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Sandra Nutley, Isabel Walter and Huw T. O. Davies

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Promoting Evidence-based Practice

Models and Mechanisms From Cross-Sector Review

Sandra Nutley

University of Edinburgh

Isabel Walter

Huw T. O. Davies

Universities of St Andrews

This article draws on both a cross-sector literature review of mechanisms to promote evidence-based practice and a specific review of ways of improving research use in social care. At the heart of the article is a discussion of three models of evidence-based practice: the research-based practitioner model, the embedded research model, and the organizational excellence model. The article concludes that the ideas contained within each of these models are likely to be appropriate at different times and for different service settings. There is a need to build on such models to develop a coherent framework for strategies to promote research use.

Keywords: *evidence-based practice; mechanisms; models; research use; social care*

Evidence-based practice is the goal of public services in many developed nations. For example, in the United Kingdom the evidence-based practice agenda is a key issue in health care, education, social care, and in many criminal justice services, such as police and probation services. However, despite widespread discussion and numerous activities to promote evidence-based practice, there are concerns about progress and the best way forward. Most people seem to support the general idea of evidence-based practice, though there are some fierce critics, but there is less agreement about what evidence-based practice means in practice and how it is best promoted.

This article aims to shed light on these issues by drawing on the cross-sector studies of evidence-based policy and practice undertaken by the Research Unit for Research Utilization (RURU) over the last decade—work which is reported in a recent book (Nutley, Walter, & Davies, 2007). We draw, in particular, on an international cross-sector review of what works to promote evidence-based practice (Walter, Nutley, & Davies, 2005) and a specific review of ways of improving research use in social care, which focuses mainly on the United Kingdom (Walter, Nutley, Percy-Smith, McNeish, & Frost, 2004). In subsequent work, we have considered the relevance of the findings from the social care review for the education field, and

we also draw on that analysis in this article (Nutley, Jung, & Walter, 2008). We believe that such a cross-sector perspective is important. The *raison d'être* of RURU is that too much discussion about evidence-based practice occurs in sector silos, whereas there is much to be learned from looking across sectors.

Before getting into the meat of the article, some clarification of terms of reference is helpful. First, the article focuses on the use of evidence rather than its generation, although as discussed later, evidence generation and use are often interconnected. Second, while there are many forms of evidence relevant to informing practice (e.g., routine monitoring data and service inspection findings), the primary interest in this article is the use of research evidence. This in itself is a broad category as there are many forms of research relevant for informing practice, including research evidence on “what works” (i.e., what practice interventions improve services and service outcomes); research which helps practitioners understand the nature, prevalence, sources,

Authors' Notes: An earlier version of this paper was presented at the Stockholm conference on Implementation and Translational Research, October 14–16, 2007. Correspondence may be addressed to Professor Sandra Nutley, The Management School, University of Edinburgh, William Robertson Building, 50 George Square, Edinburgh EH8 9JY, Scotland, UK; email: Sandra.Nutley@ed.ac.uk.

Table 1
Types of Research Use Strategies in the UK Social Care Field

1. *Ensuring a relevant research base*—This might involve commissioning new research, synthesising existing research, or involving staff in the development and conduct of individual studies.
2. *Ensuring access to research*—This might mean providing better library services or enabling access to research databases and the internet. It also involves improving the circulation of research materials between and within organizations.
3. *Making research comprehensible*—This might include producing “user-friendly” accounts of research, as well as activities to improve users’ abilities to interpret study findings such as critical appraisal skills training, journal clubs and practitioner-led research.
4. *Drawing out the practice implications of research*—This typically involves the production of research-based guidelines, tools, and protocols.
5. *Developing best practice models*—This might mean developing pilot or demonstration projects based on findings from research, usually supported at local levels through training, project management, and individual supervision.
6. *Requiring research-informed practice*—This might involve writing research use into job descriptions, including it in staff appraisals, or embedding it in national standards for practice.
7. *Developing a culture that supports research use*—These kinds of activities might include developing appropriate leadership and management practices; collaborations between researchers and research users; the creation of specific research brokering posts; and membership of intermediary organizations that aim to get research into practice.

