

Evidence-based policing (EBP) as a strategy for accomplishing police goals more effectively, the challenges EBP faces, and the prospects for it being adopted widely in Greece

GEORGE PAPADIMITRAKOPOULOS

Institute of Criminology, Faculty of Law, University of Cambridge

Key Words Evidenced-Based Policing, Triple-T Strategy, Experimental Criminology, Evidenced-Based Social Policy, Greek Policing

Introduction

Evidence-based policing (EBP) is a dynamic and noteworthy paradigm shift, in the history of modern policing. With a view to properly understanding its *raison d'être* and recent rise, I intend to offer a brief yet all-encompassing background on its origins and on evidence-based social policy, which gave rise to experimental criminology (EC), of which EBP is a pre-eminent example of. I shall continue, by succinctly describing the three components of said strategy, namely Targeting, Testing, and Tracking. Furthermore, I intend to distinguish, between older iterations of EBP and the novel, Triple-T (3T) strategic approach, by offering two examples.

Hence, I aim to pithily provide, a characteristic example of EBP prior to the invention of the 3T (the 1995 experiment, where Sherman and Weisburd, used a randomised controlled trial (RCT), in trying to ascertain the effectiveness of police patrol, as a general deterrent in crime hotspots, in Minneapolis Minnesota), and one very recent, noteworthy example, of the successful implementation of 3T (the 2013 ex-

periment, by Sherman, in Trinidad and Tobago, whose results however, have yet to be officially published).

Following these two examples/major pieces of evidence and having established and analysed its roots – which I deemed as *sine qua non*, in understanding such a radical paradigm and in ascertaining its challenges, I shall dedicate the remainder of my essay, to critically assessing said challenges, faced by EC and EBP/3T in particular, as well as, to evaluating the prospects and surmising the pitfalls, for 3T being adopted and properly implemented, in Greece.

Evidenced-based Social Policy

Modernity, can trace its roots to the cultural movement of the Enlightenment. Whether one postulates that it begins earlier, with Francis Bacon's scientific method (and his death in exploring it) (Klein, Winter 2012), or by Baruch Spinoza, in his role as chief challenger of the fundamentals of revealed religion, received ideas, tradition, morality, and divinely constituted political authority (Israel, 2001, p.159), or later, as Toumlin (1992) posits, with the twin founding pillars of modern thought, i.e. modern science as represented by Isaac Newton (cf. *Principia Mathematica* 1687), and modern philosophy, as represented by Descartes (cf. *Discourse on Method*, 1637).

The debt we owe to that era, is the great transition in so many professions from customs to science and from opinions to evidence. That Enlightenment ideal, of objective knowledge is also crucial to the success of a liberal democracy, in which the rule of the majority protects individual liberty under the rule of law, via the institution of the police (Sherman, 2011b). Apart from our inherent and inadvertent biases, the centrality of evidence in all matters of public debate and policy is of paramount importance and vital in protecting our liberal democracy, from both extremes of the political spectrum, as well as from the post-modernist and nihilist intelligentsia. Case in point Bruno Latour (2004, p. 227) who spent several decades stressing the 'social construction of scientific facts', now laments the ammunition he fears he and his colleagues have given to the Republican right:

While we spent years trying to detect the real prejudices hidden behind the appearance of objective statements, we now have to reveal the real objective and incontrovertible facts hidden behind the illusion of prejudices? And yet entire Ph.D. programs are still running to make sure that good American kids are learning the hard way that facts are made up, but there is no such thing as natural and mediated unbiased access to truth but we are always business of language, but we always speak from a particular standpoint, and so on, while dangerous extremists are using the very same arguments of social construction to destroy hard-won evidence that could save lives.

Conversely, Noam Chomsky (1993, p. 286), points out the irony, from the other side of the aisle:

Left intellectuals took an active part in the lively working-class culture. Some sought to compensate for the class character of the cultural institutions through programs of workers' education, or by writing bestselling books in mathematics, science and other topics for the general public. Remarkably, they left counterparts today often seek to deprive working people of those tools of emancipation, informing us that the 'project of Enlightenment' is dead, that we must abandon the 'illusions' of science and rationality -a message that will gladden the hearts of the powerful, delighted to monopolise these instruments for their own use.

