Abstract: We are interested in the relationships between higher education, uncertainty and the investigation of serious crime while acknowledging that there is 'higher education' and then there is 'higher' education. The investigation of serious crime has changed considerably, but having to deal with uncertainty is the one element that can be predicted with certainty. It is no coincidence that higher education has taken on more and more importance in the policing profession and this chapter will reveal some of the reasons for this without intending to take away from or diminish the importance of 'service developed and delivered' training. Indeed this chapter will argue that the contemporary investigation of serious crime needs a collaborative approach to both training and education with practitioners and researchers providing new approaches and innovative solutions to what are very difficult and complex problems, namely the investigation of serious crime in uncertain times. This chapter begins with a brief discussion of the development of police-specific higher education and explores the contribution higher education makes to policing. It briefly outlines how scientific breakthroughs and the quest for certainty have revolutionised policing, but also demonstrates how some of these certainties are illusory. The chapter then explores how higher education assists in the understanding and management of uncertainty in policing and demonstrates intersections with the ideas proposed in the other chapters in this book. We conclude by exploring uncertainty as an ally to policing and describing how the higher order skills provided by higher education become obvious in practice.

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Higher education in policing

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Introduction

We are interested in the relationships between higher education, uncertainty and the investigation of serious crime while acknowledging that there is ‘higher education’ and then there is ‘higher’ education. The investigation of serious crime has changed considerably, but having to deal with uncertainty is the one element that can be predicted with certainty. It is no coincidence that higher education has taken on more and more importance in the policing profession and this chapter will reveal some of the reasons for this without intending to take away from or diminish the importance of ‘service developed and delivered’ training. Indeed this chapter will argue that the contemporary investigation of serious crime needs a collaborative approach to both training and education with practitioners and researchers providing new approaches and innovative solutions to what are very difficult and complex problems, namely the investigation of serious crime in uncertain times.

This chapter begins with a brief discussion of the development of police-specific higher education and explores the contribution higher education makes to policing. It briefly outlines how scientific breakthroughs and the quest for certainty have revolutionised policing, but also demonstrates how some of these certainties are illusory. The chapter then explores how higher education assists in the understanding and management of uncertainty in policing and demonstrates intersections with the ideas proposed in the other chapters in this book. We conclude by exploring uncertainty as an ally to policing and describing how the higher order skills provided by higher education become obvious in practice. A summary of suggestions for areas which would benefit from further research are provided in Table 1.

The Emergence of Police-Specific Higher Education

The progression towards higher education in policing in Australia can be traced back to 1981 with the Lusher Report in New South Wales (NSW) (Lusher 1981) which identified policing as a profession which would benefit from higher educational standards. The report advocated improving educational standards and processes within police training and encouraging police to undertake university education. A 1997 Royal Commission into the NSW Police Service (Wood 1997) voiced concerns about police training and professional standards, police culture, and transparency and accountability. It suggested that the involvement of an external agency—a university—in police education would be effective in addressing these problems, particularly through:

• raising educational standards and expectations
• making police education transparent to the wider community and more open to the values of that community
• encouraging a culture of reflective practice, professional autonomy and accountability.

Initially the take-up was limited to the ambitious, but over time a more general acceptance of higher education in policing has developed. In response to the growing awareness across the policing profession of the value of higher education, there has been a growth in policing-specific education programs (Wood & Bradley 2009). Unfortunately, not all of the programs have sought to enhance the development of policing as a profession or to develop a body of
knowledge specific to the discipline of ‘policing’. Chambers 2004) and this has reduced the willingness of many practitioners to engage with universities.

Sections of the higher education sector identified the demand from the police to source new knowledge and develop their skills, however rather than recognising the need for a new and emerging discipline they chose offer a mixture of traditional and established programs in areas such as criminology, law, business or sociology. Whilst obviously there is underpinning knowledge to be drawn from many disciplines, these readily available courses were not tailored to policing and were merely given a ‘blue rinse’. Not surprisingly they did not meet the needs of a discerning new breed of practitioner.

