EXPERT EVIDENCE IAN FRECKELTON QC JANE GOODMAN-DELAHUNTY JACQUELINE HORAN BLAKE MCKIMMIE PROVIDENTAL CONTRIBUTION PROVIDENTAL CONTRIBUTI AND CRIMINAL





Great Clarendon Street, Oxford, OX2 6DP, United Kingdom

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INTRODUCTION

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Expert evidence plays a central role in many criminal trials in 'c.ping a jury to understand often complex and unfamiliar information that may be essent at to determine the guilt of the defendant. Despite the importance of expert evidence to the fact-finder's role, limited empirical information exists about how expert evidence is perceived by jurors, let alone judges and litigation lawyers. Information about how experts remselves view the task of testifying is even more difficult to find.

The overarching aim of this volume is to facilitate a broad understanding of, and critical thinking about, the use of expert evidence in the contemporary jury trial. While the ultimate outcome of such an endeavour mount be to identify any problems with expert evidence and present solutions to those problems, this volume starts with a more modest aim. We commence by exploring how juryers, experts, judges, and lawyers make sense of the current processes. We ask how these various participants in the criminal justice process think about their role within it and the roles of the other protagonists in a criminal trial. We aim to highlight avenues for further research, as well as to illustrate some initial steps where the delivery of expert testimony might be strengthened.

A. What Does Current Research Tell us About the Expert Evidence Process?

This volume builds on the research that has been conducted to date. Most empirical research to this point has relied upon experimental studies of particular aspects of expert testimony, such as the language that an expert uses, an expert's characteristics, or different ways in which expert testimony might be presented. It has tended to use participants who have acted as mock jurors. Inevitably, such research has limitations in terms of 'ecological validity': specifically, the potential to generalize to non-laboratory settings. There

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are often telling differences between a real trial and one which is simulated with mock jurors.¹

- 1.04 Most of the prior research into expert evidence has been conducted in the United States of America, which has substantial differences in how a jury trial is conducted, in rules of evidence, and in procedures governing the admission of expert evidence from how these obtain in Australia, New Zealand, Canada, and the United Kingdom. Research from jurisdictions such as Australia, New Zealand, the United Kingdom, Ireland, and Canada is more relevant to other Commonwealth jurisdictions as all share an extensive legal history and legal cultures.
- 1.05 Apart from anecdote and professional gossip, little is known about the common problems faced by experts and jury practitioners (judges and litigation lawyers) in presenting such expert evidence in jury trials. It might be tempting to base conclusions about how expert testimony is received by jurors on well-known cases where expert testimony has, for various reasons, had a deleterious effect on the fairness of trials, such as the series of Sudden Infant Death Syndrome (SIDS) murder trials in which mothers in the United Kingdom were convicted of murdering their babies based on the flawed interpretation and presentation of statistical evidence. Those cases highlighted the difficulty in interpreting complex statistical information and the dangers of experts giving evidence outside their professional expertise. Unfortunately, such issues are not always readily identified. In Canada, an expert paediatric pathologist gave similarly flawed evidence about 'shaken baby syndrome' over a period of two decades. The legal system took fourteen years to challenge this expert's ability to give evidence. A 2008 inquiry determined that the expert failed to demonstrate objectivity and repeatedly went beyond his expertise in giving evidence.
- 1.06 Expert evidence can also be more influential that is warranted, based on the perceived scientific underpinnings and irrefutability of that testimony. In the 2008 Australian trial of Farah Jama, DNA evidence was the solv substantive prosecution evidence available for the jury when it convicted the defendant of rape. At appeal, the DNA evidence was successfully challenged and it was revealed that the incriminating DNA sample had been contaminated at the time it was collegted. More recent concerns raised about other types of

A mock trial is to a real one, and a mock juror is not a real juror. No matter what is done to induce mock jurors to take the situation seriously, the stakes are always different in a real trial. Also, mock jurors almost always know that they are being studied, and such knowledge could make them act differently from real jurors. A further concern is that jury studies by academics often rely on college students as mock jurors, and some people question whether information from this restricted pool can be generalized to the wider jury population. Mock trials are also unlike real trials because the presented evidence seldom comes from live witnesses.

However, the issue is complex. See also Roger J. R. Levesque, *The Psychology and Law of Criminal Justice Processes* (New York: Nova Publishers, 2007), p. 307; Neil Vidmar, 'Lay Decision Making in the Legal Process', in *The Oxford Handbook of Empirical Legal Research*, edited by Peter Kane and Herbert M. Kritzer (Oxford: Oxford University Press, 2010), p. 637; Emily Finch and Vanessa Munro, 'Lifting the Veil: The Use of Focus Groups and Trial Simulations in Legal Research', *Journal of Law and Society* 35, Special Issue: Law's Reality: Case Studies in Empirical Research on Law (June 2008) 30; Michael D. Wiener, Daniel A. Krauss, and Joel D. Liberman, 'Mock Jury Research: Where Do We Go From Here?', *Behavioral Sciences & the Law* 29, no. 3 (May/June 2011) 467; Dawn Watkins and Mandy Burton, *Research Methods in Law* (Oxford: Routledge, 2013), p. 64. For an exploration of this concept in the context of potential sub judice contempt arising from media publicity see *Attorney-General (NSW) v John Fairfax Publications* [1999] NSWSC 318; Ian Freckelton and Marilyn McMahon, 'Social Science Research and Experimentation in Australian Criminal Proceedings: Prejudicial Pre-trial Publicity and Psychological Research', *Journal of Law and Medicine* 9 (2002) 347.

¹ Randolph N. Jonakait *The American Jury System* (New Haven: Yale University Press, 2008), p. 220, observed that

² Stephen T. Goudge, *Inquiry into Pediatric Forensic Pathology in Ontario: Report* (Ontario Ministry of the Attorney General, 2008), http://www.attorneygeneral.jus.gov.on.ca/inquiries/goudge/>.

