

# What is Needed From Research Synthesis From a Policy Making Perspective?

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## **Introduction**

The current interest in research synthesis amongst social scientists coincides with a number of developments in evidence-based policy making, especially in the United Kingdom. The common message from various reports by the UK Government (Cabinet Office 1999a, 1999b, 2000, 2001, 2003a, HM Treasury, 2003, 2004) is that policy making must be more sophisticated in its use of research and analysis, and should be “soundly based on evidence of what works” (Cabinet Office, 1999b). The synergy between such statements and what research synthesis has to offer policy making is clear to see. On the other hand there is very little hard empirical evidence on what policy makers want in terms of research evidence to support policy making<sup>1</sup>, or on how research synthesis methods can help policy makers. Consequently, it is difficult to know what policy makers want from research synthesis.

This chapter will offer some insight into what policy makers want from research synthesis based on the work of the Government Chief Social Researcher’s Office to increase the use of systematic reviews in policy making. This includes providing a consultancy service on research synthesis to government departments and agencies across Whitehall, and providing professional development courses on systematic reviews for government analysts and policy makers.

## **Evidence on a Broad Range of Questions**

Policy making involves a broad range of questions for which evidence is required using the full range of social scientific research. This range includes questions such as:

- Has policy  $x$  achieved its goals? (a goals-based question)
- Is policy  $x$  likely to achieve the required goals (outcomes) more effectively than policy  $y$ ? (a comparative effectiveness question)
- What is the most effective way to implement policy  $x$ ? (an implementation question)

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<sup>1</sup> The Government Chief Social Researcher’s Office in the Cabinet Office, and researchers at the ESRC Evidence Network are currently undertaking empirical research on this issue with policy makers and people who commission research synthesis.

- What are the barriers to implementing policy  $x$  and achieving the desired goals? (an implementation question)
- What are the costs and benefits of policy  $x$  compared with policy  $y$ ? (an economic appraisal question)
- Is policy  $x$  more, or less, cost-effective in achieving the desired goals than policy  $y$ ? (an economic appraisal question).
- What is the likely impact of policy  $x$  ( $y, z$ ) on the environment, business, the voluntary sector, bureaucracy, social equity, etc? (a policy impact question)
- How many hospitals need to be built in the UK to meet changing health care needs? (an economic appraisal and strategic question)
- Is it right to implement policy  $x$  if, by doing so, it means not implementing policy  $y$ ? (an ethical and strategic question)
- How is the UK performing in terms of social and economic change compared to other comparable countries (a strategic audit and benchmarking question).

This list of questions is by no means exhaustive but is illustrative of the types of questions to which policy makers require answers, only some of which will come from systematic reviews and other types of research and analysis. The latter point is important for social scientists to appreciate because there are many influences on policy making other than research and analytical evidence (Davies, 2004a; Marmot, 2004). These include political beliefs and ideology, pressure groups and lobbyists, think tanks, media influences, habit and tradition, experts' advice, policy and political timetables, and the expertise, experience and judgement of policy makers and Ministers.

Research synthesis has an important potential contribution to make in terms of helping to answer some of the questions posed by policy making, in particular by identifying, critically appraising and summarising what is already known in the social and political science research literature. The main virtue of systematic reviews and meta-analyses is that they provide a balanced and representative view of the evidence on a topic, thereby

avoiding selection and publication biases<sup>2</sup>. Research synthesis at the present time is best able to offer overviews of experimental, quasi-experimental and other quantitative evidence. Research synthesis currently has less developed methods for synthesising qualitative research evidence, though there is important work being undertaken to redress this imbalance (Britten *et al*, 2002; Dixon Woods and Fitzpatrick, 2001; Harden *et al*, 2003), some of which is reported elsewhere in this book. There is also a paucity of methods for critically appraising and synthesising evidence from sources other than social science research, such as administrative data and the evidence used by lobbyists, pressure groups and think tanks (which may or may not be research based).