Today we can best describe contemporary higher education for policing as being delivered in a three tiered yet totally combined ‘club sandwich’ approach. On a very basic level there are three fundamental aspects to professional education. First is the underpinning knowledge which supports the foundations of the discipline of policing. Drawn from a multitude of traditional discipline areas, this knowledge feeds the second and new, level – applied evaluation, reflection and research which as it develops is creating the new discipline of policing. Of most concern to practitioners is the third level, that of application. A useful analogy is education for medical students, who study foundational knowledge, topped up with current research and then applied practice. This is a very effective way to develop and evaluate best practice and drive forward change and innovation. In much the same way policing is beginning to forge its own destiny and recognise that, without the evidence to support the critical decision-making and analysis of the current and future needs, they will make little progress towards a truly recognised professional status. This approach has two major benefits. First, it demonstrates how higher education has evolved to meet the needs of the profession without losing its commitment to the higher order skills. Second, it demonstrates the willingness, on behalf of policing, to engage in serious debate and analysis of its own practice to establish new approaches and determine future options for more effective policing.

For their part, universities have developed many policing-related courses and some criminologists have focused their research in ways that can help police achieve their goals rather than in ways which criticise police methods and are of little assistance. Fortunately policing research is moving away from being conducted ‘of police, not with police’, as if they are laboratory rats to be studied and commented on. Research needs to be of an applied nature to help investigators work with uncertainty. Further, practitioners need to make sure that they come together to share best practice and capture it for the future. These issues were neatly summarised by Bratton recently when he said, ‘I understand research for research sake and believe that it has its place; but in order to be useful to the practitioner, researchers need to understand practitioners’ needs and should consider the potential impact of their study on the audience. Otherwise we just might end up having academics writing to impress each other with no long-term lasting effect on what is actually happening in the field’ (Bratton 2007).

For an improved partnership between practitioners and researchers to occur, the practitioners also need to change focus. They need to realise that their insights and experience have real value and can contribute to the overall body of knowledge. They need to move beyond thinking that ‘knowledge is power’ and be prepared to share their knowledge, as well as to recognise that they alone do not hold all the answers. For police to stop being the ‘observed’ and become the ‘observers’ they need to embrace all aspects of higher education and recognise that there is value there for them and their practice. Professional practitioners, if
engaged in the research, have the opportunity to interpret findings, ask meaningful questions and apply their knowledge to ensure meaningful outcomes. These can still be critical and objective, but will amount to more than many current four-year studies which simply develop statements of the ‘bleeding obvious’ to those engaged in policing (Bratton 2007).

The Role of Higher Education

Higher education has three fundamentals at its core. These separate it from other forms of training. Three underlying tenets, as defined in the Oxford English Dictionary (2000) are:

- Critical thinking—analytical evaluations, being diagnostic and discriminating, fastidious, perceptive and precise. Making judgements using intelligent thought, assessment, opinion and rational reasoning
- Analysis—to investigate or interpret
- Research—systematic investigation to establish facts or collect information on a subject, to analyse and examine.

Most would agree that these skills and abilities are the core of what is required in contemporary investigation. Interestingly, this is not a recent realisation. For example, Isaac Newton was engaged to investigate a particularly complex fraud against the Royal Mint and the Bank of England because of his analytical and strategic thinking abilities (Levenson 2009), demonstrating that methods of reasoning can outweigh investigative zeal alone. It should come as no surprise that there is a very clear link between the core skills required for investigation and rigorous research. They can be considered to be one and the same, as both are a ‘search for the truth’ (Ord et al. 2008). Whether studying psychology or archaeology, these ‘higher order’ skills are what is most valued in higher education and are what gives higher education its edge. Knowledge and technology will constantly change but these skills will give their recipient the ability to inquire, evaluate, research and develop accordingly. The ‘evidence-based’ trend, which began with evidence-based medicine and swept across to policing in the late 1980s is an example of the influence of higher education and the skill sets it brings, on various professions.