Source: Walter et al., 2004

and causes of social problems; research on client experiences of social programmes; and research on the sources and causes of implementation failure. Finally, the article considers the use of research in its broadest sense, which encompasses not only the direct (instrumental) use of research in changing practice but also the indirect (conceptual) use of research in reshaping the ways people think about practice issues. In relation to this final point, taking a broader view is important because all too often implicit models of evidence-based practice are concerned almost exclusively with the instrumental use of evidence and thus pay insufficient attention to its conceptual impact. At the very least, there is a need to consider how research reshapes understanding as part of the process of generating receptivity to evidence-based practices.

All of this means that the scope of the article and the definition of research use employed is much broader than that normally associated with the field of “implementation and translational research,” the overall theme of this journal issue. As is made clear in other contributions to this journal issue, implementation and translational research is primarily focused on the direct (instrumental) use of “what works” research knowledge. It considers the most effective methods for designing and implementing evidence-based programmes and practice tools. Within this, fidelity and faithful replication of the evidence-based programme or tool in the process of implementation is often viewed as the key issue, and there is a tendency to overemphasize rational decision making and linear processes of evidence-into-practice. As will become clear, for us the concerns of implementation and translational research only form one part, or one model, of evidence-based practice.

In tackling these issues, the article first summarizes the findings from a cross-sector review of mechanisms to promote evidence-based practice and then discusses

these findings in the light of three models that reflect different ways of thinking about evidence-based practice. The conclusions stress the power of interactive mechanisms for promoting research use and also highlight the importance of developing a coherent framework for developing multifaceted approaches to promoting research use.

Strategies and Mechanisms for Improving the Use of Research

A wide range of initiatives exist that aim to improve the use of research by practitioners delivering public services, many of which have been initiated under the evidence-based practice banner. Strategies vary according to the scale of the project, the nature of intended impact from research and the context for their implementation, as well as the kinds of research evidence whose uptake is being promoted. They also vary according to the different levels—individual, organizational, structural, and system-wide—at which interventions may be made.

A recent RRU review of research use strategies in the UK social care field identified seven main types of research use strategy, which were categorized according to their primary purpose (see Table 1). The activities described in Table 1 involve different levels of engagement with and adaptation of research evidence in the process of its use. For example, developing research-based guidelines and practice tools begins to redefine the findings from research in practice terms. The activities also range from facilitative activities to those that are more coercive in their approach.

There are parallels between the strategies and activities in social care, described in Table 1, and those apparent in the health care and education fields, so this

broad typology would seem to have value beyond the social care field. Identifying the purpose of an intervention offers a useful way of framing different methods for promoting research uptake. However, in an explicit cross-sector review of what works to promote evidence-based practice (Walter et al., 2005), the decision was made to pull together evidence about the effectiveness of different research use strategies according to the key mechanisms that seemed to underpin these strategies rather than according to their broad form and content (as would have been the case if we had used the typology in Table 1). The reason for this decision was recognition that it is not the interventions themselves that lead to change but the underlying reasons or resources that they offer (Pawson, 2002). A focus on underlying mechanisms forces us to be clear about why it is that we believe any given approach will be successful in any given circumstances.

Earlier work on identifying the key mechanisms at play in research use strategies highlighted five prevalent mechanisms (Walter, Nutley, & Davies, 2003), which draw on theories from the social, organizational, and behavioral sciences:

- *Dissemination*: circulating or presenting research findings to potential users, in formats which may be more or less tailored to their target audience. This mechanism typically assumes a one-way flow of information from research to practice, and views research users as relatively passive consumers of evidence.
- *Interaction*: developing stronger links and collaborations between the research and policy or practice communities. This mechanism assumes that two-way flows of information are required so that researchers are better able to orient their work to users' needs and research users are enabled to adapt and negotiate research findings in the context of the use.
- *Social influence*: relying on influential others, such as experts and peers, to inform individuals about research and to persuade them of its value. This mechanism emphasizes the importance of the attitudes and behavior of "significant others" in prompting practice change.
- *Facilitation*: enabling the use of research, through technical, financial, organizational, and emotional support. This mechanism stresses the importance of giving practical assistance for individuals and groups to change.
- *Incentives and reinforcement*: using rewards and other forms of control to reinforce appropriate behavior. This mechanism assumes that behavior can be influenced by controlling external stimuli.