### **Clarifying Policy Questions and Theories of Change**

Policy makers often want answers to broad questions such as ‘do prisons work?’, ‘is homework beneficial?’ or ‘has social exclusion been reduced since 1997?’ Whilst it is perfectly reasonable to ask such questions – they are the types of question many ordinary citizens ask about social and public policy issues – they are often insufficiently focused to be answerable in anything other than a rhetorical way. Research synthesis works best when it is able to provide more focus to such questions, by specifying the *policy issues* at stake (prison effectiveness), the *outcomes* of interest (incarceration or offender rehabilitation), and the *population* or *subgroups* in question (serious offenders, minor offenders, violent offenders, etc). By way of example, a government social researcher was recently asked by a policy colleague about evidence on whether globalisation had affected crime in the UK. Following further discussion with the policy colleague it became apparent that what he wanted to know was whether increased use of the internet (i.e. global IT) had led to an increase in fraud. This more focused question was easier to address using research synthesis methods than the original more general question.

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<sup>2</sup> Selection bias, in this context, refers to the bias that comes from identifying only a selection of the total literature or evidence on a topic, thereby failing to gain a comprehensive and balanced view of what is known (and unknown). Publication bias refers to the fact that academic journals tend to publish positive findings from research more than negative findings, thereby introducing another source of selection bias.

Researchers can also help policy makers by clarifying the underlying theory of change they are seeking to bring about (Chen, 1990; Connell *et al*, 1995; Funnel, 1997; Owen and Rodgers, 1999; Weiss, 1997; Rodgers, *et al*, 2000; Judge and Bauld, 2001). This involves laying out the logical sequence of processes, or stages, between a policy initiative (e.g. setting homework targets) and the desired outcomes (e.g. increased educational attainment). By making explicit and testing the assumptions underlying the way a policy is supposed to work, researchers can identify additional questions for which existing empirical evidence can be sought. In this way, sequences of evidence can be gathered and accumulated to provide a rounded and appropriate evidence base for decision making.

Helping policy makers refine questions to make them more answerable, or helping to clarify the theory of change underlying a policy initiative, should not be confused with imposing the researcher's questions or theories on policy makers. Such behaviour is patronising and inappropriate and can cause resistance amongst policy makers to working with researchers to promote evidence-based policy.

### **Types of Research Synthesis for Helping Policy Making**

The types of questions raised by policy making call for different types of research synthesis.

#### *Synthesis of Goals-Based Evidence*

Policy makers are increasingly required to demonstrate the effectiveness of policies, programmes and projects by summoning evidence that the goals of these initiatives have been met. Performance managed government has been a central feature of UK policy making since the first Blair Administration was elected in 1997. A range of research and evaluation methods is used to determine whether policy goals and delivery targets have been met. This involves identifying various sources of quantitative and qualitative evidence and synthesising them so that they can tell policy makers and analysts both whether, and how, policy goals have been met. The biennial Spending Review process requires this sort of synthesis of evidence (HM Treasury, 2004), as does the more

frequent monitoring of performance that is undertaken by the Prime Minister's Delivery Unit (PMDU, 2003; Davies 2004b). This type of synthesis should also identify any *unintended* consequences of policies, both positive and negative (Patton, 2002; Cabinet Office, 2003b). Performance management also calls for evidence of value for money and this requires the synthesis of cost-effectiveness analyses and other tools of economic appraisal and evaluation (see below).