³ Frank H. R. Vincent, *Inquiry into the Circumstances that Led to the Conviction of Mr Farah Abdulkadir Jama: Report* (Victorian Government, 2010), https://netk.net.au/DNA/Jama.pdf ('The Vincent Report').

expert evidence, such as facial and body mapping, gait analysis, shoe impression evidence, and criminal profiling, have fuelled the debate.⁴

Several government-initiated inquiries have assessed and reported on the subject.⁵ Law reform work has also prompted changes in expert evidence procedures. But procedural reforms implemented in the absence of a thorough understanding of the nature of how expert evidence is received and used by decision-makers run the risk of not bringing about any meaningful change, or worse, accentuating existing problems arising from the expert evidence placed before the courts or how it is expressed. In addition, by basing what we know about expert evidence on perverse, high-profile cases, anecdote, or personal experience, the focus on the routine issues that affect the vast majority of trials is ignored. Reform premised on what happens in routine trials, rather than on high-profile miscarriages of justice, is more likely to bring the greatest benefit to the criminal justice system.

B. Why Focus on Expert Evidence?

Expert evidence is just one type of evidence commonly presented a trial, so why single out this form of evidence? Expert evidence is worth special consideration because it has unique characteristics that distinguish it from other types of evidence, and those characteristics can pose unique challenges to finders of fact. By its very nature, expert evidence deals with matters that are the subject of specialized knowledge; it is unfamiliar to jurors and, in many jurisdictions, out the common knowledge, otherwise the trial judge would not permit it. Unlike tay witnesses, for the most part experts are permitted to give their evidence in the form of opinions: inferences from data. Given that in most trials the opposing experts work from the same facts, the difference between conflicting expert opinion is often subtle but can be crucial. Judge Learned Hand identified the difficulty juvors face in evaluating expert evidence when he observed:

The trouble with all this is that it is setting the jury to decide, where doctors disagree... But how can the jury judge between two statements each founded upon an experience confessedly foreign in kind to heir own? It is just because they are incompetent for such a task that the expert is necessary at all.⁷

See also Julie Szego, *The Tainted Trial of Farah Jama* (Cheltenham, Vic: Wild Dingo Press, 2014); Kate Hagan, '15 Months' Jail a Miscarriage of Justice', *The Age*, 8 December 2009, p. 1.

⁴ See further Ian Freckelton and Hugh Selby, Expert Evidence: Law, Practice, Procedure and Advocacy, 6th ed. (Sydney: Thomson Reuters, 2016); Gary Edmond, 'The "Science" of Miscarriages of Justice', UNSW Law Journal 37, no. 1 (2014) 376; Gary Edmond, Catherine Biber, Richard Kemp, and Glenn Porter, 'Law's Looking Glass: Expert Identification Evidence Derived from Photographic and Video Images', Current Issues in Criminal Justice 20, no. 3 (2009) 337.

⁵ Law Commission of England and Wales, Expert Evidence in Criminal Proceedings in England and Wales: Report No. 325 (London: The Stationery Office, 2011) ('Law Commission Report'), http://www.lawcom.gov.uk/project/expert-evidence-in-criminal-proceedings/#expert-evidence-in-criminal-proceedings>; Anthony Campbell, The Fingerprint Inquiry (Edinburgh: 2011), http://www.thefingerprintinquiryscotland.org.uk/inquiry/files/TheFingerprintInquiryReport_High_res.pdf>; Expert Working Group on Human Factors in Latent Print Analysis, Latent Print Examination and Human Factors: Improving the Practice through a Systems Approach (US Department of Commerce, National Institute of Standards and Technology, 2012); Committee on Identifying the Needs of the Forensic Sciences Community, National Research Council, Strengthening Forensic Science in the United States: A Path Forward (Washington, DC: The National Academies Press, 2009).

⁶ See eg *R v Turner* [1975] 1 All ER 70.

⁷ Learned Hand, Historical and Practical Considerations Regarding Expert Testimony (1900), pp. 15–16.

Such concerns have led a number of eminent legal figures to ruminate on or even advocate for the need for complex criminal trials extensively involving expert evidence to be removed from juries' responsibilities.8

C. The Expert Evidence and Jury Trials Project

- **1.09** This volume presents the results of a Commonwealth jurisdiction project on expert evidence and jury trials, where, in 2011–12, the authors were allowed access to Australian jurors. Here, we analyse the written survey responses of 296 jurors and interview responses from a further 111 jurors who were asked about their perceptions of the expert evidence that was presented in 55 trials (one of which was a retrial). These responses are compared and contrasted with 43 interviews with judges, 115 interviews with barristers and instructing solicitors, and 80 interviews with expert witnesses. The results of this project are unique in that, for the first time, the perspective of jurors is compared with that of those who facilitate and provide the expert evidence.
- **1.10** Analysis of the views elicited from the various participant groups in this project provides an unparalleled opportunity to document the nature of the process and experience of the provision of expert evidence. Our approach enables us 'to capture lived experiences of the social world and the meaning people give these experiences from their own persoctives.'9 We have generated detailed and comprehensive analyses that offer multiple view points on the issue. By comparing and contrasting the perspectives of the protagonist in numerous trials, we are able to identify common beliefs and challenges. Such a project has not been undertaken before in a Commonwealth jurisdiction. It builds upon pror work undertaken for the Australasian Institute of Judicial Administration (AIJA, a research and educational institute).¹⁰

(1) Methodology

1.11 In conjunction with the AIJA, a six-glasse comprehensive examination of expert evidence was designed, comprised as follows:

Phase 1: Pilot study, 1997 Phase 2: Survey of judges, 1999

Phase 3: Survey of orgistrates, 2001

Phase 4: Jurors's repectives on expert evidence

Phase 5: Expert witnesses' perspectives on expert evidence

Phase 6: Lawyers' perspectives on expert evidence

1.12 Judicial officers' perceptions of expert evidence in Australian criminal jury trials were canvassed as part of the first three phases of this programme of study.¹¹ This volume elaborates the study by reporting the results of the research comprising the final three phases. The first three studies assisted us in developing the framework for the final three phases, and we termed the latter the 'Expert Evidence and Jury Trials Project' ('the project'). To conduct this

Freckelton, Reddy, and Selby, Australian Magistrates' Perspectives on Expert Evidence.

⁸ For instance, Peter McClellan, 'The Future Role of the Judge: Umpire, Manager, Mediator or Service Provider', New South Wales Judicial Scholarship, no. 44 [2011]: http://www.austlii.edu.au/au/journals/ NSWJSchol/2011/44.html>.

⁹ Louise Corti and Paul Thompson, 'Secondary Analysis of Archived Data', in *Qualitative Research* Practice, edited by Clive Seale and Giampietro Gobo (London: Sage, 2004), p. 297.

