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From Knowing to Doing
A Framework for Understanding the Evidence-Into-Practice Agenda

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The past decade has witnessed widespread interest in the development of policy and practice that is better informed by evidence. Enthusiasm has, however, been tempered by recognition of the difficulties of devising effective strategies to ensure that evidence is integrated into policy and utilized in practice. There is already a rich but diverse and widely dispersed literature that can be drawn upon to inform such strategies. This article offers a guide to this literature by focusing on six main interrelated concerns: (1) the types of knowledge relevant to understanding research utilization/evidence-based practice (RU/EBP) implementation; (2) the ways in which research knowledge is utilized; (3) models of the process of utilization; (4) the conceptual frameworks that enable us to understand the process of RU/EBP implementation; (5) the main ways of intervening to increase evidence uptake and the effectiveness of these; (6) different ways of conceptualizing what RU/EBP means in practice.

KEY WORDS: evidence-based policy; evidence-based practice; knowledge utilization; research utilization

Introduction
The past decade has seen a resurgence of interest in reforming the policy process. In the UK, where such efforts go under the rubric of ‘modernized policy making’, many public documents articulate how policy should develop with an awareness and an integration of best evidence (National Audit Office, 2001; Bullock et al., 2001; Performance and Innovation Unit, 2001). Turning policy into concrete
action in pursuit of policy goals has, in turn, focused attention on the implementation of policy at the myriad points of contact between service users and public service provision. Thus in parallel with a renewed emphasis on evidence at a policy level, a similar set of concerns at practice level has developed. Getting evidence to inform professional practice has become a major concern of key sector areas such as healthcare, education, social care and the criminal justice system.

The ‘evidence-based practice’ (EBP) agenda (perhaps better termed evidence informed or even evidence aware) has taken root in different ways in various parts of the public sector (Davies et al., 1999, 2000). Yet despite some diverse exemplification, there is widespread common agreement on some basic underpinnings:

1. There should be some agreement as to what counts as evidence in what circumstances.
2. There should be a strategy of creating evidence in priority areas, with concomitant systematic efforts to accumulate evidence in the form of robust bodies of knowledge.
3. Such evidence should be actively disseminated to where it is most needed, and made available for the widest possible use.
4. Strategies should be put in place to ensure the integration of evidence into policy and encourage the utilization of evidence in practice.

Notwithstanding the considerable efforts expended across the public sector on the EBP agenda, the approach has received some sustained critique as well as provoking some disillusionment about a lack of deep-rooted impact (Davies et al., 2000). In particular, some progress on items 1–3 above has thrown into sharp relief the difficulties of achieving item 4: improved research utilization (RU).

Policy players and service delivery managers are recognizing that devising better mechanisms for pushing research information out (dissemination) is having only limited success and are seeking more effective ways of implementing EBP. In addition, research commissioners are paying increasing attention to how the work they commission is utilized, and are insisting that researchers pay far greater attention to their potential user audience. Thus a growing realization of the failure of simple models of research-into-practice as either descriptions or prescriptions has added to a greater understanding of some of the inter-linkages between items 1–4 above. Collectively these insights suggest a need for thinking through, in more depth and in a more integrated fashion, the concerns surrounding research utilization and evidence-based practice (RU/EBP) implementation. This article seeks to address this, devising an organizing schema by which the key issues for RU/EBP implementation may be elucidated and linked to established bodies of knowledge.

**Mapping the Terrain: Organizing Schema for RU/EBP Implementation**

The existing literature that can inform RU/EBP implementation is rich but diverse and widely dispersed. A first step towards ensuring that guidance on improving RU/EBP implementation is informed by such knowledge is to provide a map of
the key features of this bewildering terrain. The map offered here organizes the literature according to the six following inter-related concerns (see Figure 1).

1. The types of knowledge relevant to understanding RU/EBP implementation.
2. The ways in which research knowledge is utilized.
3. Models of the process of utilization.
4. The conceptual frameworks that enable us to understand the process of RU/EBP implementation.
5. The main ways of intervening to increase evidence uptake and the effectiveness of these.