Experimental Criminology

Moreover, given the overabundance of criminological theories and their inability to explain crime (examination of empirical tests of criminological theory between 1968-2005 reveals that overall level of variance explained is often very low with 80 or 90% unexplained. (Weisburd & Piquero, 2008, Abstract) it is often hard to find common ground

on anything (cf. Robert Martinson's infamous "nothing works"), let alone on something as essential to our society, as the competence of our policing, despite Sutherland's definition whereupon, "Criminology is the body of knowledge regarding... the processes of making laws, of breaking laws, and of reacting toward the breaking of laws" (Laub, 2006, p. 240, *italics mine*).

Experimental criminology is a part of a larger and increasingly expanding scientific research and evidence-based movement, in social policy, which via its origins on facts derived from objective knowledge and not merely made on the basis of experience, hunches, peer opinions and occupational cultures (Chalmers, 2003, as found in Sherman, 2009, p. 6), offers, I propose, the requisite commensurability to criminology.

What is the most efficient way of preventing crime in a liberal democracy? How can we find the best evidence as to what works, and what doesn't? How can our elected officials make sure police are held accountable for their effectiveness? According to Sherman (2009), the promise of EC offers ten principal elements of a viable model to answer the foregoing questions:

1. Identify key factual questions about policies affecting life and liberty,
2. Formulate testable hypotheses about competing answers to those questions,
3. Conduct randomised experiments where possible to compare those answers,
4. Conduct a quasi-experiments when better designs are not possible,
5. Identify all good evidence on any one question in systematic reviews,
6. Synthesise that evidence, if possible, in single-outcome meta-analyses,
7. Present the research synthesis to committees of practitioners and scientists,
8. Develop succinct operational guidance based on evidence,
9. Communicate or promulgate the guidance and
10. Test in practice methods for obtaining more compliance with that guidance (p. 22).

Welsh, Braga, *et al.* (2013), take a broader view than Sherman, who defines EC as "scientific knowledge about crime and justice discovered from random assignment of different conditions in large field tests" (2010, p. 399). They propose that experimenting with crime and social

programs has a rich tradition dating from the 1970s with Farrington and Campbell in the UK, and in the concept of large-scale social programs of the Kennedy and Johnson administrations, and their need to identify valid and rigorous methods of evaluation, in the US. They continue by illustrating that the methodological adequacy of any test's causal hypotheses can be addressed on four major criteria of validity. (NB. Lösel (1987) adds a fifth type – *Descriptive Validity*).

Validity is of paramount importance as it is at the basis of any experimental approach. In other words one cannot test his or her hypotheses and their underlining causality without validity. There exist a plethora of types and subtypes of validity in social sciences, but it is common practice in EC to assess the methodological sufficiency of said causal hypotheses based on the five key validity criteria: internal, construct, external, descriptive and statistical conclusion validity (Campbell *et al.*, 1966 and Cook *et al.*, 1979 and Lösel *et al.*, 1987 and Shadish *et al.*, 2002).

Evidence-Based Policing

Sherman's proposals for what he called 'EBP,' first presented in a Police Foundation Lecture in Washington, D.C. in 1998 (Sherman, 1998a). He originally defined EBP as 'the use of the best available research on the outcomes of police work to implement guidelines in police agencies, units, and officers. Put more simply, EBP uses research to guide practice and evaluate practitioners. It uses the best evidence to shape the best practice. It is systematic efforts to parse out and codify unsystematic "experience" as the basis for police work, refining it by ongoing systematic testing of hypotheses.' (Sherman, 1998b, pp. 3-4).

More recently, Sherman defines EBP as "a method of making decisions about 'what works' in policing: which practices and strategies, which police missions most cost-effectively. In contrast to making decisions based on theory, assumptions, tradition or convention, an evidence-based approach continuously test hypotheses with empirical research findings." (Sherman, 2013, p. 1).

The core principle of evidence-based practice is that "we are all enti-

tled to our own opinions but not to our own facts”, as the late US senator Patrick Moynihan observed (Sherman, 2011, *RSA Lecture Transcripts*, p. 1). Sherman identifies the fact that EBP has a two-pronged approach on research, namely basic research (i.e. what works best when implemented properly under controlled conditions) and ongoing outcomes research (i.e. the results each unit is actually achieving by applying or ignoring basic research and practice). (Sherman, 1998b, p. 4). The convergence of the two creates a feedback loop, reminiscent of Argyris’s Double Loop Learning Theory (DLLT), which pertains to learning to change, underlying values and assumptions –much like EBP. The focus of DLLT is on solving problems that are complex and ill-structured and which change as problem-solving advances, based facts being reassessed (cf. DLLT is based upon a “Theory of Action” perspective, outlined by Argyris & Schön (1974)).