#### *Synthesis of the Net Impact of Policies*

Evidence-based policy and practice is commonly associated with the 'what works' question. That is, existing research evidence is sought on the known or likely *net impact* of policies or services against a counterfactual (i.e. doing something else or doing nothing at all). The most appropriate evidence to answer this type of question is usually that generated by experimental and quasi-experimental studies. Experimental data generally refers to the findings from randomised controlled trials (sometimes referred to as random allocation experiments), whereas quasi-experimental data come from studies that use regression discontinuity designs, interrupted time-series designs, single group pre- and post- test designs, and two group matched comparisons (especially those using propensity score matching (Rosenbaum, P. and Rubin, D.B., 1985; Shadish, Cook and Campbell, 2002). Counterfactual evidence is also important for determining the cost-benefit, cost-effectiveness and cost-utility of different policy options (HM Treasury 2003; Gray, 2004). There are a number of research groups currently working to produce high quality systematic reviews of the effectiveness of public policy using experimental and quasi experimental methods, including the Campbell Collaboration ([www.campbellcollaboration.org](http://www.campbellcollaboration.org)), the EPPI Centre ([www.eppi.ioe.ac.uk](http://www.eppi.ioe.ac.uk)), and the What Works Clearing House (<http://www.whatworks.ed.gov>).

#### *Synthesis of the Likely Diversity of Policy Effectiveness*

It is becoming increasingly clear that policies often have variable impacts and effects across total populations. What works extremely well in some areas, and with some groups of the population, often works less well, or not at all, elsewhere and with other groups. This should not be surprising given the economic, social, cultural, environmental and ethnic diversity of Britain and other countries from which research evidence is

gathered. This requires the synthesis of evidence on the nature, drivers and consequences of diverse effectiveness, and what can be done to make the effects and impacts of policies more uniform across different groups of the population. Again, both quantitative and qualitative evidence, from naturalistic and controlled studies, is required to address these questions.

#### *Synthesis of Implementation Evidence*

From a policy making perspective knowing ‘what works’ is insufficient without sound evidence of knowing *how* to make it work in different contexts and environments, and with different groups of people. This includes evidence of the likely barriers to effective implementation of policies, programmes and projects and ways of overcoming them. Such knowledge comes from implementation studies that use a range of research methods including experimental and quasi-experimental designs, theories of change, realistic evaluation and qualitative studies using in-depth interviews, focus groups, participant observation and documentary analysis. Methods for synthesising realistic evaluation (Pawson, 2002) and qualitative methods are less developed than those for synthesising quantitative and experimental studies. Recent and current developments in synthesising qualitative evidence mentioned above, and documented elsewhere in this book [DN:Jennie to provide cross references], offer the prospect of important additional tools for helping policy makers identify effective implementation strategies.

#### *Synthesis of Evidence of Resource Effectiveness*

Policy making takes place within the context of finite, and sometimes diminishing resources. Consequently, policy makers usually need to have sound evidence of what works at what cost and with what outcomes (Petticrew *et al*, 2004). As has been noted above, this includes knowing the opportunity costs and benefits of alternative options, including doing nothing at all. Economic appraisals and evaluations provide evidence of the cost-benefit, cost-effectiveness, and cost-utility of different policy options. However, economic appraisal involves making assumptions about the conditions and environments in which policies will be implemented, and different appraisals (using different assumptions) can generate different estimates of costs and outcomes. Consequently, there is a need to synthesise the available evidence from economic appraisals and evaluations

in order to provide a balanced view of this evidence, along with details of the underlying assumptions and scenarios that have been used in the primary studies.

### *Synthesis of Experiential Evidence*

Stakeholder consultation is a central feature of contemporary policy making. This begs questions such as who are the ‘stakeholders’ in a policy, programme or project, how inclusive can one be in terms of the many potential stakeholders in public policy, and how does one identify a valid, reliable and *representative* view of different stakeholders’ views and needs. Social science has a number of methods for answering these questions, including social surveys, in-depth interview studies, focus groups, consultative methods such as the Delphi method, the Nominal Group technique, and critical incidence analysis (Ellis, 1988), participant observation and ethnography. These methods provide evidence of how policy affects people’s daily lives, whether it meets their needs and wants, and whether there are any positive or negative unintended consequences of policies. The social science literature is replete with evidence of this type, all of which needs to be identified, critically appraised, and synthesised in succinct ways that can inform policy making and practice. The developments in meta-ethnography and the synthesis of qualitative research mentioned above, coupled with the synthesis of survey evidence, are welcome developments in providing valid and reliable overviews of this type of evidence.