Our argument is that this way of mapping the existing literature is not just a useful organizing schema but also a valuable framework for thinking through RU/EBP implementation problems and processes. Furthermore, we also hope to bridge thinking taking place across different parts of the public sector, especially healthcare, education, social care and the criminal justice system. Although each of these sectors has a particular context that may influence the process of RU/EBP implementation, it is our contention that they also have many areas of commonality. Thus one of the strengths of this review is that it draws on examples from a wide range of work in diverse settings.

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Figure 1. A Map of the Terrain
The remainder of this section looks at each of the six areas in turn – identifying what issues are addressed and giving examples of the types of literature that might be plundered to improve insights in these areas.

**Types of Knowledge**

The phrase RU/EBP immediately conveys the message that at one level the type of knowledge we are interested in is explicit knowledge, particularly that which conforms to some socially accepted definition of what constitutes evidence. In this article we do not wish to rehearse all the many debates about what constitutes evidence, many of which revolve around the strengths and weaknesses of different research methodologies for producing robust evidence (see Davies et al., 2000: ch. 1 for a summary of these). Instead we take evidence to mean the results of ‘systematic investigation towards increasing the sum of knowledge’ (Chambers Dictionary) and turn our attention to the other types of knowledge that are important for understanding EBP implementation.

EBP has been focused predominantly on the question of ‘what works’, what interventions or strategies should be used to meet specified policy goals and identified client needs. However, the implementation of EBP requires a broader knowledge base than this, one that is also concerned with know-how, know-who and know-why (Box 1). Knowledge in many of these areas is often based more on tacit understandings than on knowledge derived from systematic investigation (Box 2).

Tacit knowledge is said to be inherent in being a professional (Schon, 1991) and equates with craft expertise (Hargreaves, 1999). Tacit knowledge has always been an important part of being a skilled practitioner, but now explicit knowledge is being promoted alongside as central to conceptualizations of EBP. Tacit knowledge is valuable but can also be built around custom and practices that are not effective, and this, combined with its deeply embedded nature, makes it a potential barrier to EBP implementation.

The implementation of EBP is often viewed as changing the way in which

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**Box 1. Knowledge Required for Evidence-based Practice**

(abstracted and augmented from Ekblom, 2001)

- **Know-about problems**: e.g. the current policy efforts directed at social inclusion reflect a considerable knowledge base on health, wealth and social inequalities.
- **Know-what works**: i.e. what policies, strategies or specific interventions will bring about desired outcomes.
- **Know-how to put into practice**: knowing what should be done is not the same as being able to do it effectively.
- **Know-who to involve**: such knowledge covers estimates of client needs as well as information on key stakeholders necessary for potential solutions.
- **Know-why**: knowledge about why action is required, e.g. relationship to values.
individual professionals (such as doctors, teachers and social workers) make decisions about their practice by improving the interaction between explicit and tacit knowledge (Sackett et al., 1996; Davies, 1999). Just how explicit knowledge can be integrated with tacit knowledge in developing EBP is a source of some debate. For example, in education there is an argument that professional practice involves tacit judgement and skill and that this is unlikely to benefit from the addition of research evidence. This is not only because the validity of research evidence is sometimes overestimated but also because there is no simple sense in which explicit and tacit knowledge can be integrated (Hammersley, 2001).

There is a danger that the preceding discussion implies that explicit knowledge is objective knowledge while tacit knowledge is subjective. Such a view would be challenged by those who have questioned notions of scientific rationality and objectivity in research (e.g. Hollway, 1989; Tsoukas, 1996; Nonaka, 1994). Knowledge creation, just as much as its utilization, is socially and politically constrained, and this in turn suggests a need to investigate whether practice is more of a case of ‘from doing to knowing’ (the social construction of knowledge) rather than ‘from knowing to doing’ (rational EBP models).