Moreover, Sherman contrasts EBP to the three present paradigms, namely incident specific policing (911 responses), community policing, and problem-oriented policing (a source of EBP nonetheless), but as being complimentary (1998b, pp. 5-6).

1. 3T description

The 3T strategy comprises three principles (rather than “kinds of decisions”), namely Targeting, Testing and Tracking. Specifically, according to Sherman (2013) Tracking requires a systematic ranking in comparison of the level of harm associated with places, times, people and situations policing can lawfully address. Testing, is what police do with high priority targets that helps ensure police neither increase crime nor waste money. Tracking finally, is defined as whether the police are delivering on target what police leaders decide should be done (Testing may grow the most rapidly in coming years by the use of technology, i.e. GPS locators and body-worn video cameras).

This novel (cf. in 2012 according to Sherman, 2013) EBP strategy, goes beyond the tenant of RCTs of EBP, and ideally expects the police to dynamically adhere to the three Ts and hence, incessantly allocate their limited resources, test their hypotheses, and track their accom-

plishments (and errors/shortcomings), thus updating and feeding their feedback knowledge loop. Additionally, scientific use of evidence, short-circuits our *System I* thinking (cf. Kahneman & Tversky), and forces all stakeholders in the criminal justice system and especially police officers, to employ *System II* thinking, and accept a marked, systematic, analysis that follows strict rules of evidence (Kahneman, 2011). Thus, 3T represents exactly, the type of clarity, vigour, and intelligence that criminologists (and policymakers) in the 21st century, require globally, and yet rarely get.

2. Targeting

In a world of dwindling budgets and scarce resources, the ability to focus on the most pernicious and/or predictable concentrations of crime and violence, is a *sine qua non*, and of capital importance to modern policing, and by extension to modern liberal democracy. It resembles the STP framework of modern Marketing (Segment, Target, Position), which is used in focusing campaigns addressed at large and heterogeneous populations. Moreover, I posit, it owes a vital part of its epistemological ancestry to the concept of “bounded rationality”, and its two types, “costly rationality” (cf. Savage Paradigm, 1954) and “truly bounded rationality” (cf. going far beyond the Savage Paradigm), where focus is not dictated by limited resources, but in a rather humbling manner, decreed by limited, human, individual capacities – cf. Simon, March, Marschak, etc (Radner, 1996).

3. Testing

The umbilical cord that connects targeting to testing, is the need for a common highly reliable measure of crime and harm, hence, the creation of a commonly standardised crime harm index (CHI) is absolutely necessary (Sherman, 2013, p. 6). Furthermore, Sherman offers a clear-cut seven step process for creating such a CHI that any agency around the globe can utilise.

The cynical mantra that “visceral anecdotes always trump data” was used by Professor Sherman (Lectures, 2013-14), to aptly illustrate the need for testing – the soul of EBP. In order to break the vicious-

cycle of the traditional 3Rs of policing (i.e. Random Patrol, Rapid Response & Reactive Investigations), and in order to progress the 3T strategy, which will ensure that the police neither increase crime (inadvertently), nor waste money (Sherman, 2013, p. 1).

4. *Tracking*

The classic managerial, circumspetive adage, admonishes Methuselahs and neophytes alike by stating that “one cannot manage what one cannot measure” (cf. P. Drucker v. W.E. Deming). It is of crucial import then to accurately, reliably, and in a timely manner, track the outputs and outcomes of the foregoing targeted testing.

Indeed, tracking allows 3T practitioners to tackle risk-based policy conundrums (e.g. in a seriousness versus frequency, 2x2 decision matrix, offering fact-based judgements, on which to priority se as second and/or as third ‘priority to be addressed’; compared to the first and fourth priority which are usually obvious) and forestall deleterious ramifications.

Given the aforementioned, the adept and frequent use of technology in the form of GPS locators and camcorders (compared to unreliable self-reporting, misleading crime rates, subjective definitions and erroneous counts, etc.) becomes a self-evident, prerequisite (Sherman, 2013, p.6).

Example of EBP – pre 3T (Minneapolis, Minnesota, USA, 1995)

This randomized controlled trial experiment took place in Minneapolis, MN (Sherman 1987, and Sherman, *et al.*, 1995, 1998, 2013) and aimed to determine the effect of police patrols on very small clusters of high-crime addresses in the city. This “hot spot” focused approach, indicated that police patrols of sufficient duration (cf. Up to 15 minutes – Koper Curve, Sherman, 1990, Koper, 1995) have a deterrent effect.

