretion that makes them of such interest, although in the legal context the physical trace does also have direct evidential implications. For behavioural scientists, though, it is the possibility that the traces may reflect certain behavioural qualities peculiar to the execution of an offence that is of most interest.

Erosion measures. Lee (2000) outlined various examples of how social scientists have used natural erosion measures. One classic example is Duncan's 1963 (cited in Webb et al., 1966) examination of the replacement rate of vinyl tiles around exhibits at Chicago's Museum of Science and Industry. By observing higher tile replacement rates in certain areas, Duncan was able to deduce the most popular

exhibits. Erosion measures are also a common source of data in forensic research. For example, Mann, Bass and Meadows (1990) used natural erosion measures relating to human body decomposition such as insect activity, body trauma, and body weight to establish time since death.

Perhaps the most obvious erosion measure in investigative psychology is the study of what has been stolen in burglaries. Merry and Harsent (2000) showed that the traces burglars left of their activities and especially what they had taken could be used to classify offences. They proposed that the different forms of offence related to aspects of the offenders such as their lifestyle, age and criminal history.

Accretion measures. Social scientists have recognised that materials deposited by individuals are useful for exploring a wide variety of behaviours. A clear example of the usefulness of accretion data is Blake's (1981) examination of the ethnic content of graffiti appearing in male lavatories at the University of Hawaii. This allowed Blake to identify, among other things, stereotypes of ethnic groups from other ethnic group messages that are typically taboo in Hawaii.

Accretion measures available to the police may consist of DNA information, ballistic evidence, fingerprints and body recovery locations. The geographical locations of the 'Yorkshire Ripper' murder sites, for example, provided Kind (1987) with information that allowed him to infer an area that was likely to contain the offenders' residence. This involved using the centre of gravity (centroid) of the offence series to approximate the home location of Peter Sutcliffe who was convicted of those murders. Canter and Larkin (1993) developed this further to demonstrate across many series of offences that offenders' places of residence had a systematic relationship to where they committed their crimes.

The advantage of these studies is that they work directly with material available to the police and therefore any results have strong face validity. However, there are challenges to the validity of any explanations of the results obtained because what the offender intended has to be inferred. The property stolen may be more a function of what was available than what the offender was seeking. The relationship between crime locations and residence may be a consequence of the police approach to detection, looking for local offenders, rather than a general pattern valid for all offences. Cross-validation by other methods, for example by talking to offenders is therefore always relevant.

Archival information

All over the world law enforcement agencies and the government departments that manage them log a great deal of information about the actions of the crimes and criminals they seek to control. The archives of these agencies therefore offer considerable opportunities for the study of human behaviour. In addition many individuals produce documents that record significant aspects of an event that the police may investigate. Examples include threat and extortion letters or suicide notes. Access to this material may be easier than for traces but the archives often have administrative significance that cause their gatekeepers concern over possible use.

Lee (2000) makes a distinction between archival material that is (a) 'a running record' that is a continuing record, usually collected regularly over an extended period of time, or (b) discontinuous information that is episodic or personal. These different forms of record typically require different forms of analysis and make different demands on interpretation.

Running records. An often untapped source of data comes from continuous hospital records, records of births, marriages and deaths, and other information needed by bureaucracies to keep note of the populations to whom they are ultimately responsible. One study to use such data was Wechsler's (1961) examination of census data on population change, mental-illness diagnosis in hospital records, and statewide statistics for suicide incidence. Through the use of these three running records, Wechsler was able to identify relationships among suicide, depressive disorders, and community growth.

Running records that are available to the police include a variety of sources such as the FBI's Uniform Crime Reports. Maltz (1998) used running record data from the FBI's Supplementary Homicide Reports (SHR) to illustrate the utility of graphical methods in analysing homicide data. There are many other criminal databases such as the Washington State Homicide Investigation Tracking System (HITS). Keppel (2000) has used the HITS system to good effect, for example in showing what makes an offence more or less solvable.