These discussions, then, highlight a number of key concerns for RU/EBP implementation. First, we need to be much clearer about what constitutes knowledge, and about how different types of knowledge can be integrated. Second, there is a need for a far greater emphasis to be placed on know-about, know-how, know-who and know-why as opposed to the current emphasis on know-what. Third, we need to consider more clearly the uses that such knowledge is designed to serve, and it is to this broader concern that we now turn.

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**Box 2. Types of Knowledge**

**Explicit vs Tacit Knowledge**

There is a substantial literature in psychology about the nature of memory and how this produces different types of knowledge. It is now common to distinguish between ‘declarative’ and ‘procedural’ memory/knowledge (Squire, 1987; Singley and Anderson, 1989).

- **Declarative knowledge** is explicit knowledge, knowledge that you can state.
- **Procedural knowledge** is tacit knowledge; you know how to do something but cannot readily articulate this knowledge.

A second classification (e.g. Department of Information Studies, 2000) defines organizational knowledge as all the ‘software’ of an organization, including:

- formal codified knowledge, such as structured data, programmes and written procedures;
- informal knowledge, such as that embedded in many systems and procedures, which shapes how an organization functions, communicates and analyses situations;
- tacit knowledge arising from the capabilities of people, particularly the skills that they have developed over time;
- cultural knowledge relating to customs, values and relationships with clients and other stakeholders.
Types of Research Utilization

There is a swathe of literature that considers what we should understand by utilization of research or knowledge. This discusses different types of utilization and considers the most appropriate forms of use. In particular, a distinction has been drawn between the instrumental use of research, which results in changes in behaviour and practice, and conceptual research use, which brings about changes in levels of knowledge, understanding and attitude (Huberman, 1993). A more refined list of types of RU is provided in Box 3. The ultimate goal of EBP implementation is generally to effect changes in behaviour, but the instrumental use of research is in fact quite rare (Weiss, 1980). It is most likely where the research findings are non-controversial, require only limited change and will be implemented within a supportive environment: in other words, when they do not upset the status quo (Weiss, 1998). Even if it is not used directly, research knowledge can offer insights and ideas, and new understandings of practice. Indeed, the conceptual use of research represents a substantial and important category (Weiss, 1987). More widely, as research moves into common currency and becomes accepted, it can change premises that are taken for granted and the issues that are defined as problematic. There is more cause for optimism about the use of evidence if RU is more broadly defined than its direct translation into changes in practice.

However, if we focus on the direct, instrumental use of research, a recurrent feature of the literature is the identification of a research-practice gap, in which evidence of what works in a particular field is not translated appropriately into

Box 3. Four Main Types of Research Utilization
(adapted from Weiss, 1998)

1. **Instrumental use**
   Research feeds directly into decision-making for policy and practice.

2. **Conceptual use**
   Even if practitioners are blocked from using findings, research can change their understanding of a situation, provide new ways of thinking and offer insights into the strengths and weaknesses of particular courses of action. New conceptual understandings can then sometimes be used in instrumental ways.

3. **Mobilization of support**
   Here, research becomes an instrument of persuasion. Findings — or simply the act of research — can be used as a political tool and to legitimate particular courses of action or inaction.

4. **Wider influence**
   Research can have an influence beyond the institutions and events being studied. Evidence may be synthesized. It might come into currency through networks of practitioners and researchers, and alter policy paradigms or belief communities. This kind of influence is both rare and hard to achieve, but research adds to the accumulation of knowledge, which ultimately contributes to large-scale shifts in thinking, and sometimes action.
actual practice. The Institute of Medicine (1999) has analysed this gap in terms of the under-use, over-use and misuse of research findings. The primary concern for those wishing to implement evidence into practice tends to be the under-use of research, where findings about effectiveness are either not applied, or are not applied successfully. However, concerns have also been raised about over-use, such as the rapid spread of tentative findings, and about misuse, especially where evidence of effectiveness is ambiguous. Walshe and Rundall (2001) provide examples of all three forms of use, and argue that practice should be based as closely as possible on evidence from well-conducted research on effectiveness if we are to minimize the problems of under-, over- and mis-use.