In order to assess the relative effectiveness of these different mechanisms, studies of research use interventions

in the health care, education, social care, and criminal justice fields were reviewed (Walter et al., 2005). The evidence we have about "what works" to improve research use is limited by the design of existing evaluation literature in this field. Much of the best evidence that we have about effective research use strategies comes from the health care field. Evaluations of research use strategies within the health care field provide particular forms of evidence. They have tended to focus on objective measures of the process or outcomes of care, and usually fail to consider more conceptual forms of research use. How research use is theorized, defined, and measured will clearly shape the ways in which "effectiveness" is then understood. Yet, it is relatively rare for evaluations of research use strategies—in any sector—explicitly to address or theorize what they mean by the "use" of research. Instead, they have used a very wide range of measures of research use, including changes in access to research, changes in knowledge and understanding, changes in attitudes and beliefs, and changes in behavior or in outcomes for service users. The methods used to assess research use have been similarly diverse and have included both qualitative and quantitative measures of effectiveness. These issues should be borne in mind when considering the summary of our review's findings below.

Although it is analytically useful to distinguish between the different mechanisms outlined above, in reality many strategies draw on more than one of these in order to encourage better use of research. It was nevertheless possible to provide a broad narrative review of the evidence about the success or otherwise of different strategies and mechanisms in increasing research use and impact. The key findings of this review are summarized briefly in Table 2.

The review concluded that interactive approaches currently seem to show most promise in improving the use of research. These interactive strategies may range from simply enabling greater discussion of findings by practitioners at presentations, through local collaborations between researchers and research users to test out the findings from research, to formal, ongoing, large-scale partnerships that support better connections between research and practice over the longer term. Strategies based on social influence theories, and adequately resourced facilitative approaches to implement research-based programmes and tools, also seem to offer hopeful ways forward (as is also made clear in the contributions by Bhattacharyya et al; Dearing; Fixen et al to this journal issue). In addition, tailored dissemination efforts may support more conceptual uses of research. The review also noted that research use strategies often neglect the complex, multifaceted nature of research use

Table 2
Some Helpful Mechanisms for Increasing the Use of Research

- Tailored dissemination can promote the conceptual use of research and may support more direct use where it enables discussion of findings;
- Interactive approaches, such as partnerships that encourage greater communication and links between researchers and practitioners or policy makers, enable individuals to adapt and “test out” findings from research within their local context in ways that support conceptual and sometimes instrumental use;
- Social influence strategies show promise, but most have yet to be shown to be widely effective in promoting increased use of research;
- Facilitative approaches that offer technical, financial, organizational, and emotional support can aid the implementation of research-based protocols, tools, and programmes;
- Reminders and incentives appear to be successful in encouraging research-based practice and promoting research use, but otherwise evidence about the effectiveness of reinforcement interventions is less clear;
- Multifaceted interventions may be effective, but more evidence is needed about what mechanisms work best in what contexts and about how different mechanisms interact.

Source: Walter et al 2005

and fail to recognize that research use is something more than instrumental impact alone.