These records offer particular potential in examining changes over time and in making comparisons between different agencies. Because the records do have policy implications themselves they have been the subject of study in their own right (Farrington & Lambert, 2000). Weaknesses in how and when these records are collected may have direct consequences for the actions of local or national government. In the UK in particular there is increasing pressure to standardise the collection and maintenance of these records. This will allow comparisons to be more readily made. Increasingly, also, such records are being placed in the Internet with open access. Their usage is therefore increasing.

Episodic records. Discontinuous types of episodic records are usually found within bureaucratic institutions. For example, Green's (1961) seminal study on sentencing disparity demonstrated how judicial data could be used to determine whether there were any criteria by which sentencing was decided and if any uniformity of sentencing existed. Green (1961) collected 1,437 cases from 1956-1957 through police and court records in Philadelphia, USA and isolated three sets of variables for sentencing criteria: legal factors, legally irrelevant factors, and factors in the criminal prosecution. The severity of sentences was measured by the extent of deprivation of civil liberty. As a result, he was able to show within-court consistency and across-court variation in judicial sentencing.

In the policing context, episodic records might include police reports, interview tapes, informers' reports, and witness reports. Other examples involve extortion letters, tapes of undercover liaisons or documentation relating to police officers' employee records. Data used in Leyton's (1995) *Men of Blood: Murder in Modern England*, for instance, used police reports to explore the historical, social and cultural origins of England's low homicide rate.

A number of studies have followed Canter and Heritage's (1990) examination of statements made by rape victims. Their study provided a framework of empirical distinctions between rapes, identifying the salient characteristics that differentiated sub-sets of rapes. Canter and Fritzon (1998) took this a stage further to show the links to the characteristics of arsonists. Distinctions between robberies were based by Alison et al. (2000) on police records of the events surrounding those robberies. Robertson (2000) used episodic records collected by an investigation department

within a mailing company to show the varieties of theft that occurred in that company and relate the varieties to the types of perpetrator.

Such studies are dependent on the information that happens to be available and so are more 'opportunistic' than most. They are also extremely vulnerable to the vagaries of the agency that records the information originally. For example some police databases hold in one place details of serious violent offences against children, but if the attack is on a female who is 17 the details will be kept, but if it is a male victim they will not. Idiosyncrasies of this kind need to be fully understood if inferences made from analyses of the records are to be valid.

Personal records. As long ago as 1942 Allport drew attention to the potential value of examining personal correspondence for studying personality and interpersonal transactions as an alternative to questionnaire surveys. These private records are distinct from running and episodic records because they are the product of individuals generating the material for their own purposes rather than in response to any bureaucratic demands. One of the earliest examples was the analysis by Thomas and Znaniecki (1918) of letters obtained from a Polish peasant. Janowitz (1958) examined letters exchanged between German soldiers. Such efforts have led to fascinating insights into the very real concerns of individuals involved in unique contexts and have provided the opportunity for developing hypotheses about the nature and evolution of interpersonal relationships.

In a forensic setting, personal records can take a variety of forms: diaries, letters, suicide notes, etc. A sub area of suicide studies has been built around a collection of suicide notes found accidentally in the 1950's (Shneideman & Farberow, 1957). Gregory (1999) followed this up by comparing genuine and simulated suicide notes to determine on what basis they might be discriminated. He determined that the two types of suicide notes differed with respect to five language components and revealed the extent to which individuals internalise the decision to die. Gregory's findings are likely to be of practical interest to police investigations where the reason for death is equivocal.

These personal records are inevitably special to the circumstances and people who generate them. It is therefore often the case that the research follows the opportunities that the researcher recognizes as available when s/he becomes aware of the material rather than researchers setting out with predetermined questions seeking to find data that will help answer those questions.

Simple Observation

When the observer does not set up an experimental situation in order to see what unfolds but instead plays an unobserved, passive and non-intrusive role in a naturally occurring setting and has no control over the behaviour in question, this may be described as simple observation (Webb et al., 1966). Lee (2000) emphasises that the data obtained in this context is *captured*, drawing attention to the active pursuit of opportunities that is often essential for access to such material.