In order to avoid statistical bias towards a null hypothesis and a measurement problem in determining the frequency of patrols for a specific area, in this experiment, the selection of loci, involved the examination of data files and the consequent taxonomy of address clusters with 20 or more “hard calls” (i.e. holdup alarms, auto theft, assault

and rape), and “soft calls” (i.e. public drunkenness, disturbances, or fights). Computer mapping, visual inspection, and screening for size, location, and proximity to other hot spots, resulted in the selection of 110 hot spots, which were randomly assigned to either the experimental or the control group. For the 55 hot spots assigned to the experimental group, officers increased patrol presence to a target duration. Patrol logs and independent observation were utilised (in lieu of high-tech devices – cf. Trinidad & Tobago experiment, hereafter) to validate the duration of patrol presence per day at each hot spot.

The impact of the increased patrol presence was measured by citizen calls concerning crime and by independent observations of crime at the selected hot spots (Sherman, 1987). The importance of this pioneering study is significant (not so much for its findings of “general deterrent effect/micro-deterrence” (Sherman *et al.*, 1995)), but as a seminal case in EBP resulting in tangible, tactical and fact-based solutions, for front-line officers.

Example of EBP – 3T (Trinidad & Tobago, 2013)

The following description of an unalloyed 3T experiment, is constructed based on anecdotal evidence accrued and garnered during Professor Sherman’s lectures, at the Institute of Criminology University of Cambridge, in 2013 and 2014.

Policing in Trinidad and Tobago followed a colonial policing practice. This entailed officers spending all of their time in the police station without going on patrol (apparently quiet rooms with bunkers were also furnished to that end). The implementation of 3T involved an RCT where all the island nation’s police stations were divided into two groups with equal incidence of violent crime. The preliminary findings show an approximate 50% drop in homicides and fatal wounding / shootings.

The police *targeted* the most harmful types of violence, in the worst hot spot location at hot times (according to a graph presented, between 6pm-2am). Specific practices were *tested* (e.g. stop and frisk policy for handguns, patrol time and active visibility in hot spots & respectful

handling of suspects). Both crimes and police officers were *tracked*. In particular, police patrols were monitored using GPS and fed back to police in a report every two weeks. Team leaders were held accountable for their teams and patrol results were compared between teams. This use of 3T appears – according to Professor Sherman – to have reduced serious crime, as well as exposed cultural differences and organisational and educational gaps in the police force of Trinidad and Tobago.

Moreover, this is a case-in -point of how System II responses, following modern EBP and the use of current technology (GPS), can have dramatic effects on police internal and external legitimacy, efficiency, cost-effectiveness, as well as in the reduction of harm, and of the crime-related suffering of citizens.

Challenges Facing EC, EBP and 3T

Given the intertwined and subsumed nature of EC, EBP and 3T, I shall try to offer discrete and succinct examples. Evidently, there is an expected overlap, which I see as an advantage in trying to holistically fathom, establish and improve 3T-based policing globally.

It is clear by now that EC has for the most part moved past the first wave, of RCT-focused criticisms, namely that it was not ethical to randomise treatments intervention or programs in criminal justice and that randomised experiments could not be implemented in the real world (Braga, *et. al.*, 2013, p. 277). However, a second wave of criticism has been increasingly articulated concerning the field EC. These critiques share a common concern that EC blindly advocates the absolute superiority (cf. Maryland Scale, etc.) of RCTs, over quasi-experiments and observational studies. (Braga *et. al.*, 2013, p. 278).

Therefore, I claim that contemporary criticisms of EC, become *de facto* challenges for EBP and 3T in particular. These are according to Braga *et al.*, (2013): 1. Evidence-based crime policy is experimental based crime policy, 2. EC stifles innovation, 3. Experiments have lower external validity and therefore limited policy relevance, 4. Experiments are oversold as the gold standard in establishing causation. Without

delving into the associated debate (whereupon, Weisburd (2010) argues that there is a “moral imperative to conduct randomised experiments”, and Sampson (2010) retorts that “an ethos of ‘RCT or bust’, downgrades the value of well-designed observational analyses quasi-experimental evaluations”), I will instead accept the argument proposed, that RCTs represent a “bronze rather than a gold standard”, in that it makes good sense that experimental and observational methods be framed as complements, “parts of the same toolkit” rather than as competitors (p. 280). Certainly, the proposed “revised scale” that “would include design and executional parameters”, as Braga *et. al.*, put forward (p. 293), finds me in agreement.