There are two additional roles that higher education will ideally fill. One is to help police stay abreast of the changing demands on and challenges for the profession, as described in Sue Wilkinson’s chapter. She discusses the many new crime types which are now emerging as issues for law enforcement and the fact that globalisation has changed the nature of modern organised crime which now, ‘tends to be international, multilayered, multicultural, sophisticated, ambitious, profitable and technologically sophisticated’ (Wilkinson 2010).

Whilst collated crime statistics and annual reports from the various policing agencies present a somewhat ‘clinical’ and often distorted picture of what is occurring, research within communities and key service providers can provide a much clearer picture of the ‘actual’ levels of criminality. Alastair Milroy (2010) argues that the way crime data is collated and reported provides little or no guidance as to future trends. The people most likely to be able to identify emerging trends are the practitioners dealing with the new crimes. Internally policing needs to be able to identify and respond to changes which are sometimes rapid, surprising and somewhat unpredictable. This must be matched by external research in predicting this kind of trend.

Comment [u1]: Note to editor (not author) check quote after Wilkinson has reviewed her chapter.
Higher education programs in both the strategic intelligence and leadership areas provide police practitioners with the requisite skills to identify future trends and use traditional research skills to predict the issues they are likely to be facing. For example, the development of ‘Strategic Intelligence Assessments’, required by police commanders, is now part of the higher education intelligence practitioner course and postgraduate assessment. Such practical application is continued through to the leadership and management higher education programs, where police leaders learn to recognise the importance of responding to trends by ensuring that they have adequately trained staff and the resources to combat emerging crime types. Obviously this is not always the case in practice and uncertainty is forever playing its part as the predicted trends are dynamic and constantly changing.

The focus on changing trends emphasises the requirement for investigators to be skilled in determining appropriate and measured responses to an evolving range of problems which are all competing for the same limited resources. Wilkinson (2010) outlines the need for police to have sound and robust analysis and risk assessment methodologies to determine appropriate police responses which can withstand scrutiny. Such assessments are being employed at many levels simply to determine the necessary response by law enforcement agencies to emerging serious crime.

The second role for higher education is to help police effectively manage the internal and external pressure on investigations—the authorising environment that Peter Martin (2010) describes in his chapter. In their chapters the Hon. Carmen Lawrence (2010) and Sue Wilkinson (2010) examine the political impact on uncertainty in investigations, describing shifts in focus and effort (both escalating and reducing) to meet political whim. A good example of this kind of dynamic situation can be found in the recent spate of publicity and public outrage in relation to the number of Indian students being attacked in Australia. The possibility of this being a future issue was identified two years earlier by some higher education students when conducting strategic assessments. The prediction was ignored, possibly because of some of the issues raised in the chapter by Mark Kebbell, Damon Muller and Kirsty Martin (2010) in relation to cognitive bias. The statistical analysis was largely ignored because of uncertainty about the nature and reporting involved in the collection of the data, in line with issues suggested in the chapter by Richard Jarrett and Mark Westcott (2010). Lawrence makes the point that only when it became a huge political issue did the police leadership respond.

Uncertainty and Higher Education in Policing

In the preceding discussion, we have highlighted the following roles for higher education in policing. First, the ‘club sandwich’, which combines underpinning knowledge relevant to policing, ongoing research and evaluation, and application. Second are the three tenets relevant to all layers of the club sandwich, which are critical thinking, analysis and research. Third is staying abreast of changing demands and effectively dealing with the authorising environment. Understanding and managing uncertainty are critical to each of these roles. The emphasis to date has largely been to turn uncertainty into certainty and this has led to significant revolutions in policing. Examples of key developments are described next. We then comment specifically on the other chapters in this book from the standpoint of higher education.
Scientific ‘Certainty’

Scientific breakthroughs have completely changed the way that police investigate serious crime and have had a great impact on the debate around uncertainty for policing and the way certain evidence is regarded. Remarkable breakthroughs starting with the first blood tests and fingerprints have seen crime scenes change from a quick wander around the scene to see if anything has been left behind to the extensive and intensive searching in sterile conditions which is currently the norm. However, as barristers and courts are ever vigilant in examining and challenging the certainty of such scientific advances, invariably doubts and uncertainty are reintroduced.