Lee (2000) does distinguish between 'simple observation' and analysis of records made of naturally occurring events. However in the context of crime and police investigations it is rare indeed for the researcher to be actually present at the events. If the researcher is present s/he would be a witness or a victim (or possibly even an offender) and so there would be a legal and related complications to making

use of the observations. A striking example of this was when the first author was the subject of hundreds of harassing telephone calls, in effect being 'stalked' by an ex-secretary. As much as he would have liked to make dispassionate analyses of the actions of the 'stalker' the distress the calls caused him and his family meant that this was not possible. However, subsequent analysis of tape recordings of the calls is feasible. For our purposes then, simple observation refers to any analysis of recordings, in any mode, that are the full, unedited version of actual events.

A major advantage of simple observation is that the researcher has had no part in structuring the situation - and therefore, he or she protects the research from participant reactions to the experimenter. Another advantage of simple observation methodology is that the data is collected first-hand, which reduces the probability of information contamination. Of course many of these events may have been especially created for the purposes of the investigative or legal process. Examining how those processes operate may be the primary purpose for studying them, but the crucial point is that they have not been directly created for research.

Lee (2000) identified five types of simple observation: (a) exterior physical signs, (b) expressive movement, (c) physical location, (d) *in situ* conversation and (e) time-related behaviour.

Exterior physical signs. Tattoos, scars and clothing are lasting remnants of human actions and decisions. Webb et al. (1966) refer to these as examples of exterior physical signs. They have long been the focus of studies of cultures that form the cornerstone of social anthropology.

An example in forensic research using this type of data includes Burma's (1959) observational studies of tattoos. Burma compared 900 young inmates and a matched control group to show that significantly more delinquents than non-delinquents had tattoos. Although Burma's study did not directly utilise police information collected across an investigation, it highlights the type of information available to the police, who do on occasion collect data on tattoos to help determine gang membership.

The long anthropological tradition reflected in Burma's (1959) study of tattoos is most thoroughly articulated by Gell (1993), but as Canter (2002) has argued this perspective can be extended to consider any violations of the body. The consideration, for example, of the ways serial killers deal with their victims has been used to create a model of the major differences between such offenders (Canter et al., 2002). By incorporating further crime scene information into the consideration of the signs of murder, extensive classifications of non-serial murder have been produced (Salfati & Canter, 1999). This approach does seem to offer great potential for the systematisation of violent crimes for which there is no witness. However, as with many other forms of unobtrusive measurement the interpretation of the meanings of the signs is highly speculative. This has not limited the use of such data by anthropologists, nor as Gell (1993) has shown so fulsomely, has not limited the richness of their theorising.

Expressive movement. Several studies have demonstrated the fruitfulness of studying expressive movement. For example, Schubert (1959) suggested that the grimaces, speech and gestures of judges when hearing arguments and opinions in court were all rich sources of data. Additionally, Krout (1951) proposed that the movement of the toes of witnesses in Hindu courts might give an indication of the truthfulness of their statements. Researchers interested in non-verbal cues to

deception in police interviews have considered similar issues (Edelman, 1998). For example, Horvath, Jayne and O'Sullivan (1994) examined 60-videotaped interviews of actual criminal suspects to determine the ability of trained evaluators to detect deception. Although controversial (see Memon, Vrij, & Bull, 1998), Horvath et al. argued that the evaluators were able to distinguish between those attempting to conceal involvement in criminal activity and those telling the truth.

Such studies derive their significance from having some clear criterion against which to benchmark the expressions recorded, otherwise the interpretations of the movements is essentially speculative. Where those criteria are as significant as truthfulness or deceit the painstaking effort required to record and analyse these expressive movements may be well worthwhile. In other circumstances the consideration of such material may not be worthy of the effort.

Physical location. How people relate to each other in space is a particular form of expression that carries many social meanings (Hall, 1966). The study of who is where and when and with whom has been a mainstay of environmental psychology since Sommer's (1967) seminal work on 'personal space', having been influential in building design by showing how different layouts help or hinder social interaction.