Further to the above discussion, I wish to address two common, characteristic and 3T-specific, challenges (NB. I am well aware of the nine issues, three for each category, discussed by Sherman, 2013 – notwithstanding, I opt to offer, two actual challenges that arose during and/or after the lectures/presentations).

The first, advocates the equal distribution of police personnel / resources. Professor Sherman rebuffed said traditionalist argument, by underlining the need for prevention (“it is preferable to spray the mire than to swath mosquitoes one by one”), and iterated that the aim for any modern police force ought to be that “of an equality of results rather than an equality of resources” (Sherman, 2013-14, IOC, Lectures). The second challenge although typical, is geographically-specific, stems from the London Metropolitan police, and is in a nutshell, that all “policy decisions are doomed to success”. A combination that is, of confirmation bias and organisational top-down pressure for results. Such a culture and *status quo*, obviously limit the ability of the strategy to augment and adapt, furtively and/or antagonistically obviating the feedback loop. My optimistic conjecture is that, given the requisite police leadership support, an increase in volume (of said experiments) resulting in the achievement of a threshold, which once passed, will act as an epidemiological tipping point, and as a result, 3T strategies will thenceforth, become a *de rigueur* reality, in the MET and worldwide.

Greece

Daniel Kahneman, observes that a remarkable aspect of one's mental life is that one is rarely stumped. (...) One often has answers to questions that one does not completely understand, relying on evidence that one can neither explain nor defend (Kahneman, 2011). This pithy description of *System I* thinking is concurrently a poignant summary of the mentality of the Greek national police (NB. with notable exceptions). Therefore, it is not markedly different from most other national police departments (in Europe and elsewhere) based on my research thus far.

Nonetheless, Greece offers a multitude of country-specific challenges, pertaining to the wide adoption of EBP and 3T. Even so, I adduce that the following hurdles (a sample of three), are *ipso facto*, each and everyone of them, the most convincing reasons and arguments for the implementation of EBP in Greece – thenceforth, transforming Greece into and internationally-promoted, case-study and best practice for EBP within Europe.

Specifically, the barrier posed but the current socio-economic crisis, is exactly the reason for the existence and use of 3T. The enigma of daily, resource allocation and pecuniary dilemmas, given the proper police leadership and political volition, will allow for efficient and effective policing, and will concurrently augment the dismal morale, as well as, reconstitute the ebbing internal and external legitimacy of the Hellenic police force. A legitimacy of an institution no less, which is necessary to guard the liberal democracy, and by extent all its citizens, in the country that invented it.

Apart from mentality and leadership issues, given the potential for power that such a fact-based approach would produce and hold, it is of crucial importance to follow Juvenal's sagacious admonition and be mindful of *sed quis custodiet ipsos custodes?*, especially during such an aforementioned crisis. Which brings the issue of ethics at hand. According to Eisner (2012, p. 419-20) in large-scale criminological field experiments, ethical questions need to be addressed on at least four levels: the selection of the intervention, the randomised allocation to

treatment conditions, the collection and storage of data, and the analysis and publication of the findings. Moreover, it is imperative to preempt the pitfalls, pertaining to the ethical cornerstones of, confidentiality (Reiss, 1979), informed consent (Soble, 1978), deception and accuracy (Erikson, 1967), if one is to suitably and ethically, conduct EBP experiments in Greece.

Finally, the notorious *Catch-22*, of external validity in RCTs needs to be addressed in said context. Given the fact that it is improbable to expect external validity within one study (efforts at triangulation notwithstanding), it is common knowledge that said validity can be established in a more convincing way, via systematic reviews and meta-analyses. But these two methods require an increased number of studies to produce results. Thus, achieving the prerequisite high-volume of 3T experiments which would (once systematically reviewed and meta-analysed) produce convincing results for the police and political hierarchy, is incumbent upon the above-mentioned decision makers, being convinced by the first couple of experiments. A probable vicious cycle and a quixotic end eavour indeed, in a country where all police officers (even in the most tactical of units) are charged for their ammunition that is used for training purposes.