It is useful to distinguish between these different mechanisms, but it is also important to consider how they are combined in multifaceted strategies. Systematic reviews of what works to promote research use in the health care field tend to conclude that strategies drawing on multiple mechanisms will be needed if we are to achieve better use of research (Bero et al., 1998; Grimshaw et al., 2001). However, whereas these systematic reviews are generally confident about the effectiveness of multifaceted approaches, case studies of large-scale interventions to implement evidence-based practice are more circumspect and suggest a need to more fully understand the interaction of different mechanisms within particular contexts (Dopson, Locock, Chambers, & Gabbay, 2001; Locock, Dopson, Chambers, & Gabbay, 2001; Wye & McClenahan, 2000). The kinds of research use strategies adopted within any sector, including the use of multifaceted approaches, will be shaped by the nature of the relevant evidence base in that sector and by the form its service delivery takes. Strategies will also be influenced by custom and practice and by the overall conceptualization of evidence-based practice, an issue to which we now turn.

Applied Models of Evidence-Based Practice

Grimshaw et al. (2004) propose that strategies to promote evidence-based practice need to be built from an assessment of barriers to change and be underpinned by a clear theoretical framework. This theoretical framework needs to consider not only the processes and mechanisms for achieving change but also the underpinning ideas about what evidence-based practice means. RURU's work has identified three broad ways of thinking about and developing evidence-based practice or more precisely research-informed practice. These

different approaches are encapsulated in three models: the *research-based practitioner model*; the *embedded research model*; and the *organizational excellence model*.

These models were developed to capture inductively what was happening on the ground to promote research use in social care (Walter et al., 2004), but our cross-sector work suggests they also resonate with much of what is happening to promote research use in the health care, education, and criminal justice fields. The brief overview of the three models that follows focuses on the assumptions implicit within each model about what research use means and how it is best achieved.

The *research-based practitioner model* assumes that it is the role and responsibility of the individual practitioner to identify and keep informed about the latest research developments, which are then used to inform day-to-day professional activities. Research use is perceived as a linear process that involves accessing, appraising, and applying research in largely instrumental ways. Professional education and training are seen as the key factors enabling research use, supported by the provision of access to knowledge resources (usually in the form of databases). The idea is to enable practitioners to access good quality research evidence and develop their ability to critically appraise this evidence. Practitioners are perceived as having a high degree of professional autonomy, which allows them to change their practice in light of their interpretation of research findings.

Within the *embedded research model*, attention moves away from the individual practitioner: practitioners rarely engage directly with research findings. Instead, research enters practice indirectly; it becomes embedded in systems, processes, and standards (e.g., inspection frameworks, national or local policies, procedures, and tools). Such embedding occurs through the translation of research-insights into practice activities by those in national and/or local policy and service

Box 1 The Embedded-Research Model in Practice—The Effective Practice Initiative in the UK Probation Service

In 1998, the UK government launched the Effective Practice Initiative, a bold plan to introduce systematic change in the Probation Service so that its practices are based on evidence of what works with offenders. A new research-based offender assessment tool was designed, piloted, and rolled out to all probation services. Probation services were required to use this tool as a means of assessing the risks posed by offenders and their supervision needs. The output from the assessment shaped the supervision plan for each offender, including an assessment of which probation programmes, if any, the offender should attend. The central thrust of the Effective Practice Initiative was that these programmes (which focus on issues such as drug and alcohol misuse and challenging offending behavior) ought to be evidence based. A central accreditation panel was set up to approve and accredit probation programmes, to ensure that they comply with “what works” principles. To ensure fidelity in programme delivery, service delivery requirements were set out in the accreditation criteria and the audit of service delivery was based on these (Furniss & Nutley, 2000).

management roles. As a result, no direct connection between research and frontline practice takes place; research knowledge is translated into frontline practice activities by intermediaries. Research use here is still seen as a broadly linear and instrumental process. It depends on widespread adoption of research-informed guidance, tools, and/or protocols; funding, performance management, and regulatory regimes are used to encourage or coerce the use of such guidance or tools.

Within the *organizational excellence model*, the key to research-informed practice lies with service delivery organizations: their leadership, management, organizational structure and culture. Organizations are not merely channels for getting externally generated research findings to impact on practice, they are also the locus for local experimentation, evaluation, and practice development based on research. This is facilitated through organizations working in partnership with universities and other research organizations.

