Improving Interdisciplinary Research on Policing and Security

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Abstract

There are two problems with interdisciplinary research: that it is treated as a single entity, even though it comes in many different forms, and that there are no standard procedures for reporting such research. A new discipline of Integration and Implementation Sciences (I2S) could overcome these problems by developing an agreed systematic way to both conduct and report on one type of interdisciplinary research, namely team based investigations on complex real world problems, such as many of those which bedevil policing and security. I2S has three domains: 1) Synthesising disciplinary and stakeholder knowledge, 2) Understanding and managing diverse unknowns and 3) Providing integrated research support for policy and practice change. In addition, a five question framework provides a systematic way to bring into play various key concepts and methods, such as systems thinking, scoping and boundary setting, dialogue and modelling methods, context, authorisation and evaluation of success.

Keywords

Interdisciplinary Research, Integration and Implementation Sciences (I2S), Knowledge Synthesis, Unknowns, Knowledge Translation

Introduction

I want to draw together two recent publications to reflect on their implications for research on policing and security. The publications are a report written for the Australian Council of Learned Academies entitled *Strengthening Interdisciplinary Research: What it is, what it does, how it does it and how it is supported*(Bammer, 2012) and a book *Disciplining Interdisciplinarity: Integration and Implementation Sciences for Researching Complex Real-World Problems* published in January 2013 (Bammer, 2013).

The *Strengthening Interdisciplinary Research* report discusses two major problems with interdisciplinary research. These are important generally, as well as in policing and security research more specifically. The first problem is that interdisciplinary research is treated as a single entity, even though it comes in many different forms. Let us look at three examples. One is a single researcher using ideas and methods from two or more disciplines to address a specific policing problem, such as bringing together insights from sociology, anthropology and psychology to study victimisation. Second is a researcher and end-user partnering to invent a new commercial product, like a new security screening device, or to design a new form of

practice, such as how to handle perpetrators of domestic violence. Third is a major team project bringing together experts from multiple disciplines, policing practitioners and other stakeholders (such as victim representatives, relevant non-government organisations and policy makers) to investigate a major issue like organised crime.

The second problem with interdisciplinarity is that the research methodology is poorly documented. In contrast to the disciplines, there are no standard procedures for reporting interdisciplinary research. Published accounts are invariably incomplete, making it impossible to fully understand and assess what occurred or to draw lessons for improving future investigations. This is partly a result of the failure to differentiate various kinds of interdisciplinary research.

How Do we Move Forward?

In the book *Disciplining Interdisciplinarity* I argue that a possible way to resolve this challenge is to differentiate various kinds of interdisciplinary research and to develop agreed ways to report each of them. I concentrate on the third kind of interdisciplinary research described above—namely team research on a complex real-world problem that brings together discipline experts and stakeholders—and argue that an underpinning discipline could provide a systematic way to both conduct and report such investigations.

I propose that the discipline is called Integration and Implementation Sciences (I2S) and that it has three domains, each of which is structured around five questions. Let us deal with the domains first.

Domain 1 is the one most commonly associated with interdisciplinarity, namely bringing together knowledge from different disciplines and stakeholders.

While few would argue with the necessity of bringing together what is known about a problem, the need to understand and manage what we don't know is less well recognised. This second domain of I2S is the most challenging, because thinking about unknowns is not well developed. But unintended consequences and unpleasant surprises result from unknowns that have been ignored rather than dealt with.

The third I2S domain is to support policy and practice change with a combination of the best available knowledge plus the most advanced ways of understanding and managing the remaining unknowns.

In summary, therefore, I2S comprises three domains:

1. Synthesising disciplinary and stakeholder knowledge
2. Understanding and managing diverse unknowns

3. Providing integrated research support (i.e., combining synthesized knowledge with a solid appreciation of remaining unknowns) for policy and practice change

As outlined earlier, there is currently no agreed, systematic way to capture the wealth of experience gained in interdisciplinary research so that it can be transmitted and built on. I propose that five questions provide a useful framework for this purpose, and describe them here as applied to the first domain—namely, synthesising disciplinary and stakeholder knowledge. (The five-question framework can also be adapted to the other two domains of I2S, allowing them to be covered systematically.) The questions are as follows:

1. What is the synthesis of disciplinary and stakeholder knowledge aiming to achieve, and who is intended to benefit?

2. Which disciplinary and stakeholder knowledge is synthesized?

3. How is the disciplinary and stakeholder knowledge synthesized, by whom, and when?

4. What circumstances might influence the synthesis of disciplinary and stakeholder knowledge?

5. What is the result of the synthesis of disciplinary and stakeholder knowledge?

While these questions look simple, they encompass considerable methodological depth, which is fleshed out below. As a set, the questions can be used to plan new research or to describe ongoing or completed research. The order of the questions is not fixed. Sometimes it may be useful, for example, to describe the context first or to consider Questions 2 and 3 together. Let us now deal with each question in turn.