The direct use of research can also be characterized in terms of the extent to which it represents the faithful replication of findings about what is effective. Even where good-quality, relevant and reliable ‘what works’ information is available, straightforward replication can be difficult (Tilley, 1993). Replication of research findings more often proceeds in terms of applying generic principles rather than prescribed practices. For example, the Effective Practice Initiative in the probation service is developing approaches to the assessment and case management of offenders which are based on wider ‘what works’ principles drawn from research findings (Furniss and Nutley, 2000).

Ekblom (2001) notes that there will always be a trade-off in utility between the extremes of generic knowledge, and local knowledge specific to context. There is also a risk that faithful replication will stifle innovation. Knowledge must evolve, and Ekblom (2001) suggests we can usefully view replication and innovation as a continuum that ranges from applying models that have worked elsewhere to trying out something completely new. Practitioners can play a key role in this process; for example, Hargreaves (1998) argues that teachers must ‘tinker’ with research findings to adapt them to practice in the classroom. Where it is properly supported, systematized and shared, such ‘tinkering’ can lead to innovation. However, others have seen that when reinvention is too high the impacts can be blunted and few concrete changes are observed (Berman and McLaughlin, 1978).

Distinguishing different types of utilization highlights the ways in which using research is more varied and more complex than the simple replication of interventions that are of proven effectiveness. When viewed in instrumental terms the impact of evidence can seem limited indeed, especially when compared to a broader assessment of its enlightenment impact. However, if it is enlightenment uses that we seek to emphasize, this begs many questions about how this is best achieved or even assessed. Further, taking seriously the need for knowledge to evolve and the benefits of tinkering, requires careful balancing of straight replication and service innovation. The elucidation of generic principles can help such balance, constraining innovation within plausible parameters. Nonetheless, these more complex forms of RU pose many challenges for successful implementation strategies.

Models of Process
The process of research implementation has been conceptualized through two key frameworks: research into practice, where evidence is external to the world
of practitioners; and research in practice, where evidence generation and professional practice enjoy much more intimate involvement. In reality, however, models may be too grand a term for much of what has been written in this area, and a number of commentators (e.g. Wingens, 1990; Marteau et al., 2002) have noted the lack of theory building around the process of RU.

The traditional research into practice model is unidimensional, plotting the course of research from creation through dissemination to utilization, and emphasizing linearity and logic. This is viewed as a rational but far from easy process, and the literature identifies many factors that may intercede along the way to hinder or facilitate RU. The main paradigm which underpins the recognition of barriers to research use is that describing ‘two communities’ of researchers and practitioners. This sees researchers and practitioners as occupying different worlds: they operate on different time-scales, use different languages, have different needs and respond to different incentive systems. The lack of cultural common ground prevents each from understanding, and communicating with, the other (Nutley and Davies, 2000).

The focus is then on the need to develop dissemination strategies which ‘bridge the gap’ between the two communities and enable research to be adopted by practitioners. Early models presented this process as a linear, mechanical transfer of information in which knowledge was appropriately packaged and moved from one place to another. The underlying assumption was that if an idea was good enough, it would be used. More recently, knowledge use has been re-conceptualized as a learning process, in which new knowledge is shaped by the learner’s pre-existing knowledge and experience. Individuals are not simply sponges, soaking up new information without filtering or processing. Knowledge use is a complex change process in which ‘getting the research out there’ is only the first step. For example, in a review of the literature on dissemination and knowledge utilization, the National Center for the Dissemination of Disability Research (NCDDR, 1996) identifies four main dimensions of knowledge utilization: the source of the knowledge; the content or key messages; the medium of dissemination; and the characteristics of proposed users. They go on to advise how a consideration of each of these can influence more effective dissemination strategies.