¹⁰ Ian Freckelton, Prasuna Reddy, and Hugh Selby, Australian Judicial Perspectives on Expert Evidence: An Empirical Study (Melbourne: AIJA, 1999); Ian Freckelton, Prasuna Reddy, and Hugh Selby, Australian Magistrates' Perspectives on Expert Evidence: A Comparative Study (Melbourne: AIJA, 2001).

research, we secured two Australian Research Council Linkage Project Grants. The project was also funded by the Australasian Institute of Judicial Administration, and the National Institute of Forensic Science (which is now part of the Australia and New Zealand Policing Advisory Agency (ANZPAA)).

Given that the project encompasses expert witnesses' perceptions of their experience of giving evidence, our project partnership was extended to include the ANZPAA, which is a joint initiative of the Australian and New Zealand Police Ministers and Commissioners and incorporates the research in forensic science conducted by the National Institute of Forensic Science.

The project was conducted in the metropolitan courtrooms of the three largest Australian jurisdictions: New South Wales (NSW), Victoria, and Queensland. The multi-jurisdictional aspect of this project enabled us to monitor different processes used in various jurisdictions as well as to identify any cultural factors that might contribute to perceptions of expert evidence.

In this volume we have collated the perceptions of the following groups of stakeholders in criminal jury trials:

- (a) jurors—their responses to expert evidence;
- (b) judges—their perspectives on expert evidence;
- (c) litigation lawyers—their perspectives on expert evidence; and
- (d) expert witnesses—their experiences of giving evidence in criminal trials.

By comparing and contrasting the four differing viewpoints within the same trial, we were able to identify any disjunctions in the perceptions and understanding among the four groups. We then considered whether these impacted upon the way in which expert evidence should be presented. In order to preserve participant anonymity we refer to all experts and jurors as male and all judges and lawyers as female throughout the volume. Such references do not reflect the actual gender composition of the research participants.

(2) Research design

The project adopted aspects of models successfully implemented in other field studies of real juries and real trials, such as the 1999 New Zealand Law Commission study of Juries in Criminal Trials (the New Yealand study), the 2001 Australian study on managing prejudicial publicity, the 2001 study of Victorian civil jurors, and the 1987 study of jury comprehension in complex criminal cases conducted by the American Bar Association (ABA study).¹²

Data from 55 trials were collected using three complementary methods:

- (a) surveys to obtain jurors' perceptions of the expert evidence presented to them;
- (b) post-verdict interviews with jurors, trial judges, trial lawyers, and experts about the expert evidence in those trials; and

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(c) wherever possible, trial observations, and reviews of the transcript of proceedings and other visual aids and documentary materials relating to the expert evidence, such as the expert's report.

¹² Warren Young, Neil Cameron, and Yvette Tinsley, *Juries in Criminal Trials Part Two: A Summary of Research Findings: Preliminary Paper 37*, vol. 2 (Wellington, New Zealand: Law Commission, 1999); Michael Chesterman, Janet Chan, and Shelley Hampton, *Managing Prejudicial Publicity: An Empirical Study of Criminal Jury Trials in New South Wales* (Sydney: Law and Justice Foundation of New South Wales, 2001); Jacqueline Horan, 'The Civil Jury System: An Empirical Study' (PhD dissertation, University of Melbourne, 2006); American Bar Association and Daniel H. Margolis, *Jury Comprehension in Complex Cases: Report of a Special Committee of the ABA Litigation Section* (Chicago: ABA, 1989).

- 1.18 As in the New Zealand study, the jury component of our project incorporated both quantitative and qualitative methods. In Victoria, after having delivered their verdict, jurors first completed a written survey and were then invited to elaborate on their views by participating in an in-person or telephone interview. In New South Wales jurors were first invited to participate in the interview, and were given a survey if they declined, or as a follow-up to the interview.
- **1.19** The juror survey and interview questions were created by a collaborative process between all project partners. Our quantitative (survey) questions and qualitative (interview) questions were formulated based on the following:
 - (a) what psychological research tells us about how jurors process complex information;
 - (b) what we know from research in the preliminary phases of this project about judicial perspectives on the issues;
 - (c) the pattern of mistakes evident from a series of miscarriages of justice; and
 - (d) issues identified in several authoritative reports that have explored this topic.
- 1.20 When interpreting the results of jury research, the formulation of the survey instruments should always be considered. The results of empirical research can only be as good as the questions asked. For example, leading questions are less informative than questions that allow a juror to elaborate on an issue. Wherever possible, non-leading questions were used. The jury survey contained carefully constructed questions which arred to obtain responses that could be compared directly across the set of survey participants. The context in which each question is asked is also relevant when interpreting the possible.
- 1.21 The jury survey provides a broad overview of juror, perceptions of expert evidence, while the interviews gathered further details on the main areas of contention that have been identified in previous research. The interviews were son; -tructured. This enabled us to explore particular issues in greater detail, for example, jure is knowledge of DNA profiling technology and random match probabilities.
- 1.22 In some of the chapters we use cost, studies to describe the common narrative that we heard from the stakeholders in the trials. Qualitative information gives us an understanding of the contextual issues that have become the concern of expert evidence in recent years. In a legal setting, qualitative information can be used in three ways:
 - (a) to explain the economic, political, social, and cultural factors which influence the provision of expert evidence in criminal jury trials;
 - (b) to gain an understanding of how communities, such as the criminal trial community, interpret the provision of expert evidence; and
 - (c) to study interactions between the various stakeholders that are relevant to the provision of the expert evidence.¹³
- 1.23 In this project, the narrative responses of stakeholders provided in oral interviews were transcribed. This qualitative information was also useful in explaining some of the quantitative results we collected from the juror surveys. It can be difficult to know precisely what jurors mean when they score themselves or others on rating scales or select among multiple-choice items included in a written questionnaire. The qualitative interview responses enabled us to obtain a greater understanding and attribute more nuanced meaning to the juror survey responses.

¹³ Frances Baum, 'Researching Public Health: Behind the Qualitative–Quantitative Methodological Debate', *Social Science and Medicine* 40, no. 4 (February 1995) 459: p. 464.