Question 1.

What is the Synthesis of Disciplinary and Stakeholder Knowledge Aiming to Achieve, and Who is Intended to Benefit?

From the perspective of research teams, the purpose of this question is to help them think specifically about their objectives and beneficiaries so they can target their efforts most effectively. This is important for two reasons. First, teams have often not thought clearly about what they are trying to achieve and find it very helpful to be pushed to do so. Second, for teams to choose the most appropriate options in terms of concepts, methods, and case examples, they need to have well-formulated goals.

Question 2

Which Disciplinary and Stakeholder Knowledge is Synthesized?

For this question, I suggest that there are six key, interrelated categories of concepts and methods: taking a systems view, scoping, boundary setting, framing, dealing with values, and harnessing or managing differences. Again, these can help the research team think systematically about its investigations, as well as providing the categories under which to collect concepts, methods, and case studies. Let us deal with each in turn.

Taking a Systems View

Systems thinking allows the real-world problem to be placed centre stage and makes it feasible to examine a range of discipline-based and stakeholder perspectives in a coherent and systematic way. It involves looking at the interrelationships between various aspects of the problem, as well as the broader issues the problem relates to and those interconnections. A systems view about heroin use, for example, involves examining the interactions between users, their families, treatment providers, police, and the community at large, with different foci on crime, social functioning, health, and so on. It also means examining the broader context of the heroin supply system—the drug cartels, supply lines, and international law enforcement. It is important to note, however, that it is impossible to focus on the *whole* problem at once. Instead, different systems approaches emphasise different aspects of the whole.

Scoping

From the perspective of researchers looking to better understand a problem, scoping is a process to determine the full range of those who have something relevant to contribute. It is a critical step in deciding which systems approach to take, as well as which disciplines and stakeholders to involve. Scoping moves those planning the investigation beyond focusing only on what they know (based on their own interests and expertise) to considering the problem more broadly. If scoping does not occur, critical issues may be ignored. If we consider the 1940s project of building the atomic bomb, for example, the domination of physical scientists, engineers, and the military meant that significant environmental, social, and health aspects were not considered, leading to ongoing difficulties in those areas.

Boundary Setting

The point of scoping is to illuminate a range of options for developing a better understanding of a problem. Practicalities, however, dictate that everything cannot be included in the investigation, so boundaries must be set. This requires systematic thinking about what can best be done with the available time, money, and person

power. Boundaries define not only what is included and excluded but also which issues are more central and which are marginal (Midgley, 2000). Both inclusion/exclusion and centrality are relevant to which disciplines and stakeholders are involved in the knowledge synthesis, what they are invited to contribute, and how. This translates into allocation of resources, with the lion's share going to the disciplines and stakeholders deemed to be most central. The point of linking scoping and boundary setting is that it allows the most critical issues to be identified and addressed.

To illustrate this, let us imagine a research project about the factors leading to heroin use. Scoping involves considering all the different ways of tackling this problem, such as looking at genetic predispositions, individual character traits, family influences, peer-group pressure, drug availability, and societal norms. It is immediately apparent that covering all these would be a massive undertaking. Decisions will have to be made about what can be done with the available funding, time, and personnel. The needs of the problem, not just the available resources, should drive what is undertaken.

Framing

The frame is the way the problem is presented. The language used to describe the problem is powerful. For example, people who inject illicit drugs can be referred to as “dirty junkies,” “cool nonconformists,” or “sons and daughters who have lost their way.” Critically, the problem will be framed by the way it is described, regardless of whether conscious attention is paid to this process. The idea here is to raise awareness of the importance of framing so the research team can accurately convey what it is setting out to do.

Dealing With Values

The values brought to the research will both determine and reflect the systems approach used, the way the problem is scoped, and the boundaries set, as well as how the problem is framed. In addition, there are likely to be several sets of values in play at the same time: values about the problem, about research, and even about the approach that should be taken to values. The task here is to examine interactions between values and knowledge synthesis. For example, are the team's values generating important blind spots about incorporating some kinds of knowledge, or leading to disproportionate emphasis on the perspectives of some stakeholders at the expense of others?