### *Rapid and Interim Evidence Assessments*

The much documented lack of synchrony between policy and research timetables, and the need for policy makers to utilise evidence in time frames considerably shorter than those required to produce full-blown systematic reviews (Petticrew *et al*, 2004), has led to the development of rapid evidence assessments and interim evidence assessments (Davies, 2004c; Deaton, 2004; Hunt, et al, 2004; Leask, 2004; Wilkinson, and McBride, 2004). Rapid evidence assessments use systematic review methods to identify and critically appraise the available research evidence in a strategic and timely way that meets the needs of policy makers or practitioners. The approach to searching and critical appraisal is strategic in that the ‘three arms’ of searching – electronic, print and grey literature – are

undertaken in a way that is likely to yield the most relevant studies in the time available. That is, specificity is sought at the expense of sensitivity. These studies are then critically appraised, analysed and summarised in the same way as they would be for a full blown systematic review. Indeed, rapid evidence assessments should be undertaken with a view to being developed into full systematic reviews. Where this happens, rapid evidence assessments are more appropriately referred to as *interim* evidence assessments.

Rapid and interim evidence assessments are not a quick fix, nor should they compromise on the quality of searching, critical appraisal or analysis. The only compromise that is made with these evidence assessments is on the comprehensiveness and sensitivity of searching in the time available, both of which are remedied by the continuation of searching, appraisal and analysis into a full blown systematic review. Given the compromise on comprehensiveness and sensitivity, rapid/interim evidence assessments are likely to introduce both selection and publication bias. This should be noted in the evidence assessment and made explicit to users that there is a greater likelihood of Type I (accepting something that is false) and Type II (rejecting something that may be true) errors. Other caveats and qualifications about the coverage of rapid/interim evidence assessments (e.g. of particular subgroups, outcomes or contexts) should also be attached to rapid/interim evidence assessments, as indeed they should with full blown systematic reviews and other types of research evidence. The policy context is usually an important factor in determining how much of a trade-off between comprehensiveness and specificity of evidence is acceptable. If the policy question needs a precise answer, and the consequences of a Type I or Type II error are considerable (e.g. there are major resource implications) then a policy maker may not wish to rely upon a rapid/interim evidence assessment. On the other hand, if there is a pressing need for a decision to deal with a genuine crisis or short term need (rather than for political expediency), then a rapid/evidence assessment might be appropriate and the best way forward.

Rapid/interim evidence assessments are generally superior to other means of gathering evidence quickly, especially the use of experts and expert advisory groups. A major problem with using experts is identifying 'true' experts in an area in the sense of finding

people who are demonstrably up to date with the available issues, knowledge and evidence in their field. This problem is often aggravated by the sheer amount and flow of evidence that is now available from electronic and print sources, which can mean that a person's expertise can have a limited shelf life if it is not updated very regularly. In the case of expert advisory groups it is also important to have some sense of representativeness of the available expertise on a topic or area of interest.

### **Presentation of Research Synthesis Evidence**

A perennial complaint of policy makers and other users of research evidence is that it is often poorly presented if not impenetrable (Petticrew, *et al*, 2004). There are a number of dimensions to this apparent problem. First, the key findings and conclusions of research reports, including systematic reviews, are often not identified or are so deeply embedded in the dense text of reports that they cannot be found. This requires researchers to be clear about the key findings and conclusions of their research and to put them at the front of reports alongside the abstract and before any executive summary. Signposting where in the report more detailed findings and comments can be located can also help users of research, though this can obfuscate matters if they are too detailed or unnecessarily complicated.