(3) Ethics approval

The juror survey and interview instruments (for the jurors, judges, trial lawyers, and experts) were developed by the research team during the first half of 2010, and were formally approved by the AIJA and ANZPAA. Next, we secured the consent and formal support of 14 different agencies; this was necessary before we could conduct our multi-jurisdictional jury project. We were mindful to produce documentation that emphasized the need to obtain informed consent from all participants, the need to protect the anonymity and confidentiality of participants, and the importance of de-identifying materials reported so that individual trials could not be identified.¹⁴

(4) Data collection

Data collection began in Melbourne, Victoria, in March 2011. We tested the data procedures before we commenced work on trials in Sydney, New South Wales, the following month. Data collection concluded in New South Wales in June 2012 and in Victoria in September 2012. In Brisbane, Queensland, we began collection in November 2011 and concluded in November 2012.

Whilst the majority of criminal jury trials in Australia are conducted in the metropolitan centres, expert evidence is also heard in the course of trials conducte. Un rural locations. Budgetary constraints did not enable us to extend this project to include expert evidence delivered in non-metropolitan trials or trials in other countries. However, we hypothesise that whilst there might be some cultural differences between metropolitan and non-metropolitan juries, the variation is unlikely to be so significant that the results of this project will not be useful in understanding similar expert evidence procedures in those jurisdictions.

Once we had identified a trial as appropriate for the project, we wrote to the trial judge, both counsel, and the jury administrator expressing our desire to include the case. Most of the trial judges approved the inclusion of the trial in the project, subject to any unanticipated complications (such as a jury becoming increasingly stressed). In a few instances, the presiding judge responded that the trial was too sensitive to include it in the study.

Once the trial judge's consent had been obtained, we were placed on the list of people to be contacted once a verdict was to be delivered. In the meantime, the researchers attended the trial as much as possible to observe the expert evidence. In order to promote consistency across interviews, all tesearch interviewers were required to read an extensive procedural manual about the project and attend a training session with one of the chief investigators and the project manager before undertaking any interviews.

Following the delivery of the verdict, many, but not all, trial judges introduced the project to the jury. Jurors were informed that when they left the courtroom, the survey would be offered to them. In order to ensure juror anonymity, the surveys were handed to the jurors by the court administrator in charge of de-briefing the jurors. All but one of the jury administrators were supportive of the project. This lack of support impacted on the response rate in that particular court.

A total of 55 trials across the three states form the basis of the project. These are reported in **1.30** Table 1.1.

¹⁴ The ethics approval process of this project is explained further in Jacqueline Horan and Mark Israel, 'Institutional Gate-Keeping and Jury Research', *Australian and New Zealand Journal of Criminology* (2015, forthcoming).

Table 1.1 Number and proportion of trials studied, by jurisdiction.

	NSW	Victoria	Queensland	Total
Supreme Court	9	10	8	27
	16.4%	18.2%	14.5%	49.1%
District/County Court	3	23	2	28
	5.5%	41.8%	3.6%	50.9%
Total	12	33	10	55
	21.8%	60.0%	18.2%	100.0%

- **1.31** One reason why we captured only a small number of New South Wales District Court trials was the lack of availability of a private room where we could interview the jurors after they completed their surveys.
- 1.32 The short trial length in Queensland impacted on our ability to include many Queensland trials in the project. By the time project team members were informed that the trial contained expert evidence (and then prepared the juror questionnaire and delivered it to the court), the verdict had often already been delivered. Trials in Queensland last a less than half the time they did in Victoria and one third of the time taken in New Scu. h Wales. A comparison of the supreme court trials in our project revealed that the average length of trial in New South Wales was 34 days, 19 days in Victoria, and 8 days in Queensland. The 55 trials ranged in length from four to 93 days.
- 1.33 We identified trials containing expert evidence from a variety of sources. The Offices of Public Prosecutions were the most helpful in identifying appropriate trials as they were usually the only party presenting expert evidence. Records from the relevant Offices of Public Prosecutions enabled us to identify eligibarials, and then email all trial practitioners to ask them to nominate their trial. This procedure was not always reliable because, prior to trial, practitioners tend to be busy and are unlikely to respond to a request that requires more work on their part. Other groups such as police forensic services and legal aid and defence law firms notified us if they were involved in any trials involving experts. Once again, reliance upon individual practitioners to nominate their cases containing expert evidence was a limitation.
- **1.34** Once we began interviewing barristers, those interviewees would sometimes inform us of another upcoming trial involving expert evidence. A few of the courts circulated an email to the trial judges asking them to contact us if they were presiding over a case involving expert evidence. Another technique we employed to identify trials containing expert evidence was to read the newspapers to uncover trials reported to include expert evidence.
- 1.35 Although the Offices of Public Prosecutions did provide useful assistance, the lack of basic central computerized record-keeping in the legal system in Australia presented a barrier to the implementation of the project. It can be said that it not only obstructs efficient research of justice systems in the country but is a likely impediment to the efficient management of the business of the courts and other justice system agencies such as prosecution departments and legal aid funders.
- 1.36 Our study sample is not comprehensive or representative for this period but was a purposeful convenience sample. The fact that most of the trials included in the project were either murder or sexual assault trials is likely to reflect the fact that these are the types of cases in which most expert evidence is used. The investigation of murder cases is likely to warrant the use of

many types of scientific or medical evidence by the investigators, particularly pathology and DNA. DNA swabbing and medical evidence are also common in sexual assault trials.

The majority of District/County court trials in our study sample involved sexual assault charges, and took on average nine days to hear. These types of cases are much shorter than murder/manslaughter trials, which are held in the Supreme Courts of Australia, and took, on average, 21 days to hear. Overall, our study sample is sufficient to provide a reliable picture of the expert evidence processes in Australian metropolitan courtrooms in the period 2011–12.

(a) Written juror surveys

The vast majority of the juror surveys were completed immediately following jury service, at the courthouse in a suitable quiet location. Given the importance to this project of obtaining a set of responses based on fresh memories and a high participation rate, we avoided mailing the questionnaires to jurors. However, questionnaires were mailed to jurors in two trials, within the first week following the jury discharge, so the evidence was still fresh in their minds when they received them. In one instance, questionnaires were sent three weeks after the trial concluded.

(b) Juror interviews

Capitalizing on the enthusiasm of jurors to discuss their jury experience, we included an invitation to jurors to participate in a follow-up personal interview with each survey. Jurors who agreed to a personal interview were invited to stay beling on the day of the verdict or we contacted them as soon as possible by telephone and conducted either a telephone or inperson interview. Only first names were provided so that their identity could be protected. Jurors responded to a series of questions about their proceptions of the expert evidence. We conducted 111 interviews with jurors (92 of the curors also completed a survey for the project). All juror interviews were recorded with the interviewee's consent and were subsequently transcribed.