In the investigative context two people being seen together may have significance in indicating their interactions, possibly their criminal collusion. Much intelligence collected by the police and other agencies such as those dealing with counter-espionage therefore does record contacts between people of interest to these agencies. By determining the underlying structure of the interactions between people it is possible to model the network of which they are a part and hence possibly to determine crucial roles in that network such as leaders and important cliques. Sparrow (1991) used criminal intelligence data about contacts between suspects to show how law enforcement agencies may better understand group processes that are relevant when interviewing group members, attempting to disrupt group membership or when deploying tactical strategies.

McAndrew (2000) reviewed the extensive range of analytic tools that are available for considering such information. He also cautions that surveillance records may be heavily biased towards target individuals and therefore may not be representative of the network as a whole. As mentioned before, the validity of any conclusions drawn from the analyses of such material does need to be tested against other sources of information wherever possible.

In situ conversation. An especially relevant example of *in situ* conversation cited by Lee, 2000 is the study by Pinch and Clark (1986) that examined the verbal and non-verbal devices utilised by market traders to increase the chance of a sale. These included prolonging the handing over of goods to show that other sales are being made, creating a sense of urgency, indicating the scarcity of products, and the limits on the number of people who could buy the products. They also drew attention to the use of accomplices to indicate interest and to encourage potential customers.

The dynamic processes of crisis negotiations were explored by Rogan, Hammer and Van Zandt (1997) by analysing recordings of conversations that took place between police and hostage takers. Taylor (2002) also worked on recordings from US hostage incidents and showed they were amenable to detailed scrutiny. This allowed the conditions for a peaceful resolution to the incident to be determined thereby providing insight both into the social psychology of such stressful negotiations and a basis for the training of negotiators.

One difficulty of such research is that the variety of situations that can occur is very great indeed. Very large samples would therefore be needed to disentangle all the factors involved. But the access to sample conversations is usually severely limited. This means that the results tend more towards indicating the complexity of the issues under study than to modelling generally applicable frameworks.

Time-related behaviour. According to Lee (2000), the few studies that have examined time-related behaviour have largely relied upon time budgets, records of daily activities, perceptions of time, and patterning of activities over time. One example of the use of time-related behaviour was Nash's (1990) study of procrastination amongst writers who use computers. Essentially, he found that individuals using computers often engage in behaviour such as tidying files and folders to avoid the writing process.

The study of time and how it relates to the solvability of murder cases provides an interesting example of how time-related behaviour in the policing environment is open to observational study (Keppel & Weis, 1994). Keppel and Weis examined the relationship between time and the probability of a successful resolution of a murder case. They found a success rate of 82% when the victim disappeared less than 24 hours prior to body being recovered. Generally, Keppel and Weis found that as time increased the chances of solving the case decreased.

The complexity of using time as a central variable in studies of crimes has been demonstrated recently by Lundrigan and Canter (2001). They have shown that by relating the distances travelled between serial killings to the sequence in which the killing were committed it is possible to show that offenders tend to keep away from the location of their most recent crime. However this was only found to be the case for offenders whose area of criminal activity was relatively small.

Improving the Quality of Unobtrusive Measures Derived from Police Data

A wide variety of sources of data for unobtrusive measures are drawn upon by Investigative Psychologists. However, rather than these measures being an optional extra they are frequently the methods of choice. This is because they deal with information directly related to the investigative process and therefore studies drawing on this information are more likely to be directly relevant to law enforcement. It is also because much of the material would either be inaccessible through interviews or questionnaires or would be open to considerable doubt as to its truthfulness if obtained by those means. The fact that so many interesting and consistent results have emerged from the use of this data is testimony to its scientific utility.

Nonetheless, even though Investigative Psychologists have shown the power of using police data and developing unobtrusive and non-reactive measures from it, as with all such measures, there are a number of difficulties and challenges that need to be overcome to make these measures as valuable as possible. These include the central challenge of getting access to the data and then the need to be alert to potential biases and omissions in the material that will undermine its reliability. There is also the recurring question of exactly what the measures mean and how their validity may be determined. These matters can be effectively dealt with by the consideration of a variety of processes that go beyond those normally considered for conventional research instruments such as questionnaires and interviews.