Conclusion

I conclude, that I have offered an all-inclusive exploration supported by, the requisite bibliography, of the plethora of forces and intricate dynamics which led to the emergence of EBP. Further, I presented a terse description of the 3T strategy and a brief analysis of each of the three principles in more depth. I then critically elected to compare and contrast, two indicative examples of EBP, a ground-breaking one and the most recent one. Given the aforementioned diversity of EBP issues and nuances covered, I was in good stead to thereafter, assess the overarching, overlapping, and multifaceted challenges faced by EC, EBP, and 3T. Given the significance and potential of 3T, I offered two, commonly-voiced, challenges, as well as their counterarguments and solutions. Finally, I succinctly (via three issues), yet criti-

cally displayed, the probable challenges, of adopting 3T and an EB mind-set, in Greece, and the opportunity – having overcome such a *Herculean labour* – this holds, for the future of policing.

Bibliography

- Argyris, C. (1976). *Increasing Leadership Effectiveness*. New York: Wiley.
- Argyris, C. & Schön, D. (1974). *Theory in Practice*. San Francisco, CA: Jossey-Bass.
- Braga, Anthony and Weisburd, David (2010a). *Policing Problem Places: Crime hot spots and effective prevention*. Oxford: Oxford University Press.
- Braga, Anthony, and Weisburd, David (2010b). *Policing Problem Places*. New York: Oxford University Press.
- Braga, Anthony A., and Weisburd, David (2012). 'The effects of focused deterrence strategies on crime: a systematic review and meta-analysis of the empirical evidence', *Journal of Research in Crime and Delinquency* 49(3): 323-358.
- Braga, Anthony A., Papachristos, Andrew V. & Hureau David M. (2012). 'The effects of hot spots policing on crime: an updated systematic review and meta-analysis', *Campbell Systematic Reviews* 8 DOI: 10.4073/csr.2012.8
- Braga, A. A. *et al.* (2013) 'Integrating experimental and observational methods to improve criminology and criminal justice policy', in B. C. Welsh (ed.) *Experimental Criminology – Prospects for Advancing Science and Public Policy*. Cambridge: Cambridge University Press, pp. 277-297.
- Bristow, William (2011), 'Enlightenment'. In Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*. URL: <http://plato.stanford.edu/archives/sum2011/entries/enlightenment/>
- Bottoms, A. E. (2002) "Morality, crime, compliance and public policy." In A. E. Bottoms and M. Tonry (eds.), *Ideology, Crime and Criminal Justice: A symposium in honour of Sir Leon Radzinowicz*. Cullompton: Willan.

- Bottoms, Anthony, & Tankebe, Justice (2012). 'Beyond procedural justice: a dialogic approach to legitimacy in criminal justice.' *Journal of Criminal Law & Criminology* 102: 119-253.
- Campbell, D.T., et al. (1966) *Experimental and Quasi-Experiment Designs for Research*, Chicago. IL: Rand McNally.
- Chomsky, N. (1993) *Year 501: The Conquest Continues*, Boston, MA: South End Press.
- Cook, Thomas D., and Campbell, Donald T. (1979). *Quasi - experimentation: Design and analysis issues for field settings*. Chicago, IL: Rand McNally.
- Eisner, M et al. (2012). 'Large-scale criminological field experiments'. In David Gadd et al., *The SAGE Handbook of Criminological Research Methods* Chapter 27, pages 410-424. London: SAGE.
- Erikson, K. (1967). 'Disguised observation in sociology', *Social Problems*, 14: 366-373.
- Farrington, D. P. (2003) Methodological Quality Standards for Evaluation Research. *The ANNALS of the American Academy of Political and Social Science*. 587: 49-68
- Giluk, Tamara L. & Rynes-Weller, Sara (2012). 'Research findings practitioners resist: lessons for management academics from evidence-based medicine. In Denise M. Rousseau, (ed.), *The Oxford Handbook of Evidence-based Management*, pp. 130-164. New York: Oxford University Press.
- Glaser, Barney and Strauss, Anselm (1967). *The Discovery of Grounded Theory*. New York: Aldine.
- Hume, David (1748 [reprinted 1777 and 1902]). *An Enquiry Concerning Human Understanding*. <http://www.gutenberg.org/>
- Israel, J. (2001). *Radical Enlightenment: Philosophy and the making of modernity 1650–1750*, Oxford: Oxford University Press, p. 159.
- Kahneman, D. (2011). *Thinking, Fast and Slow*. New York: Farrar, Straus and Giroux.
- Klein, Jürgen (2012). 'Francis Bacon'. In Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy*. URL:<http://plato.stanford.edu/archives/win2012/entries/francis-bacon/>