New knowledge is thus poured into a mould of prior understandings, which may not correspond to the researcher’s conceptions of a study (Huberman, 1987). In the field of education, DesForges (2000) has argued that the key is to understand how to best arrange what researchers have learned so that it is applicable, usable and transferable to educational settings. He suggests we need to re-think RU in terms of ‘knowledge transformation’, which he defines as ‘a knowledge-led, problem-constrained learning process’. This involves paying attention not just to ‘new’ knowledge (from research), but also to understanding how practitioner ‘problems’ are conceptualized in relation to existing practitioner knowledge. Strategies of dissemination then aim to bridge these two ways of understanding.

Multiple influences mediate teachers’ practice, involving not only knowledge but also such issues as regulation, accountability and teaching cultures (DesForges, 2000). Research knowledge may arise from or be brought to bear on any of these aspects, but will be interpreted within the context of them all.
Different influences will have differential power but all form part of the constraints or incentives on using research findings, and so must be considered in any attempts at implementation.

This shift in focus from researcher-as-disseminator to practitioner-as-learner encourages a multi-dimensional rather than uni-dimensional view of the process of research implementation. While simple linear models have a superficial appeal, their effectiveness remains unsupported empirically (Halladay and Bero, 2000), and there is a growing recognition of the need to better account for the complexity of getting research into practice.

Within the healthcare field, Kitson et al. (1998) have developed a multi-dimensional framework for understanding research implementation which considers the relation between the nature of evidence, the context in which change is to be implemented and facilitation mechanisms. This research suggests that facilitation may be the key variable, and that the strength of evidence may not always be that relevant to its uptake. Their approach, and others like it, begin to develop, and test, hypotheses about the necessary and sufficient conditions for successful research impact.

Both uni- and multi-dimensional models of research use the generation and implementation of research findings as movement between discrete entities, and locate evidence as external to the practitioner environment. It is this separation of research from practice that is challenged in the literature that focuses on ‘research in practice’. This approach argues that no matter how discrete and pre-existent it appears, evidence is always inextricably intertwined with the actions, interactions and relationships of practice. In rejecting the neat separation of research and practice, this view also disputes the hierarchy inherent in this dualism, a hierarchy that privileges the objective ‘facts’ of research over the subjective ‘knowledge’ of practice.

If research evidence cannot be separated from its social context, what we need to understand is the social construction of knowledge. For example, the current knowledge base about what works with offenders tends to construct offenders as psychological rather than sociological objects (Pitts, 1992). Understanding the social construction of knowledge involves assessing the knowledge/power dynamic that underpins practice (e.g. Polanyi, 1967; Foucault, 1977; Giddens, 1987). Change initiatives thus need to be considered in relation to the heterogeneous framework of political power, agency interests and professional knowledge in which they are embedded. For example, Wood et al. (1998) analysed the power/knowledge dynamic which has historically delineated the highly medicalized, hospital-based interventions of obstetricians and the more tacit-based care offered by midwives. In their study of changes in practice in childbirth, the drawing of this knowledge/power boundary was a crucial factor in determining the success or otherwise of proposed evidence-based changes. They found that health professionals do not simply apply abstract scientific research but collaborate in discussions and engage in work practices that actively interpret its local validity and value. There is no such thing as ‘the’ body of evidence: evidence is a contested domain and is in a constant state of ‘becoming’. Thus research is rarely self-evident to the practitioner but varies according to the context in which
Successful implementation then involves a focus on local ideas, practices and attitudes, and this suggests that the key is to engage the interest and involvement of practitioners in change programmes.

In sum, models of the process of RU have grown increasingly complex. While simple linear models have proved conceptually appealing they turn out to be poor models of the real-world complexity of EBP implementation. The neat separations of researcher/practitioner, evidence creation/dissemination, knowledge/implementation have each received sustained criticism. However, the increasingly complex models which aim to explore the process of RU are difficult to apply in practice, suggesting a need for better theorizing in this area. Perhaps one place to start would be to ask first, what types of model make practical sense to different groups involved in the RU process; and second, to what extent do the paradigms underlying different models of process necessarily shape how research will be implemented?