DNA analysis, once described by the FBI as infallible (Rossmo 2009), has been proven to have an error rate (Gigerenzer 2007). DNA should be seen as a starting point of an investigation in the same way as fingerprint and trace evidence, rather than the end. Obviously if there are further developments which do question the certainty of science, then it is imperative that these are revealed to prevent miscarriage of justice based on scientific evidence alone. Work with juries has discovered that scientific evidence holds enormous weight in their decision-making (Goodman-Delahunty & Newell 2004). The area of scientific certainty therefore needs to be fully explored. Investigative officers and judiciary can become ‘blinded’ by science and ignore other lines of inquiry if they feel the case has been established by condemning evidence such as DNA (Kebbell et al. 2010). Scientific evidence from research and pathology, for example, is easy for investigators to engage with and accept as it is much more black and white, or at least it appears to be.

It is therefore of particular concern that, as scientific certainty increases within an investigation, the willingness of investigators to conduct searching interviews or consider other possibilities reduces. Research suggests that the more evidence there is, particularly scientific evidence like DNA and fingerprints, the more likely it is that investigators will approach the interview in a narrow-minded fashion and not give the suspect the opportunity to deny the crime or explain their involvement, if any, in it (Dixon & Travis 2007). This can result in weaknesses in the prosecution case and, potentially, in unsound convictions. In the infamous case of R v Chamberlain, the alleged ‘trace’ evidence, which was later discredited, was pivotal to the conviction of Lindy Chamberlain (Lowndes 1995). More recently, there is the case of Dr Haneef described by Kebbell et al. (2010), where intelligence was taken at face value without a complete objective analysis—resulting in ‘deafness’ to the pleas of innocence from Dr Haneef (Clarke 2008). Numerous other alleged miscarriages of justice, such as R v Mallard (O’Donnell 2005) stem from similar issues around investigator mindset or tunnel vision brought on by the investigators’ search for ‘certainty’ rather than ‘the truth’ of the matter under investigation.

This phenomenon is easy to understand and provides a very tempting path to follow. As Michael Smithson highlights ‘humans both want and do not want unknowns’ (2010) and most investigators want to be convinced of the guilt of the offender they are prosecuting. Science and technology provide far more certainty than do other sources of information and intelligence, however, it is the other sources that complete the picture and bridge the gaps in logic. For example a DNA sample, or fingerprint, purportedly provides a certain fact, but this is insufficient without the answers to the surrounding questions, such as how did that DNA sample come to be there or why was the fingerprint at the crime scene. These questions can usually only be answered by using various other sources of information, derived from related inquiries, witnesses, suspects or others with some involvement in the incident. None of these,
however, provide the absolute certainty sought by investigators. The shades of grey remain and this is why the ability to analyse and evaluate the information available is all-important. The pitfalls of investigator mind set are well documented and researched. Kebbell et al. (2010), Rossmo (2009) and others discuss this phenomenon at length.

**Improving the Way Uncertainty is Dealt with in Policing Higher Education**

The other chapters in this book provide a starting point for thinking about the way uncertainty is dealt with in policing higher education and how this could be enhanced for practitioners. As stated by Cavanagh (1993):

> The challenge to professional education is to improve the integration of academic scholarship with an educational process suitable to preparing professionals for contemporary service-oriented dynamic and demanding practice environments.

It is important to recognise that that ‘policing’ is now an emerging discipline and body of knowledge in its own right (Chambers 2004). Australia is, in many ways, the leader in terms of real engagement with policing in higher education providing a wide range of undergraduate and postgraduate programs specifically designed for police. In a number of other comparable countries like the UK and Canada, there is nowhere near the same level of opportunity for police and law enforcement officers to link their police training in an articulated sense to the higher education sector. New Zealand has specific links to university programs but Australia is one of the few countries seriously recognising the training and expertise of police officers and allowing that to be formally linked to higher education.