Professional Codes of Practice. Perhaps the most fundamental requirement for researchers who wish to gain access to police information is that they know, utilize and promulgate professional codes of practice in their work. They need to build up working relationships with law enforcement agencies that will be based on mutual trust and reciprocal awareness of the ethical, practical and resource constraints under which each party operates. There will often be an inherent mistrust of ‘students’ or ‘academics’ in a police culture that is action oriented and regards confidentiality, security and secrecy as important features of its weapons in the fight against crime. The major way of building up the trust that is essential is by demonstrating to the police that they are dealing with professionals who are bound by clear codes of professional and ethical etiquette. These codes are also a protection for the researcher if there is any attempt to embroil them in nefarious activity.

Considering Origins of the Data. Many of the limitations of unobtrusive measures in the investigative domain are a consequence of the *original* process of information collection. Therefore careful examination of how and why the police collected the information is an essential starting point. This should include study of the *implicit* as well as explicit constraints and limitations on what is collected. For example, we have found records that do not hold information on the ethnicity of offenders because of the possible political consequences of making such information public. More usually information is not recorded because it is not seen as relevant to the primary objective of finding the culprit and obtaining a conviction.

Standardising Recording Procedures. Variations in the way the material is collected add difficulties to effective use of the information collected by the police. For example in some jurisdictions scene of crime officers who visit a burglary write a narrative account of what has been stolen, what damage has occurred and what the relevant movements of the victim were. Often there are no detailed protocols or training for how this information is to be collected so that variation exists across accounts, as a product of individual differences on the part of the police officer and contextual features such as the complexity of the event and time constraints.

One way of reducing this problem, as Lee (2000) points out is to use the “...common alternative and rather simple format for recording and observation ... a checklist” (p.51). These checklists are gradually being adopted in the recording of police information (see Merry & Harsent, 2000). For example, many police constabularies in the United Kingdom are adopting coding checklists for examining potentially relevant information. These checklists, however, are not consistent across all constabularies and often require thorough reassessment after the first phase of analyses. As a result, researchers need to explore whether or not behavioural variation is due to the actual differences in behaviour or whether it is simply a reflection of the differences in collection methods of the investigating officers.

Therefore where ever possible researchers should actively encourage or introduce standard data collection protocols. These can be applied by the police in their original record collection, or in some cases may be used by the police to derive information from their files to provide to researchers. There are also legal reasons for requiring the police to carry out their information in more standard ways, ensuring for example that crucial information is not omitted or that biases do not creep in. So that increasingly police forces do operate guidelines on how interviews of victims can be carried out, including how the interview will be recorded or videoed.

Being Alert to Biases. Even when details are recorded systematically there are risks of bias due to the recording process and the objectives of recording that information. Currently in the UK, for instance, there is a government edict that anything that a member of the public reports as a crime has to be treated as a likely crime by the police even though the police have serious grounds for doubting its genuineness. So reports of crimes would need to be carefully sifted to ensure there was some reasonable evidence that a crime had actually occurred. Another common example, alluded to above, is that when taking rape statements there may be a focus on recording everything that would show lack of consent and underplaying aspects of the event that may be interpreted as indicating consent.

Corroboration from Different Sources. A method of testing whether an account was influenced by the joint action of the account giver and account receiver in, for example, a rape investigation, would be to compare a rape victim's initial account of the offence given to a close friend and the various accounts that end up in the police files. This could help to determine whether the prosecution were suppressing features of the account that do not support their case whilst highlighting features that emphasise the non-consensual, demoralising, trauma-inducing experiences of the crime. This is not a comment upon what a victim actually undergoes as a result of the rape, but rather a reference to what features of discourse conventionally appear in accounts given by victims. Indeed, research suggests, for example, that "pardoning the accused" commonly occurs in rape statements (Raskin & Esplin, 1991). However, this may prove problematic in court even though the act of pardoning the accused is potentially an additionally traumatic feature of the offence. That is, the victim inappropriately feels some responsibility and guilt (Cohen & Roth, 1987).