Harnessing and Managing Differences

Bringing together different disciplinary and stakeholder perspectives is about more than combining different relevant “ facts. ” Among those involved, there will

also be differences in, for example, visions for addressing the problem, worldviews about the problem, epistemological approaches to research, working habits, career goals, and so on. The challenge is to identify and deal separately with two types of differences:

1. Those relevant to developing a rich appreciation of the problem, which need to be harnessed as part of the knowledge synthesis

2. Those that may get in the way, which need to be managed so that they do not negatively impact the knowledge synthesis (Bammer, 2008)

For example, bringing together two dissimilar worldviews is often a difference to be harnessed, whereas personality clashes involve differences to be managed.

Before moving on to the next question, it is important to note that in practice the implementation of the six categories of concepts and methods is not linear. Instead, the categories must be considered together and iteratively, as each influences the others. Research is messy, and it is difficult to have clear definitions, aims, and processes up front. The reality of iteration and messiness does not, however, contradict the need for a systematic approach. Indeed, the framework provides a way through.

Question 3.

How is Disciplinary and Stakeholder Knowledge Synthesized, by Whom, and When?

There have been surprisingly few attempts to identify, let alone classify, methods for addressing this question. I propose three classes:

- Dialogue based
- Model, product, or vision based
- Common metric based

Dialogue-based methodsuse conversation to "jointly create meaning and shared understanding" (Franco, 2006, p. 814). Formal methods are not required in every interdisciplinary situation. For example, they are unlikely to be required for a small group with similar perspectives. Structured methods come into their own, however, when the research team is large and/or has diverse outlooks, as they help ensure that all perspectives are appropriately heard and included.

Model-, product-, and vision-based methods are related, as they use a specific goal as the focus for synthesis. Model-based methods use the development of a

conceptual or mathematical representation of a problem as the "device" for bringing together disciplinary and stakeholder knowledge. In other words, building the model is used to stimulate communication and capture the shared understandings. Building a product and implementing a vision both rely on the same principle in that the focused task brings different understandings together. The development of the atomic bomb is an exemplar of product-based synthesis. This effort combined knowledge from physical scientists, engineers, the military, and private industry (Rhodes, 1986). The World Commission on Dams (2000) framework for decision making about future dams is an example of vision-based synthesis. A guiding ideal was proposed for bringing together different perspectives and for deciding on action—namely, a globally accepted framework of norms about human rights and economic cooperation, as well as social development and environment. These were derived from U.N. declarations and principles (World Commission on Dams, 2000).

Common metric–based methods rely on single measures that can be employed to encapsulate the range of relevant disciplinary and stakeholder knowledge about the problem. The best-known and most widely used common metric is monetary value. Synthesis can then be based on simple arithmetic or more complex manipulations, such as cost-benefit analysis. Other common metrics that have been developed and used for environmental problems include the area of land necessary to sustain a given level of resource consumption and waste assimilation (i.e., ecological footprint; Wackernagel& Rees, 1996) and measures of carbon dioxide equivalent (Michaelowa& Koch, 2001). For health problems, common metrics include disability-adjusted life-years and quality-adjusted life-years (Murray, Salomon, &Mathers, 2000). An example of the use of the ecological footprint for knowledge synthesis is a collaboration between university-based researchers and the Cardiff Council in the United Kingdom to develop local government policies and practice on sustainability (Cardiff Council, 2005; Collins, Flynn, Wiedmann, & Barrett, 2006).

Let us move on now to the question of who undertakes the synthesis. It is often assumed that the synthesis should be a group process. However, even though perspectives are drawn from researchers representing a number of different disciplines and from various stakeholder groups, each contributor does not necessarily have to be involved in bringing the knowledge together. The options for undertaking the synthesis are to involve the whole group or a subgroup or for it to be the task of an individual. In the last case, the synthesizer is often the research leader. Each of these options has advantages and disadvantages. For example, a disadvantage of involving the whole team is that the time it takes can be very demanding. A disadvantage of the synthesis being undertaken by the team leader is that one person is likely to have only a limited grasp of some aspects of the project.