Junior police officers (recruits), at least in New South Wales (NSW), join the police service by way of a collaborative higher education program between NSW Police and Charles Sturt University. The Associate Degree in Policing brings together police and university staff to co-develop and deliver a practical training and education program for new recruits. In other words the students are not simply taught ‘what to do’ in their role but also why and when it is appropriate for a particular course of action. This basic level preparation of new police involves awareness of serious crime issues and the dangers of investigative mindset and heuristics (Kebbell et al. 2010) as well as the importance of their autonomous role in dealing with uncertainty, and the inevitable ‘grey areas of the law’ in relation to practice as discussed in the chapter by the Hon. Tim Carmody (2010).

Beyond the probationary years officers often develop particular areas of interest and specialisation. In relation to the investigation of serious crime, officers wanting to become detectives in Australia undertake a National Diploma in Investigation delivered ‘in force’ by their own state or jurisdiction. Many officers also take up the opportunity to study bachelors level programs tailored for police to advance their knowledge of investigation, as well as to increase their chances of promotion. The specific programs offered for police usually provide advanced standing for the training to become a detective and include specifically bachelors degrees in policing, forensic science and justice studies. Some officers also elect to study a variety of associated degrees such as criminology or law. The qualifications specifically tailored to policing discuss at a higher educational level many of the issues raised in the various chapters of this book. Whilst set in a policing investigative context, the issues of emerging crime raised by Wilkinson (2010), cognitive bias discussed by Kebbell et al. (2010), as well as aspects of the law and the complexity of the judicial environment are examined from a national and international perspective. The use of case
studies to illuminate the learning is common practice and the students themselves are encouraged to be reflective practitioners on their own professional development. Even at this still relatively junior stage of development, the impact of politics on policing and the role of leadership is not ignored (Lawrence 2010) with students being only too aware of the pressures upon them to deal with emerging crime or incidents with particular political interest attached.

Beyond the level of the bachelor’s degree, postgraduate programs currently specifically developed and offered to law enforcement students particularly address many of the issues raised in the chapters of this book. Intelligence practitioners at the strategic level attend a National Strategic Intelligence Course, which is a collaborative venture of the Australian Federal Police, the Australian Crime Commission and Charles Sturt University. This course is seen as the national benchmark for strategic analysis throughout Australia. The program also provides a pathway to higher education for intelligence practitioners.

Students in these programs study applied statistical analysis, which is based on the kind of work presented by Smithson (2010). This analysis is used to determine new and emerging crime types and trends (Wilkinson 2010). However students also study a broader range of research methods to ensure that they not only know how to conduct research but are also capable of being ‘critical users’ of research. Analysts in policing rely on secondary information from numerous sources ranging from National Crime Statistics to the information provided by a human source or listening device. All of this information has to be analysed to determine credibility, reliability and usefulness. This is why very rigid mathematical formulae, such as the one presented by Smithson, are very difficult to apply as a sole point of reference in policing. There is always the ‘uncertain’ human aspect involved. For example, in the case of Smithson and Muller’s research into missing persons (which Smithson describes), the statistics quite clearly show that there is very little chance of a missing person being found dead. However, although the chance is small, it is not zero and in policing it is impossible to ignore the risk! However statistical analysis does form not only an indicator as to the solvability, but also quite often contributes to the investigative outcome. The analysis of phone record data and frequency correlations often provide convincing and compelling evidence in a court room where science will often impress the judge or jury (Goodman-Delahunt & Newell 2004).