(c) Lawyer, judge, and expert interview

Trial barristers (and a few trial solicitors) and judges from the 55 trials were invited to participate in an interview at the conclusion of the trial. We aimed to interview the barristers, but if they were not available we increiewed their instructing solicitors. We added to the triangulation of views by interveding 80 of the experts who gave evidence in the selected trials. The majority of these experts also completed a survey (n=78). Learning from the New Zealand criminal jury project, we contacted the court stakeholders as soon after the conclusion of the trial as possible, in order to avoid difficulties for the interviewees in recalling critical information. Interviews with this group were expected to last approximately 30 minutes, but the interviewees were generally keen to keep talking and many interviews lasted 45-60 minutes. Whilst we used a structured interview to prompt the interviewees, the passion that many displayed for the topic meant that it was sometimes difficult to maintain the set structure, particularly when the subject matter was so interesting. All but a few of these interviews were recorded—with the interviewee's consent. If no consent was forthcoming, notes were taken by the researcher.

(5) Data analysis

Quantitative data were entered into Microsoft Excel spreadsheets which were then converted 1.41 into SPSS files for statistical analyses. The juror, judge, expert, and trial lawyer interviews were transcribed. Qualitative analysis tools (e.g., Nvivo and Leximancer) were used to identify the common themes in responses, based upon evaluation criteria developed by the researchers and their review of the relevant scholarly literature.

1.38

1.42 Apart from general comparisons with previously performed studies in this field, the analysis specifically compared the present results with those from the previous phases of the expert evidence project involving judges (phase two). Traditionally, judges will manage their court (including the provision of expert evidence) based on their perceptions of what jurors need to reach a verdict. This project considers whether the judges' perceptions of what jurors need is accurate. Another aspect addressed by the analysis is the monitoring of inter-state variations in the manner in which expert evidence is presented. Inter-state comparisons allow the researchers to reflect on what is the best practice amongst the different approaches taken in three jurisdictions.

(a) Response rates

- **1.43** A total of 296 juror surveys were received from 55 trials, resulting in an overall participation rate of 45% for deliberating jurors. This equates to an average of 5.4 jurors per trial, and enables us to develop a reasonably representative picture of the juries' views insofar as they related to the survey questions. ¹⁵
- 1.44 In all, 111 interviews were conducted with jurors—92 of these interviewees also completed a project survey (83%). An additional 204 jurors completed the survey without an interview, giving the total of 296 survey responses. This equates to two juror interviews per trial. Whilst it would have been preferable to secure a higher interview response rate per jury, in analysing the jury response we are able to cross-reference opinions expressed in the interviews with the survey responses from the same jury.
- 1.45 We compared the demographic profile of those jurors who volunteered to be interviewed against that of the surveyed jurors in order to see whether the self-selection induced a group of interviewees who were unrepresentative of the surveyed jurors. The interviewed jurors were adequately representative of the surveyed jurors, with one minor exception: the interviewed jurors were on average five years older than the average age of the surveyed group. When analysing interview responses from juries with a low response rate, we were mindful of this fact, and conservative in our estimation of the expacity of the views and opinions of a few jurors to represent those of that entire jury.
- 1.46 Forty-three interviews with 40 individual judges were conducted (some judges were interviewed more than once if they sat on more than one trial included in the project). Thirty-six judges completed at least the survey, with some judges being surveyed for more than one trial, taking the total number of surveys completed to 39. Taking into account judges who presided over a series of similar consecutive trials but were interviewed once, this produced a response rate of 76%. One hundred and fifteen interviews were conducted with 101 lawyers (with 103 survey responses by 94 respondents, and 90 completing both an interview and a survey). The majority of counsel (*n*=88) agreed to an interview. On the few occasions when counsel declined an interview, we interviewed their instructing solicitor (*n*=13 interviews). A small number of trials had multiple counsel. In those cases, the response rate exceeded 90%. Eighty experts were interviewed. Taking into account the fact that some trials had single experts and some experts gave evidence in a few different trials, the expert response rate exceeded 80%.

(b) Types of trials

1.47 The most common type of case included in the research was that of murder/manslaughter (46%), followed by cases involving sexual assault (31%). The remaining types of cases sampled for this project are reported in Table 1.2.¹⁶

¹⁵ Young, Cameron, and Tinsley, Juries in Criminal Trials Part Two: Preliminary Paper 37, vol. 2, p. 2.

¹⁶ In order to maintain anonymity, we have not specified which jurisdiction the assault, robbery, culpable driving, or fraud trials came from as the number of trials is low enough to potentially enable identification.

Table 1.2 Number and proportion of types of trial, by jurisdiction.

	NSW	Victoria	Queensland	Total
Murder/manslaughter	9	9	7	25
	16.4%	16.4%	12.7%	45.5%
Sexual assault	2	13	2	17
	3.6%	23.7%	3.6%	30.9%
Assault/cause injury	0	5	1	6
	0.0%	9.1%	1.8%	10.9%
Culpable driving	1	4	0	5
	1.8%	7.3%	0.0%	9.1%
Other	0	2	0	2
	0.0%	3.6%	0.0%	3.6%

Our study sample approximates the composition of cases handled by the courts. For example, the County Court of Victoria's annual reports for 2011 and 2012 reflected that the Court heard 378 trials to verdict, 43% of which were sexual assault trials. Difficulties in identifying eligible cases in the District Court in New South Wales and in Queensland (as noted in paragraphs 1.31–2) explain the modest number of sexual assault trials in those jurisdictions in our project.

Initially, we planned to include fraud trials in the project. Since the 1980s, the jury has attracted criticism for being incapable of dealing with the complexity inherent in forensic accounting evidence. As Lord Roskill's *Fraud Trials Committee Report* stated, 'The ideal method of attempting to address the issue would'se to question jurors on actual cases.' However, unanticipated difficulties arose that Veterred their inclusion in the study. Fraud trials were few and far between. All but one of the handful of fraud trials that we identified as eligible for inclusion in the project involved expert evidence which was anticipated to take only a few hours. However, these fraud trials were listed to take several months to hear. In addition, we were ledge believe that the expert evidence would not feature prominently in these cases, and the substantial trial length made the cases too costly to monitor.