Conceptual Frameworks

Discussions about types of utilization and models of the process of utilization are underpinned by a variety of conceptual frameworks. Sometimes the use of such frameworks is explicit. For example, one review of RU refers to knowledge use as a learning process (NCDDR, 1996), another study centres on evidence use as a decision-making process (Lomas, 2000) and several writers have drawn upon the diffusion of innovations literature in order to analyse the process of RU (Nutley and Davies, 2000; Dobbins et al., 2001; Dopson et al., 2001). In addition, much has been made of the management of change literature as one way of understanding EBP implementation (NHS CRD, 1999; Iles and Sutherland, 2001). However, the conceptual frameworks underpinning the work of many who have written about EBP implementation is more implicit than explicit (for example, the implicit use of the organizational-change management literature by Kitson et al. [1998]).

In Box 4 we introduce six conceptual frameworks that might be used to inform RU/EBP implementation. The insights from a few of these frameworks have already been partially summarized with a view to informing RU/EBP implementation (for example, see Nutley and Davies [2000] on the diffusion of innovations, and NHS Centre for Reviews and Dissemination [1999] on organizational change). One of the tasks of the Research Unit for Research Utilisation (RURU) is to systematize and extend these reviews (Nutley et al., 2002).

The choice of conceptual framework is important given that it serves to construct the RU/EBP implementation 'problem' in a particular way. Emphasis might be placed on understanding individual behaviour (individual learning), organizational behaviour (organizational learning) or wider institutional dynamics (institutional theory). Where key individuals are identified as facilitating RU/EBP implementation, the analysis of their roles will vary according to whether they are seen primarily as opinion leaders (diffusion of innovations) or construed to have broader roles as change agents (organizational change). Use of the diffusion of innovations framework steers us towards defining evidence in terms of new research-based interventions. It appears to have less to offer in analysing the use
Box 4. Some Conceptual Frameworks that can Inform RU/EBP Implementation

**Diffusion of innovations**
Studies of the diffusion of innovations have sought to develop models of how innovations spread through a population and identify the main predictors of adoption rates (Wolfe, 1994). The rate of adoption has been characterized in terms of the ‘S-shaped curve’ and the pattern of diffusion has been identified as ranging from highly centralized to highly decentralized (Rogers, 1995). A number of factors have been found to influence the extent to which an innovation is adopted, including: adopter characteristics; the social networks to which adopters belong; innovation attributes; environmental characteristics; and the characteristics of those who are promoting an innovation (see Nutley and Davies, 2000: 38, Figure 3). Recent studies have questioned the apparent orderliness of the diffusion process and instead characterize it as a non-linear dynamic system (Van de Ven et al., 1999).

**Institutional theory**
Institutional theory emphasizes that no organization can be properly understood apart from its wider social and political environment. These environments create the institutions (regulative, normative and cognitive) that constrain and support the operation of individual organizations (Scott, 1995). Institutional theory highlights the way in which existing routines (logics of appropriate action) are highly resilient to the introduction of new ideas (March and Olsen, 1989). Where new practices are adopted they may be partly symbolic and only ‘loosely coupled’ to mainstream organizational activity (Meyer and Rowan, 1977). With respect to innovation uptake, institutional theorists have identified that adoption decisions can relate more to the institutional pressures, associated with certain fads and fashions, than to rational choices about the best course of action (Abrahamson, 1996; Walshe and Rundall, 2001). As innovations gain acceptance organizations adopt them in order to seek legitimacy (DiMaggio and Powell, 1983; Westphal et al., 1997; O’Neill et al., 1998). This pattern of behaviour is heightened during times of high uncertainty, when organizations are more likely to imitate other organizations, especially those deemed to be norm setters (DiMaggio and Powell, 1983).