An officer’s ability to provide mapping, cluster analysis, descriptive stats and graphs, described by Robyn Attewell (2010); and the quantification of risk, discussed by Jarrett and Westcott (2010); is not restricted to the intelligence analysis field. Senior investigators are taught to make open and transparent decisions based on information and relevant data rather than their ‘gut feeling’. As Kebbell et al. (2010) discuss investigative mindset or tunnel vision, often fuelled by some aspect of scientific or other ‘evidentiary’ information is a very dangerous path for any investigation. The lessons learned from numerous previous miscarriages of justice are utilised in postgraduate investigation management programs to enlighten investigators of serious and serial crimes of the dangers of failing to keep an open mind and to consider all possible avenues of investigation. The theories of criminology and psychology are used to help investigators develop strategy around the entire investigative processes and to accurately record decision-making in relation to risk and uncertainty. Students are taught that the use of accurate validated research, and the use of such tools as mapping and cluster analysis, are essential if they are to argue successfully for additional resources or for continuing, or winding down, an inquiry.
Specialists in the areas of terrorism safety and security have the opportunity to study in a number of postgraduate programs which are currently offered in both Australia and overseas. Many law enforcement agencies are supporting staff to study in these programs which involve students developing a much broader range of understanding of fundamental issues involving religion, politics, history and current conflicts occurring around the world. These programs better equip officers to prevent and respond to terrorist threats and provide a much broader understanding of the current level of uncertainty and threat in relation to terrorism.

Police leaders are currently engaging in higher education programs which prepare them for the positions they either currently hold or aspire to. Here the focus on leadership and responsibility embraces many facets of risk and performance measurement. Business principles as described by Neil Fargher (2010), which can equally be applied to organised crime gangs or police, are incorporated into policing leadership programs. Modern policing and crime investigation is often considered a business with similar budgetary constraints prone to influence from global markets, technology, infrastructure and, most expensive of all, human resources. The use of all resources must be justified, accountable and open to public scrutiny. The only point of difference is the measures against success which serious crime investigation needs to consider.

Police leaders also learn about the legal implications of serious crime investigation (Carmody 2010), which grow more complex all of the time. What appears to deliver some form of certainty by way of scientific method can become inadmissible in a very short space of time. The issues surrounding admissibility and probity are a constantly changing feast. Police leaders also need to be very aware of the political environment in which they operate. As Lawrence (2010) outlines in her chapter police are influenced at every level by politics and suffer a high level of interference despite the so-called ‘separation of powers’. Whilst this situation is arguably somewhat more of a problem in some states than others, well-educated investigators need to be politically astute and prepared to support their decision-making with well-researched evidence and reasoning. Officers need to be confident in their own judgments and not become the risk adverse puppets of whatever political regime is in place. Students study this level of interference and are challenged to suggest ways of dealing with both the media and the politicians in a productive and professional way.

Finally there is a wide range of research currently being undertaken by police officers at the masters, professional doctorate and PhD levels. This self-initiated research is an excellent platform for police to become—as was stated above—‘the researchers, not the researched’. Police engagement in scientifically credible empirical research into their own professional practice is essential if the discipline of policing is to grow. Examples of current research being undertaken by police at Charles Sturt University range from a Detective Inspector in the Netherlands studying the ‘role of hostage negotiators in international kidnap situations’, to a Chief of Police in Ottawa conducting an evaluation of ‘tenure policies in Canadian policing’. This diverse pool of police not only become experts in their own areas of study, but also engage in all the earlier mentioned aspects of higher education: critical thinking, analysis and research. It is these skills which underpin modern police education and provide the police who involve themselves in the various programs on offer with the skills to deal with the uncertainty of police investigation.
‘Uncertainty’ as an Ally

Policing in Australia, as in other areas of the Western world, has undergone a ‘shake-out’ phase with Royal Commissions, statutory bodies and ad-hoc inquiries in most states and territories seeking to purge corrupt officers. Accountability and transparency have become catchwords and bodies with draconian powers have been established to police the police. The scrutiny of the 1990s arguably led to a tendency toward risk aversion among officers while at the same time the ‘certainty’ of scientific evidence created an illusion that criminal cases are easily solved through the use of scientifically verifiable evidence (Moston & Fisher 2006). This so-called ‘CSI effect’ (Goodman-Delahunty & Newell 2004; Mirsky 2005) has resulted in an avoidance of other more risky and uncertain methods of investigation such as the use of human sources and even formal and informal interviewing of witnesses, victims and suspects, as outlined earlier.

We argue that the higher level skills associated with higher education can improve the investigation of serious crime by reducing or preventing cognitive bias or tunnel vision. Investigators who are practiced in the disciplines of critical thinking, analysis and research are more likely to consider all of the information and evidence, be less likely to ignore information which is contradictory to their original hypothesis and be more prepared to keep an open mind to all lines of inquiry.