(c) Types of expert eviden

A broad range of expertise was included in the project. Only a third of the cases involved contested expert evidence (i.e., opposing experts called by the prosecution and defence). In the majority of cases in the study sample, the prosecution called a few experts and the defence called none. Table 1.3 shows the type and number of expert interviews conducted in the 55 trials. DNA expert evidence was the most common type, followed by that of forensic pathology.

Given that we interviewed 23 DNA experts, making up just under a third of all the experts who were interviewed, and that this is an area of expert evidence that features prominently in the debates surrounding problematic expert evidence, we have devoted a separate chapter to project results on this topic. Similarly, we have given over a further chapter to expert evidence by health practitioners, in particular by pathologists, psychiatrists, and psychologists.

¹⁷ Fraud Trials Committee and Eustace W. Roskill, *Frauds Trials Committee Report* (London: HMSO, 1986), pp. 201–2 (Appendix A, para. 7).

Table 1.3 Number and proportion of types of experts interviewed.

Type of expert	Number	Percentage
DNA	23	28.7
Medical doctor	19	23.7
Forensic pathology	12	15.0
Psychiatry	11	13.8
Vehicle analysis	4	5.0
Ballistics	3	3.8
Digital evidence	3	3.8
Other: arson, fingerprints, blood spatter, handwriting	5	6.2
Total	80	100

(d) Other sources of information

- 1.52 Other sources of information were examined in order to complement what was learned from the qualitative and quantitative data. Legislation, court policies, and legal practices that dictate jury management and the provision of expert evidence were reviewed. Archival information was particularly necessary for this project, as we were analysing information collected from three different jurisdictions (Victoria, NoW, and Queensland). The rules and processes in these three jurisdictions differ, so the was important to understand the extent of similarities between the jurisdictions and the nature of the differences. Differences in policy, procedures, and legislation allowed us to analyse, compare, and contrast the different approaches to juries and expert evidence in the three jurisdictions. Further, analysing the outcomes in the context of the varying rules, policies, and practice enables lawyers from other jurisdictions to gauge the relevance of the project results to their jurisdiction.
- 1.53 Wherever possible, the researchers observed the presentation of the expert evidence that was the subject of this project. By observing the trials, the researchers were given a rich context in which to analyse the data. This approach was successfully used in the New Zealand study.
- **1.54** A profile of the general features of each of the trials included in the project was prepared, including details such as the trial jurisdiction, the offence, the number of experts, and the nature of the expert vidence. To provide a context within which to interpret the findings of the interviews and questionnaires, we compiled summaries of any matters raised by counsel or the judge relating to the expert evidence, including any applications made by counsel, judicial directions, or warnings.
- **1.55** The views of the research observers were also recorded. The observers were required to complete a written questionnaire that prompted them for their perceptions of the expert evidence. To enable a cross-comparison, many of the questions on the observer questionnaire mirrored the questions asked of the four groups of stakeholders in their surveys or interviews.
- 1.56 We asked each trial judge for a copy of the transcript of the expert evidence. The transcript of the expert evidence provided an accurate record of what transpired in court, avoiding reliance on the memory of those interviewed. We were able to obtain the transcript in at least two thirds of the trials in Victoria and New South Wales. The transcripts of expert evidence were not made available to us in Queensland cases. Most of the trial judges provided a copy of their summary to the jury. These provided the project with a short summary of case facts and the applicable law, and identified the issues in dispute. We also asked for and usually

received copies of any exhibits or visual aids provided to the jury in relation to the expert evidence. The exhibits and visual aids provided the project with some further triangulation and corroboration for analysis.

A small number of the cases included in our project were retrials or trials within a series of 1.57 related trials being heard in sequence that contained similar expert evidence. These trials offered us unique and added benefits, as we could compare the reactions of the stakeholders to the similar expert evidence across these trials. In the case of the retrials, we used the appeal judgments to further inform our analysis.

D. Demographic Characteristics of Survey Participants

(1) Jurors' demographics

At the end of the juror survey the participants provided some basic demographic information about themselves. Two-thirds (66%) of the juror survey participants were from Victoria, 23% were from New South Wales, and 11% were from Queensland. Since we could not gather the demographic characteristics of the jurors who chose not to participate in the research, we cannot be certain that the profile of our sample was similar to that of in jurors as a whole or that the views and concerns of the participants were representative. However, a survey by the Victorian Juries Commissioners' Office¹⁸ was undertaken Luring the study period in the first half of 2013—a total of 1,900 citizens who attended jury service across Victoria were surveyed. We compared the demographic profile of the welbourne jury pool with the survey participants in this project who came from the same jury pool room in Victoria. The results of this comparison demonstrated that our Victorian sample of jurors is representative of the general Victorian jury pool. We also compared the demographic profile of the survey participants with the broader population of the 2012 Australian Bureau of Statistics census information (ABS statistics). In general, our jutor participants had the same characteristics as the Australian adult population as a whole except that they were more likely to be employed and have tertiary education.

Jurors ranged in age from 18-88 years, with an average age of 45 years. The distribution of juror age is broadly representative of Australian citizens, taking into account predictable variation. Given that jurica are a subset of the population, selected by criteria that make them jury eligible (e.g., rizens registered to vote, not engaged in a prohibited occupation, over 18 years of age, without personal connections to the case at hand, able to participate without infringing on work or care duties), it is reasonable to expect some deviation from overall population statistics. As can be seen from Table 1.4, participants had generally similar characteristics when compared to both the Victorian jury pool and the national population statistics, although they tended to be more likely to have completed a university qualification.

(a) Past jury experience

This was the first time that 87.8% of the surveyed jurors had undertaken jury duty. There were some juries with as many as four jurors who had previously served, but three fifths of the trials (60.0%) had no jurors who had previously served.

¹⁸ See Victorian Law Reform Commission, Jury Empanelment (Melbourne: VLRC, 2014): http://www. lawreform.vic.gov.au/sites/default/files/VLRC_Jury_Empanelment_Report.pdf>.

Table 1.4 Participant characteristics compared to jury and national characteristics.