The research-based practitioner is often the default model associated with evidence-based practice, but there is recognition of the limitations of this conceptualization of evidence-based practice. Practitioners typically have very limited time to access research and limited autonomy to change their practice in the light of the research, even if they are persuaded of the case for change. For progress to be made, there is a need to move beyond individualized framings of research use in order to capture what using research might mean within wider organizations and systems. In line with this, there is increasing interest in the vision of evidence-based practice encapsulated in the embedded research and organizational excellence models.

The current interest in implementation and translational research, encapsulated in this journal issue, is by and large rooted in an embedded model of research use. Therefore, there is much that can be learned from

this collection of articles about the operation of the embedded model: its principles, practices, and ongoing issues. The example in Box 1 provides a further illustration of how the embedded research model can operate in practice.

The organizational excellence model is probably the least well-developed model in terms of actual initiatives on the ground, although more collaborative models of research-practice relationships are coming to the fore in the United Kingdom. A good example of this form of collaboration, taken from the education sector, is provided in Box 2.

Overall, we believe that the three models are helpful in shaping thinking about research use strategies but some words of caution are in order. The models are archetypes in that they have been cast so as to accentuate differences from each other, particularly in relation to their underlying assumptions and preoccupations. The three models help clarify the different ways in which research-informed practice is being approached, although the picture on the ground is inevitably less straightforward than these archetypes might imply. Specific initiatives do not always reflect a clear distinction between the models. The models are not mutually exclusive; one model may shade into another or borrow some of its key elements.

The Models as Analytic Tools

Reflection on the models helps to raise some key questions about standard activities for promoting research use, such as those listed in Table 1. For example:

- Ensuring a relevant evidence base—what balance is needed between, say, on the one hand research that seeks to pull together international evidence on the

Box 2 The Organizational Excellence Model in Practice—The UK School-Based Research Consortia

From 1998 to 2001, the UK Teacher Training Agency and the Centre for British Teachers funded the establishment of four School-Based Research Consortia. Each consortium comprised a three-way collaboration between local primary or secondary schools, higher education institutions, and the local education authority/ies. Their aim was to develop evidence-informed teaching and learning by enabling teachers to conduct their own research and to “test out” research findings within a supportive collaboration of schools, universities and local education policy teams. Approaches varied among the four consortia involved but included “linked pairs” of teachers and academics, individual school research coordinators, thinking lunches, action- and other research projects, and developing new teaching practices (Cordingley et al., 2002; Nutley et al., IN PRESS).

effectiveness of a particular intervention and, on the other hand, research which focuses more on understanding how a particular intervention works in a local context?

- Improving access to research/making research understandable—who is the main practice-based audience for research findings: individual practitioners, service managers, local, or national policy makers?
- Drawing out practice implications—how far is there a need to translate robust findings into guidelines and practice tools and should this be done at a local or national level?
- Developing best practice models—who identifies and labels best practice and how are best practice models promoted to service practitioners and service managers.

The answers to these questions are likely to be different depending on which vision or model of research-informed practice is employed. For example, interest in local and contextualized research is likely to be stronger among those adopting an organizational excellence model than among those working with the either of the other two models. The answers are also likely to suggest that no one model or approach is relevant in all situations. It may be that different models are best suited to different circumstances. For example, different models might be relevant:

- depending on whether staff have professional qualifications;
- at different stages of a research, development, and implementation cycle;
- for different research questions/ findings;
- for different aspirations for the types of research use, for example conceptual versus instrumental use.

It might seem that the research-based practitioner approach is best suited to situations where public services are delivered by professionally qualified staff (such as doctors) and the embedded research model to

situations where nonprofessionally qualified staff are involved (such as in many social care settings). However, the research-based practitioner model not only seems inappropriate for nonprofessionally qualified staff, but it also seems to be rejected by many professionally qualified staff as well. In so far as it provides a relevant model, it may need to be applied more selectively. An adapted version of the model may be a more relevant model for those involved in service design (at national and local levels) than for every practitioner. Or, at the practice level, it may need to be embedded in more supportive contexts and cultures, so that it edges closer to the organizational excellence model. The embedded model may be suited to both professionally qualified and nonprofessionally qualified staff in certain circumstances, such as where there is strong evidence for a particular practice or where practice tools can be easily tailored to the local context.