**Managing change in organizations**
There is a wealth of literature concerned with understanding and managing change at individual, group and organizational levels. At the individual level this has focused on the reasons for resistance to change (Bedeian, 1980) and on how to ‘get people on board’ (Schein, 1985; Carnall, 1990). At the next level up, the focus is on the development of group norms and how these help or hinder change (Huczynski and Buchanan, 1985). At the organizational level one of the main concerns is how to achieve enduring change; that is, change that goes beyond structural redesign to impact on ‘the way things are done around here’ - organizational culture (Wiliams et al., 1989; WIlson, 1992). Stage models and recipes for change abound (Collins, 1998) and the roles and requirements of change agency are also addressed (Buchanan and Boddy, 1992). There are concerns that the literature has tended to adopt a rather unitary view of organizations and that insufficient attention has been paid to the conflicting interests found within organizations (Collins, 1998; Buchanan and Badham, 1999).

**Knowledge management**
Knowledge management is concerned with developing robust systems for storing and communicating knowledge. To date there appear to be two prominent approaches to the management of knowledge: a codification strategy and a personalization approach.
of other types of evidence, particularly that which already resides within the organization (such as routine monitoring data). So, different frameworks seem to provide different insights, and it is reasonable to ask which conceptual frameworks are the most helpful in developing an understanding of RU/EBP implementation. The answer will obviously depend greatly on the particular focus – in particular, the types of knowledge, types of RU, and models of process that are envisaged. It will nonetheless be important to examine the different frameworks to see the main areas of convergence/divergence in terms of insights or guidance for RU/EBP implementation. Moreover, such an
examination should endeavour to uncover key issues or concerns that are currently left largely unaddressed.

**Implementation Interventions**

Conceptual syntheses may help clarify the kinds of interventions those seeking to promote RU/EBP implementation might employ. RURU is working to develop a broad cross-sectoral taxonomy of types of intervention which aim to improve research impact. Currently, one of the most developed is provided by the Effective Practice and Organisation of Care review group (EPOC) within the Cochrane Collaboration. This identifies six main types of intervention, ranging from educational and financial initiatives aimed at individuals to broader structural and organizational change (see Box 5).

EPOC has also undertaken systematic reviews of a range of interventions designed to improve the practice of individual healthcare professionals. A summary of findings from these (NHS CRD, 1999) suggests that the passive dissemination of educational information and traditional continuing professional development (CPD) approaches are generally ineffective. Many other interventions were found to be of variable effectiveness, including audit and feedback, opinion leaders, interactive CPD, local consensus models and patient-mediated interventions. More positively, financial incentives, education meetings and educational outreach visits and reminder systems were found to be consistently effective. Most importantly, the most effective strategies were multi-faceted and explicitly targeted identified barriers to change. These messages are reinforced and extended by a recent RURU review commissioned by the Learning and Skills Development Agency (Walter et al., 2003; see Box 6).

A key message to emerge from this research is that the change process must reflect and be tailored to the complex nature of research implementation. For example, the Effective Health Care Bulletin (NHS CRD, 1999) argues that interventions need to develop and be guided by a ‘diagnostic analysis’ which identifies factors likely to influence the proposed change. This acknowledges that nothing works all the time, and emphasizes the importance of the local circumstances that mediate implementation strategies. There is also increasing recognition of the role of the wider organizational and systemic contexts within which evidence is used: practitioners do not and cannot work in isolation.

In promoting change, we can identify three types of intervention aimed at RU/EBP – those that are professionally based, organization-wide or involve systemic re-orientation (see Table 1). Halladay and Bero (2000) conclude that broad-based approaches are likely to be more effective than single interventions in securing long-term change, but suggest that these face the following three key challenges.

- Cultural challenges that develop when dealing with, and attempting to change, multiple cultures.
- Logistical challenges that arise from inadequate information systems, skills and resources.
Contextual challenges that arise from differences in diffusion, uptake and learning among different groups.