Characteristic	Research sample (per cent)	Victorian jury pool (per cent)	ABS* population (per cent)
Age			
18–24 years	7.6		9.5
25-44 years	39.7		38.2
45–69 years	50.2		39.3
70+ years	2.4		13.0
Gender**			
Women	47.6	54.1	50.2
Men	51.0	45.9	49.8
Not disclosed	1.4		
Language			
English	91.6	93.0	76.8
Other	8.4	7.0	23.2
Country of birth			
Australia	78.4	79.0	74.0
Other	21.6	21.0	26.0
Education completed		XO	
Secondary school	20.6	24.0	20.0
University degree***	48.3	40.0	24.7
Neither/no data	31.1	36.0	55.3
Employment			
Professionals	51.0		34.8
Labourer/Trade	9.6		24.0
Administrative/Clerical	16.2	\	15.0
Service worker	3.8		9.8
Sales	6.2		9.5
Machinery operator	- 266		6.7
Not in the workforce****	13.2		3.7

Note. *Australian Bureau of Statistics. *Gender statistics for the population level provided for those of working age (16 to 64 years), which approximates the age range of those individuals eligible for jury service. ***Percentage completing an undergraduate of costgraduate qualification. ****Includes 'home duties', 'students', 'retired', and 'unemployed'. ABS data for the stategory were reported by the ABS separately to the employment category data, and so do not add to 100%. O'he percentages do not add to 100% due to rounding error.

(b) Science and mathematics training

1.61 Expert evidence often includes scientific and statistical content, particularly in the forensic sciences. We asked the survey participants to indicate their level of training in those areas. A substantial proportion (45.5%) of the surveyed jurors reported that they had studied science or mathematics at a tertiary level and 4.8% of the surveyed jurors were employed professionally in a scientific field. Given the emphasis on mathematics in the Australian school curriculum, it is unsurprising that nearly three quarters of all jurors studied either science or mathematics at school level (74.1%). However, the high rate of jurors who are tertiary educated in science and mathematics is striking. On some juries, half of the jurors had tertiary mathematics or science training. In 91% of trials there was at least one juror with tertiary science or mathematics training.

(2) Experts' demographics

1.62 On average, experts were 49 years of age, but the age of expert witnesses ranged from 28 to 76 years. Most expert witnesses were men (70.5%). For their first bachelor's degree, almost two

thirds of experts reported a bachelor of science or applied science, and 39.2% had a bachelor of medicine (MBBS or MB). A quarter of the experts had two or more bachelor's degrees. A small group (7.6%) had no tertiary degree, e.g. uniformed police officers working in fingerprint and gunshot residue analysis. A relatively small proportion of the experts (12.4%) reported having a PhD. About one in every five experts (17.7%) held a master's degree, and the proportion who reported at least one postgraduate diploma was similar. On average, experts reported having 17 years' experience in their practice area, but experience ranged from less than one year to 50 years. Only one quarter of experts reported less than ten years of experience in their practice area.

Of the participating experts:

1.63

- (a) 28.2% were DNA scientists;
- (b) 24.4% were medical doctors;
- (c) 14.1% were psychiatrists or psychologists;
- (d) 12.8% were pathologists;
- (e) 5.1% were vehicle analysis experts;
- (f) 3.8% were ballistics experts; and
- (g) 3.8% were digital evidence experts.

The remaining 7.8% of experts are not specified in the list above as they be resent small numbers of each type of expert, potentially identifying those experts who participated in the research.

Perhaps not surprisingly, nearly one third of expert witness's were employed by the state police force (31.2%), primarily the forensic scientists, Fqual proportions of experts were employed by either a government health department (23.4%) or other government organization (22.1%). This group was comprised of medical doctors, psychiatrists, and psychologists. The defence experts were employed by private to samzations (7.8%) or were self-employed (16.9%), comprising one quarter of the experts who appeared in the criminal trials included in the project.

Experts were asked to estimate the arrownt of time spent on work for the prosecution compared to the defence in criminal matters (out of 100%). They were also asked to estimate the proportions of their time spent on work for the plaintiff and respondent in civil cases (also out of 100%). In general, the expert participants were commissioned more frequently by the prosecution than the defence. Experts estimated on average that two-thirds of their time was devoted to work for the prosecution and a third of their time for the defence in criminal trials. Those who did civil work reported that they worked equivalent proportions of time for the plaintiff and respondent.

Expert witnesses in general were highly experienced practitioners in their area. On average they had worked in their area of expertise for 17 years, ranging from one to 50 years. Experts were also generally highly experienced in giving evidence in court. On average, experts appeared in court 19 times per year (range: 0 to 90 times per year). Given that the courts in Australia are closed for two months of the year, that equates to experts attending court once a fortnight. The experts estimated that they prepared an average of 143 reports each year. That average, over a twelve-month period, is six reports a fortnight. These figures suggest that forensic experts are spending a considerable amount of their professional time preparing for and appearing in court.

This frequency reveals that, for a substantial proportion of the experts in this group, the activity of 'expert witnessing' or working as a 'professional expert witness' was an apt description, whatever their foundation discipline.

1.67

(3) Litigation lawyers' demographics

- 1.68 Prosecuting barristers had on average 15.9 years' experience in the legal profession (range: 1 to 36 years) and the main area of specialization for the majority of prosecutors was criminal law. Defence counsel had on average 18.1 years' experience in the legal profession (range: 1 to 45 years). Again, the vast majority of defence barristers reported predominantly practising in criminal law. Around one-fifth of barristers acting for the defence or prosecution reported that they were Queen's Counsel or equivalent. The extent of experience and high seniority of the barristers whom we interviewed confirm that the most senior members of the criminal bar in Australia are briefed for jury trials, especially in murder cases. When the barristers declined to be interviewed, we interviewed their instructing solicitors. On average, solicitors reported 6.2 years' experience in the legal profession (range: 1 to 38 years).
- 1.69 With the benefit of hindsight we would have liked to have asked the barristers about their level of scientific or mathematical training, to compare and contrast their scientific skill levels with those reported for jurors in the sample. One of the prosecutors whom we interviewed compared the scientific abilities of the two groups: 'Lawyers are notoriously bad at science and maths. By the looks of a lot of the jurors, they were way on top of it compared to us.' An online search of over 2,000 members of the Victorian Bar disclosed that fewer than 100 advertise that they have a science or mathematics background. ¹9 Of the 30 th a judges of the Supreme Court of Victoria, one listed a qualification in mathematics of science. These figures generally indicate that fewer than 5% of trial practitioners are likely to have studied mathematics or science at a tertiary level. The vast majority of trial practicioners have either an arts or economics degree to complement their law degree and do not have tertiary degrees in science or mathematics.
- 1.70 The ability to undertake scientific or mathematical tasks is not a mandatory part of any law degree—it plays no role in the requirement of the United Kingdom Joint Statement issued by the Law Society and the General Council of the Bar on the academic stage of training, the Australian Threshold Learning Outcomes, the American Bar Association Standards, nor is it acknowledged in the report of the Task Force on the Canadian Common Law Degree. The Law Society of Scotland Accreditation Guidelines do, however, identify numeracy as a core skill. The only guidelines that require lawyers to be proficient in making use of numerical and statistical information do ived from primary sources are the Quality Assurance Agency for Higher Education's Barkis's Subject Benchmark Statement and the Law Society of Scotland Accreditation Guidelines.²⁰
- 1.71 Barristers are not required to understand forensic science as part of their professional development, although bar associations do provide lectures to their members on various areas of expert endeavour relevant to litigation. Some barristers are thought to be naive in their understanding of science and statistics and do not test such evidence as rigorously as other types. As Chief Judge Edwards, the chair of the United States National Academy of Science Committee on Identifying the Needs of the Forensic Science Community confessed:

I started this project with no preconceived views about the forensic science community. Rather, I simply assumed, as I suspect many of my judicial colleagues do, that forensic science disciplines typically are well grounded in scientific methodology and that crime

¹⁹ Notably, though, many barristers provide little information about themselves.

²⁰ See Subject Benchmark Statement: Law: Draft for Consultation (The Quality Assurance Agency for Higher Education, March 2015), p. 9: http://www.qaa.ac.uk/en/Publications/Documents/SBS-consultation-Law-15.pdf. Law Society of Scotland, Foundation Programme (Scottish Exempting Degree) Accreditation Guidelines for Applicants, Appendix A: Foundation Programme Learning Outcomes, p. 27.

laboratories and forensic science practitioners follow proven practices that ensure the validity and reliability of forensic evidence offered in court. I was surprisingly mistaken in what I assumed.²¹

The scientific background of many jurors and the likely lack of training of barristers and judges in scientific disciplines is worthy of note when interpreting the results of this project.

(4) Judges' demographics

The judges in this project reported an average of nine years' experience on the bench (range: 1 to 19 years). The majority of the judges (72.1%) reported criminal cases as their main area of practice. Approximately half of the judges had practised criminal law prior to their appointment to the bench.

E. Overview of Chapters

This chapter, the Introduction, provides the framework for the substantive chapters by summarizing the research methodology of the project. This allows the reader to understand the research design. The authors have been mindful of providing appropriate background information so that an international audience can interpret the results of the project in a meaningful way and adapt them to the context in their jurisdiction. We also provide a comprehensive demographic profile of our project sample, comparing it with the national population characteristics.

The second chapter focuses on pre-trial matters. It particular, it examines the admissibility of expert testimony, identifying particular is use that arise in relation to the use of the concept of 'reliability' as a precondition to the expert evidence that is allowed to go before juries.

Chapter 3 considers alternative modes of proration of expert evidence. Some commentators contend that at least some of the problems with traditional procedures for adducing expert evidence can be addressed by adjustments to the adversary characteristics of the criminal justice trial—by using other procedures, such as pre-trial meetings/conclaves of experts, consecutive evidence by experts, concurrent evidence by experts (as in the Manchester Pilot Project), and videolinking of experts from their workplace. These matters are discussed in the criminal context with reference to our project findings.

The fourth chapter examines some issues present in the adversary system and how they relate to expert evidence. These include the thoroughness of preparation for trial, experts who resile from their opinions, over-reaching experts who go outside the bounds of their expertise, and experts who might appear to be 'hired guns'. We take into account those aspects of the adversarial system that might tend to encourage experts to behave in particular ways which may undermine the credibility or reliability of their evidence.

Chapter 5 explores jury comprehension of expert evidence. Many practitioners contend that contemporary evidence is too complex for the average juror to understand and evaluate. We examine the extent to which jurors' perceptions of expert testimony are shared by other criminal justice professionals such as judges, lawyers, and the experts themselves. We also explore common barriers to juror comprehension across the project case studies.

²¹ Harry Edwards, 'Solving the Problems that Plagued the Forensic Science Community', *Jurimetrics* 50, no. 1 (2009) 5: p. 7.

- 1.78 DNA profiling evidence is analysed in chapter 6, as such evidence is a form of expert evidence that is having a profound impact upon contemporary criminal jury trials. Although jury difficulties with DNA profiling evidence are well documented anecdotally, through field studies and in controlled experiments conducted with mock juries,²² there remains a dearth of factual information as to how jurors evaluate and use DNA expert evidence. The chapter examines 13 of the project trials and juror responses to shed light on issues such as the level of reliance placed on DNA expert evidence, the existence of the 'CSI effect', whether jurors' perceptions of the DNA evidence differ from the views of the other stakeholders in the courtroom, and the impact of an opposing DNA expert evidence on jurors' views of the prosecution's expert. We also identify features that enhance jury understanding of DNA evidence.
- 1.79 Chapter 7 examines some of the issues developed in earlier chapters but with a focus on medical and mental health experts. This includes evidence by psychiatrists and psychologists, and evidence by pathologists and forensic medical officers, as such experts make up a significant proportion of expert evidence in criminal jury trials. It identifies distinctions between evidence given by assessing health practitioners and treating health practitioners.
- **1.80** Chapter 8 assesses how the credibility of expert evidence is influenced by various factors related to how the evidence is presented. For example, how does the expert's gender, language, demeanour, and personal style influence perceptions of the redibility of the expert and their evidence?
- 1.81 In the concluding chapter we summarize systemic weaknesses in the way in which expert evidence is commonly used. We identify practical way, in which the quality of the expert evidence, as presented by counsel and experts, might be improved, and how the procedural aspects of expert evidence might be improved by juriges. These suggestions are made with a view to stimulating law reform discussion and jurther research. It is our intention to lay a foundation upon which informed debate can generate further research and law reform which has a realistic potential of enhancing the quality of criminal justice when juries are utilized.

²² Jane Goodman-Delahunty and Lindsay Hewson, 'Enhancing Fairness in DNA Jury Trials', *Trends & Issues in Crime and Criminal Justice*, no. 392 (March 2010) 1; Jane Goodman-Delahunty and Lindsay Hewson, *Improving Jury Understanding and Use of Expert DNA Evidence: Technical and Background Paper No. 37* (Australian Institute of Criminology, 2010); Michael Briody, 'The Effects of DNA Evidence on Murder Cases in Court', *Australian and New Zealand Journal of Criminology* 37, no. 2 (August 2004) 231.