In addition, the key attributes of a higher education encourage investigators to embrace rather than avoid issues of uncertainty. As previously discussed, the idea of ‘certainty’ in serious crime investigation is a very comfortable one and an obvious aim for investigators, but comes with risk. The idea of being certain of a person’s guilt is very attractive and rewarding. However, it can also lead to ‘cognitive bias’, ‘confirmation bias’ and a lack of understanding of one’s own heuristics (see Kebbell et al. 2010). Properly understood and approached, uncertainty actually brings great benefits to the investigation of serious crime. Understanding that ‘there is nothing as certain as uncertainty’ can lead to a more thorough and open investigation process which maintains all lines of inquiry.

Higher Order Skills in Action

Finally, we talk about those higher order skills as the attributes of the modern investigator and how the fruits of higher education will be seeded in the capacity of investigators to think critically, analyse and research.

Recently an example of these higher order skills occurred in the UK during a review of a 1993 missing person inquiry. The review meeting involved a wonderful example of collaborative and innovative thinking. The senior investigating officer had gathered a group of experts to assist in the development of a strategy to reinvestigate the missing person. The group included a forensic scientist, geographic profiler, investigative interviewing advisor, search specialist, investigation review advisor and family liaison officer. The net outcome of the meeting was a strategy which brought a completely new approach to how this case could be elevated to a murder investigation. The group basically conducted research of all of the facts and information prior to the meeting and then conducted a critical analysis of all of the intelligence and evidence. They then all shared their findings and developed a very innovative, practical and thought provoking strategy which brought an entirely new perspective for the senior investigating officer. This was not a traditional academic exercise by any means, but was action research, providing very practical and invaluable results in the
fight against serious crime. What was very interesting was that all members of the group had undertaken higher education in their area of expertise and agreed that the combination of training and higher education had developed their ability to conduct this very practical form of review and analysis of serious crime cases.

**Conclusion**

The investigation of serious crime, like policing generally, is continually faced with the challenge of uncertainty on many fronts. Technology provides advances to both the criminal and the investigator. Uncertainty will remain for investigators as, for example, the international community becomes more mobile and borders become more porous, home-grown terrorism emerges in marginalised communities and the private sector continues to develop its own responses to crime and insecurity. In this environment higher education will continue to develop and the higher order skills that form its base will become more valued as the battle for control of law and order continues.

Academics and practitioners in law enforcement both have a lot to offer in maintaining a dialogue around the area of ‘uncertainty’ in the investigation of serious crime. However, for this dialogue to have real meaning and benefit it requires a great deal of collaboration and a deeper appreciation of each other’s expertise and value.
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<th>Author/Group</th>
<th>Ideas or methods for dealing with uncertainty</th>
<th>Critical areas that warrant further research</th>
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<td>Attewell</td>
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<td>Jarrett and Westcott</td>
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<td>Kebbell et al</td>
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<td>How does cognitive bias impact on decision-making in serious crime cases? In depth case reviews of serious crime cases and interviews with the investigating officers could be very helpful. Could include some questions around both ‘gut feeling’ as opposed to ‘scientific’ certainty to determine the main drivers for investigators. This could also feed into the proposals for formal formative review processes in serious crime.</td>
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<td>Lawrence</td>
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<td>This area of policing is fundamental to the future direction of Australian policing and a great project would be to look at the extent of political interference – both real and perceived/assumed – across the jurisdictions. This could link into the aims of ANZPAA to provide the Commissioners with a ‘single voice’ and could demonstrate what is ‘real’ interference and what is anecdotal and how this impacts on decision-making of senior police in relation to serious crime.</td>
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<td>Smithson</td>
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<td>Some of this work could be used to look closely at the data and information currently being collated by police to see if there is room for improvement in the quality of collection and the nature of the information collected to give national standards for</td>
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Importantly, some work regarding the dangerous state of borders and separate jurisdictional data bases, lack of information being shared and how this can be improved across the country and internationally?
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