- Koper, Christopher S. (1995). 'Just enough police presence: reducing crime and disorderly behavior by optimizing patrol time in crime hot spots', *Justice Quarterly* 12: 649-672.
- Latour, B. (2004). 'Why has critique run out of steam? From matters of fact to matters of concern', *Critical Inquiry* 30: 225-248.
- Laub, J. H. (2006). 'Edwin H. Sutherland and the Michael-Adler Report: searching for the soul of criminology seventy years later', *Criminology*, 44(2): 235-257.
- Layder, D. (1994). *Understanding Social Theory*, 1st edition, London: Sage.
- Lösel, F. (1987) 'Evaluation research', in Schulz-Gambard, J. (ed.) *Applied Social Psychology*. Munich: Psychologie Verlags Union, pp. 144-145.
- Lum, Cynthia, Koper, Christopher & Telep, Cody D. (2010). 'The evidence-based policing matrix', *Journal of Experimental Criminology* 7: 3-26.
- Mazerolle, Lorraine, Antrobus, Emma, Bennett, Sarah & Tyler, Tom R. (2013). 'Shaping citizen perceptions of police legitimacy: a randomized field trial of procedural justice', *Criminology* 51: 33-63.
- Popper, K. (2000/1956). *Realism and the Aim of Science*. London: Routledge.
- Radner, R. (September 1996). 'Bounded rationality, indeterminacy and the theory of the firm', *The Economic Journal*, 106(438): 1360-1373.
- Reiss, Albert J., Jr. (1971). *The police and the Public*. New Haven, CT: Yale University Press.
- Reiss, Albert J., Jr. (1979). 'Governmental regulation of scientific inquiry: some paradoxical consequences', in C. B. Klockars *et al.* (eds.) *Deviance Indecency: The ethics of research with human subjects*. Beverly Hills, CA: Sage, pp. 61-95.
- Reiss, Albert J., Jr. (1988). 'Co-offending and criminal careers', *Crime and Justice* 10: 117-170.
- Reiss, Albert J., Jr. (1992). 'Police organization in the twentieth century', *Crime and Justice* 15: 51-97.

- Sampson, R. (2010). 'Gold standard myths: observations on the experimental turn in criminology', *Journal of Quantitative Criminology* 26: 489-500.
- Shadish, William R., Cook, Thomas D. & Campbell, Donald T. (2002). *Experimental and Quasi-experimental Designs for Generalized Causal Inference*. Boston, MA: Houghton-Mifflin
- Sherman, Lawrence W. (1978). *Scandal and Reform: Controlling police corruption*. Berkeley, CA: University of California Press.
- Sherman, Lawrence W. (1987). *Repeat Calls To Police In Minneapolis*. Crime Control Reports 4. Washington, DC: Crime Control Institute.
- Sherman, Lawrence W. (1990). 'Police crackdowns: initial and residual deterrence', in Michael Tonry and Norval Morris (eds.), *Crime and Justice: An annual review of research*, Vol. 12, pp. 1-48. Chicago, IL: University of Chicago Press.
- Sherman, Lawrence W. (with Janell D. Schmidt & Dennis P. Rogan) (1992). *Policing Domestic Violence: Experiments and dilemmas*. New York: Free Press.
- Sherman, Lawrence W. (1993). 'Defiance, deterrence and irrelevance: a theory of the criminal sanction', *Journal of Research in Crime and Delinquency* 30: 445-473.
- Sherman, Lawrence W. (1998a). *Evidence-Based Policing*. Washington, DC: Police Foundation. Ideas in American Policing Series (www.policefoundation.org).
- Sherman, Lawrence W. (1998b) *Preventing Crime: What works, what doesn't, what's promising. Research in brief*. Washington, DC: U.S. National Institute of Justice.
- Sherman, Lawrence W. (2007). 'The power few hypothesis: experimental criminology and the reduction of harm', *Journal of Experimental Criminology* 3: 299-321.
- Sherman, Lawrence W. (2009). 'Evidence and liberty: the promise of experimental criminology', *Criminology and Criminal Justice* 9(1): 5-28.