The comparison of different sources of information in rape cases are relevant for most other sources of information. Certainly the comparison of what an offender has been convicted of with what s/he will admit in confidence to a researcher is very illuminating. Also when accounts in the public domain are used, for example those that describe the actions of serial killers, it is important to get information from as many independent sources as possible to corroborate the facts that are reported, as Dr Missen did in putting together the corpus of information on which Canter et al. (2002) based their examination of serial killers.

Additional to the joint action of account construction are issues associated with inaccuracy. There is considerable evidence to suggest that eyewitnesses are sometimes very inaccurate (e.g., Wells, 1993), so any given account of what occurred during the commission of an offence is potentially distorted. Additionally, an account will typically reflect either one particular view (e.g., from one witness), a range of different and conflicting views (e.g., more than one witness with different perceptions of the same event), a view that was ultimately shaped by the individual gathering a hybrid account (e.g., the investigating officer compiling a general account from the statements of multiple witnesses), or any combination of these. Therefore, researchers relying upon this information should pay considerable attention to potential oversights, inaccuracies, embellishments and constructions. In doing so, they may be able to develop hypotheses about what types of behavioural information are less open to these types of distortions; that is, information that is least susceptible to an interpretative or subjective inference. To illustrate, the actual geographic location of an offence, or series of offences, is likely to have a high level of reliability. Even so,

this broad level of observation of behaviour is also open to distortion. For example, the absolute certainty that all offences in a series were accurately linked to a common offender may be questionable (Grubin, Kelly, & Ayis, 1997 cited in Gregory, 1999).

Care in Drawing Inferences about Psychological Processes The limits on the information recorded and the biases in what is recorded pose a particular difficulty for researchers in understanding the full meaning of what happens during crimes. Sometimes the contextual information that would help to make sense of what took place is not available. For example, some FBI profilers have highlighted excessive facial trauma as signifying an emotional outburst. This purportedly increases the likelihood that the offender has an emotional tie and may in fact be related to the victim (Hazelwood & Douglas, 1980). It is likely that the same behaviour(s) in different situations may arise for different reasons yet they are interpreted in the same way. Another example is the *binding* of a victim that may be interpreted by one researcher as being controlling type behaviour and by another researcher as a method to obtain sexual gratification.

These difficulties in knowing the full circumstances of criminal event draws attention to the need for care in forming inferences about the crime that go beyond the observable information. Any 'internal', psychological processes that are deemed to be operating in the crime especially need to be treated with considerable caution. Whenever it is possible it is essential to cross-validate these inferences from other sources, such as accounts of the various parties to the crime.

Content Dictionaries. Once the data has been collected it is usually in a qualitative form that needs to be converted into units of analysis for further exploration. This is a content analysis problem that is common to all qualitative research. However in this context the development of content dictionaries that take account of the issues discussed above does add considerably to the reliability and validity of the measures derived from police data. For example, such dictionaries need to avoid categories that rely on very precise recording of small details of crimes unless the researcher is confident that those details were recorded consistently and accurately. Any assumptions about the psychological significance of what took place also needs to be avoided and left for the interpretation of the overall results when corroboration from different aspects of the data can be used to support the internal logic of any such psychological claims.

Analysis systems also need to take account of problems with the data. In many of the studies cited here (e.g., Canter & Heritage, 1990) the association coefficient used has been one that does not include counts of the non-occurrences of information. This is on the assumption that whilst the data can be assumed to record reliably what happened it cannot be assumed that an absence of information does clearly indicate that an event did not actually take place. Similarly multivariate analysis procedures are used that operate on the ranks of relationships, drawing attention to relative differences because the absolute level of any relationship may not be reliably recorded.

Potential for Investigations of Treating Evidence as 'Unobtrusive' Measures

Attempts to align the collection of police information with the requirements of social science have been made in certain UK police constabularies and internationally (Van Duyne, 1999). Increasingly, a more healthy and effective relationship between

social scientists and the police force is emerging. As mentioned, this is helped by the clear understanding of the relevant legal and professional codes of practice, and by both parties understanding the limits and benefits of using such information, as well as to outline and define the framework within which such research is set. It has to be borne in mind, especially by researchers, that their career development may depend upon the analysis of data, but for the police officers helping them that is less likely to be the case.