Second, research reports, including research syntheses, are often expressed in technical language that is unhelpful to users of evidence. With research reports and syntheses involving the effectiveness of interventions there is often a problem of finding a metric that is understandable and useful to users without diluting the content of the findings. In medicine and health care, transforming the 'absolute risk reduction' (ARR) of an intervention (*vis-à-vis* a control) into the 'number needed to treat' (NNT) or 'number needed to harm' (NNH) helps clinicians enormously by giving them a metric that they and their patients can readily understand. Thus, if the findings of a study show that an intervention reduces risk (in absolute terms) by 4 percent compared with a controlled condition, then by expressing this as a reciprocal ( $1/0.04$ ) this tells a clinician that she or he will need to treat 25 patients with this intervention in order to get one successful outcome. Similar transformations of statistical findings from social science research (e.g.

the *d* statistic, or an odds ratio) into user friendly terms (e.g. x number students in an average class of thirty students will be likely to improve in terms of their educational attainment if the results of the study are put into practice) will greatly help users of research (in this case teachers, parents, school governors, educational policy makers) make sense of research findings.

Third, the possible policy or practice implications of research findings are often not offered in research reports or syntheses. For some researchers this is because they feel that it is not the researcher's role to offer such advice; their contribution is simply to present the available research evidence as clearly and cogently as possible without offering suggestions for how these findings might be used. Other researchers may feel that helping to tease out the policy or practice implications of their research is a legitimate activity. In such cases working with the users of research throughout the research process, and identifying how the findings might inform policy or practice, can be most rewarding and help to provide the clarity that policy makers and practitioners would like from researchers (Casebeer, *et al*, 2003).

### **Knowing and Disseminating Research Findings Effectively**

There is a clear need for social researchers and other analysts, within and outside of government, to disseminate existing research more effectively and more confidently. Being in command of what is already known about a topic or substantive area is a key requirement of contemporary researchers and analysts. Whilst this necessarily involves knowing the limits of existing research evidence, merely telling policy makers that a policy question is 'very complex' or that 'more research is needed in the area' is unacceptable. Policy makers and other users of research evidence are usually quite aware that the issues surrounding policies are complex. Indeed, that is why they turn to researchers and analysts in the belief that they will know about this complexity and have some insight into how to respond to it effectively and efficiently. If researchers do not, or cannot, possess this insight then their claims to be involved in evidence-based policy making are tenuous if not wholly bogus. One of the great virtues of research synthesis, if done properly, is that it identifies what is known and what is not known about a topic or

substantive area so that any new primary research that may be undertaken will genuinely be necessary in order to fill the gaps in the existing evidence base. It is simply not possible to genuinely claim ‘complexity’, or that ‘more research is needed’, unless a systematic review of the existing evidence is undertaken. It is also not possible to disseminate existing research findings effectively unless these are known with a high degree of validity and reliability. This is why research synthesis is so important and why it has enormous potential for policy making.

### **Conclusions**

There is considerable synergy between research synthesis and the movement within the UK government (and other governments) to improve the use of evidence in policy making. This synergy, however, may not yet be yielding the results it could do, partly because policy makers may not appreciate the potential contribution that research and research synthesis can make to policy making, and partly because researchers do not appreciate the types of research and research synthesis that are needed for policy making. This paper has outlined ways in which both of these shortcomings might be overcome and argued that a range of research syntheses are required to meet the needs of policy makers. It has also argued that researchers would help policy makers use research evidence more effectively if they could identify, report and present the key findings with greater clarity. Involving policy makers and other research users throughout the research process, and in identifying the implications for policy and practice, might also enhance the utilisation of research evidence in policy making.

This chapter has suggested that there is little empirical work on what policy makers need from research and research synthesis specifically. The UK Cabinet Office and the ESRC Evidence Network are independently undertaking research in this area. In the absence of a strong evidence base, this chapter has drawn upon the insights gained from efforts to raise the standards of social research within and for government, including the promotion of systematic reviews and research synthesis across government. As such, it may be subject to both selection and observer bias and cannot be considered an evidence-based analysis of what policy makers need from research or research synthesis.



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