An additional consideration for undertaking knowledge synthesis is when it will be carried out. Just as there is often an assumption that synthesis will be a whole group process, some people presume that it will occur at the end of the research, while others suppose that it must be established right from the beginning. But again there is a range of options, each with advantages and disadvantages.

Question 4.

What Circumstances Might Influence the Synthesis of Disciplinary and Stakeholder Knowledge?

There are at least three areas to be considered here:

1. The overall context of the problem, which comprises the circumstances that led to the research and that may be influential during its conduct, such as the problem's history, the geographical locations in which it occurs, and cultural differences between those affected and those charged with responding to the problem

2. The sources of authorization or legitimacy for the knowledge synthesis and how they affect what is investigated

3. The organizational facilitators of, and barriers to, undertaking the synthesis of disciplinary and stakeholder knowledge

Let us begin with overall context and return to the building of the atomic bomb. The important contextual factor was World War II (1939–1945), which explains why, in scoping the problem, there was minimal attention to social, environmental, and health impacts. In the circumstances of a major war, including these aspects in the synthesis was not a high priority. The general challenge is to find useful starting points for taking context into account in planning knowledge synthesis—in other words, figuring out which circumstances are likely to be most pertinent and how to address them.

Moving on to authorization, the sources of legitimacy are usually closely tied to the finances. For most research, receiving support from a recognised funding source is all that is needed for an investigation to be seen as legitimate and to go ahead. However, in certain cases, such as when projects are large scale or politically sensitive, authorization may be more complex. In particular, obtaining backing from influential organizations or individuals may be critical for the research to proceed. However, as well as providing legitimacy, both funding and backing can also impose limitations. Funding success may be patchy, so that only some aspects of a research program may eventuate. Organizations that auspice research or boards that oversee it can impose constraints on what is undertaken or how it is pursued.

The third contextual issue is organizational facilitators and barriers that can impact synthesis of disciplinary and stakeholder knowledge. Here the focus is on the research organizations. It may be useful to think about structure and culture separately. For example, structural issues can include the disciplinary mix in an organization, the availability of seed funding to encourage cross-disciplinary collaboration, and organizational financial mechanisms. If an organisation established to examine global climate change does not include any social scientists, for instance, it is probably less likely that good social science research will be part of the knowledge synthesis. In contrast, seed funding to encourage collaborations between researchers who have not worked together before may increase the numbers of disciplines included in the knowledge synthesis. Similarly, barriers to sharing money across different parts of an organization may work against joint funding applications and reduce disciplinary scope. Cultural factors can include organizational attitudes toward stakeholders and norms regarding idea exchange. If the organization's leaders are antagonistic toward particular stakeholders, such as big business or particular nongovernment organizations, it is less likely that their perspectives will be included in the knowledge synthesis. If it is "the done thing" that everyone attends morning or afternoon tea breaks or annual retreats, this may facilitate cross-fertilisation of ideas between disciplines.

Question 5.

What is the Result of the Synthesis of Disciplinary and Stakeholder Knowledge?

One advantage of the structured approach resulting from the five-question framework is that it also provides a systematic process for evaluation, ensuring that each of the issues raised above is covered. Some of the relevant questions include the following:

- Was the systems view taken suitable? Would a different systems view have been more useful?
- Within the necessary limitations of the research, were the most worthwhile disciplines and stakeholders included? Was the balance between different disciplines and stakeholders fitting? Did any of those excluded turn out to be critical?
- Was the problem framed accurately?
- Was sufficient flexibility and iteration built into the processes of deciding on a systems view, scoping, boundary setting, framing, considering values, and harnessing and managing differences?

- Were applicable synthesis methods used? Would other methods have made better contributions? Were justifiable decisions made in choosing by whom and when the synthesis was undertaken?

- Did the host organizational structure or culture provide barriers to the knowledge synthesis? If so, were these effectually recognized and managed? Were facilitators beneficially mobilized?

Conclusion

This paper argues that there are many different kinds of interdisciplinary research that could be undertaken in the policing and security field, as well as for clearly describing the type of interdisciplinary research which is being conducted. It also describes a framework for capturing the research process, so that concepts, methods and techniques can be more easily shared between different policing and security research teams, as well as with research teams studying other kinds of complex real-world problems (such as environmental sustainability and obesity).

The next task is to compile all the different concepts, methods and techniques that have been developed and to make them easily accessible. An example is a book of dialogue methods (see McDonald et al, 2009). To follow the development of this work see: i2s.anu.edu.au.

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