So although there exist many different aims and purposes for collecting information for police enquires not all of these correspond with the aims of the social scientist. The disparity between the needs of the researcher and the requirements of the police officer are highlighted when the prosecution and defence call upon different researchers to comment upon the nature of the information, or when a researcher is approached to give an opinion to an ongoing inquiry. It is apparent, sometimes to the point of frustration, in these situations that the researcher is not directly involved with the information gathering strategy. The researcher has not "designed the experiment" and therefore, the extent to which s/he can gain control over confounding conditions is limited.

However, there are many benefits in using material that has not been specifically designed for research purposes. The compromising balance between the poles of control vs. non-interference offers great potential. This may involve the active role that researchers play in helping design a procedure for collecting information within the limits and necessary parameters of an investigation, guiding the development of what is, in essence, an effective unobtrusive measurement protocol. If the researcher is respectful of the parameters within which information is collected and is aware of what police officers must collect she or he could highlight those features that are likely to be most useful for research reports. For example, part of this role may be advising the police on what they need and do not need to collect. This will help to reduce what Webb et al. (1966) highlight as the potentially high 'dross rate' in unobtrusive research.

In assessing interview processes, researchers have already advised upon the way in which interviews should be carried out in relation to established literature on the potential vulnerabilities of interviewees, as well as the potential interpersonal qualities of persuasion (Auburn et al., 1995; Fielding & Conroy, 1992). In relation to the collection of other sorts of information for a police inquiry, however, research has had relatively little impact. For example, there have been few contributions to collecting information from crime scenes, even in the creation of checklists derived from models of what may occur in crimes. Clearly, the police may benefit from the researcher's experience in collecting information and in doing so would be made more aware of appropriate methods to avoid distortion, bias and dross.

There is also the matter of resources. Researchers are very familiar with problems in obtaining information that can be converted into "data". Police officers often collect information that they deem relevant, with little systematic effort devoted to grading its quality or relative reliability. Researchers, on the other hand, have experience and are trained in developing theoretical models and hypotheses. 'Blind' collection of all information wastes time and is devoid of any theoretical focus. Researchers may be able to contribute to developing the most efficient and quick checklists to find out the most relevant information for establishing and developing hypotheses.

All of these potential advantages rely heavily on observing many of the limitations and benefits of non-reactive, unobtrusive measurement. Unobtrusive methods are likely to present researchers with opportunities for deriving novel means of exploring relevant forensic issues that supplement conventional approaches to forensic research, such as interviewing offenders or analysing published official statistics.

In sum, although many opportunities exist for forensic researchers to employ police information for their work, they are constrained by the limitations of the quality of information, which is subject to a variety of distortions. What this review does highlight, however, is the need to improve and take account of the ways in which information is gathered, and to garner this in the most parsimonious and effective way possible.

Relevance to Other Areas of Social Science

As indicated, the use of unobtrusive measure in Investigative Psychology grew out of their use in Environmental Psychology. Thus although there are some special values in studying crime and criminals to using these forms of measurement there is no strict boundary between the uses described here and those in many other areas of social science. Indeed many of the caveats discussed above and the strategies described for improving the quality of these measures, whilst sometimes painfully obvious and relevant within the legal context, nonetheless are relevant to many other areas of social research.

For example institutions such as schools, hospitals, various places open to the public such as parks or sports centres, railway stations or air terminals, offices or factories, all collect copious information about their activities and these days often have running records and other archival material. Many studies are suggested by the existence of this material but it would doubtless suffer from the many challenges and weaknesses indicated for police data, problems of access, limitations on what is recorded, biases in the recording and difficulties in making sense of exactly what the social significance of the information is. As Lee (2000) emphasises in quoting at the end of his book from the end of Webb et al. (1981), the value of the innovative use of unobtrusive and non-reactive measures emerges only when that challenges that data presents are overcome to lead to “new means of making valid comparisons”.

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