- Sherman, Lawrence W. (2010). 'Less prison, more police, less crime: how criminology can save the states from bankruptcy', Lecture Presented to the National Institute of Justice, 21 April 2010. <http://www.nij.gov/multimedia/presenter/presenter-sherman/data/resources/presenter-sherman-transcript.htm> downloaded 12 March 2014.
- Sherman, Lawrence W. (2011a). 'Al Capone, the sword of Damocles, and the police-corrections budget ratio', *Criminology & Public Policy* 10: 195-206.
- Sherman, Lawrence W. (2011b). *Professional Policing and Liberal Democracy*. Benjamin Franklin Medal Lecture delivered to the Royal Society for the Encouragement of Arts, Manufactures and Commerce, London, 1 November 2011. Downloaded 9 March 2013: <http://www.thersa.org/events/audio-and-past-events/2011/professional-policing-and-liberal-democracy>
- Sherman, Lawrence W. (2013). 'Targeting, testing and tracking police services: the rise of evidence-based policing, 1975-2025', in M. Tonry (ed.) *Crime and Justice in America, 1975-2025*. Chicago, IL: University of Chicago Press, pp. 1, 2-7, 13-14, 20-22, 30-49.
- Sherman, Lawrence W. (2013-2014). 'Lectures and presentations on policing', Institute of Criminology, University of Cambridge, UK.
- Sherman, Lawrence W. & Strang, Heather (2012). 'Restorative Justice as evidence-based sentencing', in Joan Petersilia and Kevin Reitz (eds.), *The Oxford Handbook of Sentencing and Corrections*, pp. 215-243. New York: Oxford University Press.
- Sherman, Lawrence W. et al. (1989). 'Hot spots of predatory crime: routine activities and the criminology of place', *Criminology* 27: 27-55.
- Sherman, Lawrence W., Farrington, David P., Welsh, Brandon C., & MacKenzie, Doris L. (eds.). (2002). *Evidence-based Crime Prevention*. London: Routledge.
- Sherman, Lawrence W., Denise Gottfredson, Doris MacKenzie, John E. Eck, Peter Reuter & Shawn D. Bushway (1998). *Preventing Crime: What works, what doesn't, what's promising*. Research In Brief. Washington DC: National Institute of Justice.

- Sherman, Lawrence W., Denise C. Gottfredson, Doris L. MacKenzie, John Eck, Peter Reuter, & Shawn Bushway. (1997) *Preventing crime: What works, what doesn't, what's promising*. Washington, DC: U.S. Office of Justice Programs.
- Sherman, Lawrence W. & Weisburd, David (1995). 'General deterrent effects of police patrol in crime hot spots: a randomized, controlled trial', *Justice Quarterly* 12: 635-648.
- Soble, A. (1978) 'Deception in social science research: is informed consent possible?', *Hastings Center Report*, pp. 40-46.
- Tankebe, Justice (2009). 'Public cooperation with the police in Ghana: does procedural fairness matter?', *Criminology* 47: 1265-1293.
- Telep, Cody W., Mitchell, Renée J., & Weisburd, David (2012). 'How much time should the police spend at crime hot spots? Answers from a police agency directed randomized field trial in Sacramento, California. "*Justice Quarterly*, URL:<http://libsta28.lib.cam.ac.uk:2089/doi/full/10.1080/07418825.2012.710645>
- Toumlin, S. (1992). *Cosmopolis – The Hidden Agenda of Modernity*, Chicago, IL: University of Chicago Press.
- Weisburd, David (2000). 'Randomized experiments in criminal justice policy: prospects and problems', *Crime and Delinquency* 46:181-93.
- Weisburd, David (2010). 'Justifying the use of non-experimental methods and disqualifying the use of randomised controlled trials: challenging folklore in evaluation research in crime and justice', *Journal of Experimental Criminology* 6: 209-27.
- Weisburd, David, Feucht, Thomas, Hakimi, Idit, Perry, Simon & Mock, Lois (eds.) (2009) *To Protect and to Serve: Police and policing in an Age of terrorism*. New York: Springer Verlaag.
- Weisburd, David, Lum, Cynthia M., & Petrosino, Anthony (2001). 'Does research design affect study outcomes in criminal justice? ' *Annals of the American Academy of Political and Social Science* 578:50-70.
- Weisburd, David, Morris, Nancy & Groff, Elizabeth Groff (2009). 'Hot spots of juvenile crime: a longitudinal study of arrest incidents at street segments in Seattle, Washington', *Journal of Quantitative Criminology*.

- Weisburd, David & Piquero, Alex(2008). 'How well do criminologists explain crime? Statistical modeling in published studies', *Crime and Justice* 17:453-502.
- Welsh, B. C. *et al.* (2013). 'Experimenting with crime and criminal justice', in B. C. Welsh (ed.) *Experimental Criminology – Prospects for Advancing Science and Public policy*. Cambridge: Cambridge University Press, pp. ix-xiv, 1-11.