Certain models may be better suited to different stages of the research, development, and implementation cycle, but there is insufficient evidence to support the idea that models should be separated and labelled as either development or implementation models. The relationship between, for example, the embedded research model and the organizational excellence model is likely to be more iterative than that.

On the face of it, different models of research use would appear to be relevant for different research questions/findings. Some research questions and projects, such as those that address the effectiveness of various social work interventions, translate more readily into practice lessons. In all three models, there are ways that such research can be used. Other research questions and findings, such as those that focus on understanding the source and nature of social problems, may not lend themselves to being used in such an instrumental way. In this case, research use relates more generally to reshaping understandings. This can be accommodated within the research-based practitioner and the organizational excellence models, but it may be more difficult for

the embedded research model to address the more conceptual use of research.

The review of activities to promote research use in UK social care (Walter et al., 2004) concluded that the ideas contained within each model are likely to be appropriate at different times and for different parts of the social care field. In enhancing research use, it is advantageous to think in terms of a whole systems approach. Such an approach considers the interconnected roles and responsibilities of all the key factors in the social care system: governance organizations; research funders; research providers; practice organizations, practice managers and practitioners; training organizations and trainers; service user organizations and service users; facilitating and intermediary organizations. The analysis of these various roles and their responsibilities is a starting point for considering how the approaches highlighted by the three models might be blended. The assumption being that selectively combining all three models will provide synergies.

However, while a combination of models is likely to be required, combining them is not straightforward as it is likely to produce some tensions. For example, the potential tensions between:

- the assumption of professional autonomy which underpins the research-based practitioner model, and the constraints placed on individual practitioners which may result from the embedded research model;
- an approach that emphasizes a rather linear view of research use (the research-based practitioner and the embedded research models) and the collaborative interactive approach to the creation and use of research knowledge (the organizational excellence model);
- an approach that views the role of evidence as largely immutable (the embedded research model) and one that views evidence as pliable and context dependent (the organizational excellence model).

The identification of such tensions further underlines the importance of surfacing the assumptions underpinning any strategies to promote research use, particularly when these strategies are multifaceted in their approach. The three models identified here provide one way of doing this.

Summary and Concluding Remarks

Five key mechanisms seem to underpin the wide range of existing strategies aimed at promoting research use: dissemination; interaction; social influence;

facilitation; and incentives and reinforcement. Existing evidence on the individual effectiveness of these mechanisms suggests that interactive approaches show most promise in improving the use of research. However, most progress is likely to be made through multifaceted strategies that combine two or more mechanisms within a coherent framework or model of evidence-based practice.

Without a coherent framework, multifaceted strategies run the danger of being “scattergun,” combining approaches that lack consistency and synergy. The three models for developing evidence-based practice presented above provide a framework for considering whether, when and how different mechanisms might be combined. However, because they were derived inductively, they form descriptive categories rather than prescriptions for action. No doubt, with further study, additional models or clearly delineated hybrids may be identified and further work on such models would help in devising research uptake strategies.

None of the three models offers a general solution to improving research use; each has its own set of assumptions and difficulties. Research use strategies reflecting a mix of all three models may be appropriate, particularly if such blending is informed by an exploration of the potential roles and responsibilities of all key actors within the service setting in question. This would encourage a whole systems approach to promoting evidence-based practice, an approach that thinks about parts and wholes and is ever mindful of the importance of context.

Overall, although our knowledge in this area is increasing, there is still much that we need to know about what works to promote evidence-based practice in different settings and for different purposes. Action in addressing this agenda is important because we believe that better use of research offers a crucial means of improving and enhancing the quality and effectiveness of public services.

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