Implementation issues have clearly moved a long way from a simple focus on individual practitioner behaviour. However, a striking feature of the literature on RU/EBP implementation is that much of it concludes by endorsing the development of partnerships between researchers and practitioners as the way forward. The need for better connections among groups is recommended regardless of whether the underlying model of process is a uni-dimensional or multi-dimensional framework of 'research into practice', or one that argues that the

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<tr>
<td>Changes in medical liability</td>
</tr>
<tr>
<td>Management of patient complaints</td>
</tr>
<tr>
<td>Peer review</td>
</tr>
</tbody>
</table>

Box 5. Examples of Interventions Aimed at Achieving Practice Change (adapted from Davies et al., 2000)
The partnership ideal seems to transcend epistemological boundaries. Such common ground may be cause for optimism, with partnership working offering a practical means of addressing issues of research implementation. However, at least two causes for concern need to be raised.

1. More often than not, recommendations for partnership approaches are based on a conceptual understanding of the RU/EBP implementation
problem, rather than good evidence about the effectiveness of partnerships in practice.

2. Partnership approaches to working are currently very much in vogue, and it may be that in this case the solution somewhat precedes the analysis. This process is well documented within new institutional theory (see Box 4).

The different levels of focus for implementation imply very different forms of interventions. Increasingly complex and wide-ranging change processes make increasing demands on planning, management and resources. This raises a number of issues for real-world research implementation. For example, how should we decide on the level of focus for implementation interventions? If we focus on wider organizational and systemic approaches, do we lose sight of the

<table>
<thead>
<tr>
<th>Type of intervention</th>
<th>Distinguishing features</th>
<th>Complexity of intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professionally based interventions</td>
<td>Single interventions typically available for use within a professionalized healthcare organization. They are disaggregated from their context for the purpose of study and assessment.</td>
<td>Low</td>
</tr>
<tr>
<td>Organizational interventions</td>
<td>Multi-faceted interventions, relying on the adoption of explicit change management techniques; focused within the boundary of the healthcare organization, but with a reliance on inter-organization reference and/or collaboration.</td>
<td>Increasing</td>
</tr>
<tr>
<td>Systemic re-orientation</td>
<td>The attempt to alter the fabric and structure of the system in which healthcare is provided. It involves the re-conception of the task as one taking place within a holistic system of care inclusive of healthcare organizations, universities, professional bodies, patient groups, payers and regulators.</td>
<td>High</td>
</tr>
</tbody>
</table>

Table 1. Strategies for Implementing Evidence-based Practice (from Halladay and Bero, 2000)
individual practitioner – and vice versa? How might we balance and integrate interventions at different levels? Answers to these questions are going to depend on the specific characteristics of practice, the nature of the evidence base, and the types of research engagement sought.

Evidence-based Practice

The final box within the map of the terrain refers to the literature on how EBP is conceptualized. Across the different public policy areas in the UK and beyond there is much talk about EBP and a cursory glance at the rhetoric might suggest some convergence of approach. However, divergence rather than convergence seems to be the order of the day. Although there is a prominent debate about EBP in many policy areas (e.g. criminal justice, education, healthcare, and social care), there are important differences both within and between sectors in the concept of EBP that is being promoted (Davies et al., 2000).

The conceptualization of EBP draws upon the five concerns already highlighted by our map of the terrain: the types of knowledge to be employed, what counts as utilization, models of the process of getting evidence into practice, the conceptual frameworks that underpin these models, and the implementation interventions that are prevalent. The variety of approaches highlighted within each of these five areas suggests that there are likely to be many ways in which the concept of EBP might be defined.

Here we limit the discussion to just two of the dimensions that can be used to characterize different ways of thinking about EBP. The first dimension relates to the type of evidence being used (evidence from research versus evidence from routine data); the second dimension relates to the focus of attention (the individual practitioner versus the broader organization/system). Box 7 provides further description of both of these dimensions. If the two dimensions are combined in a two-by-two matrix, there seem to be at least four ways of conceptualizing EBP (see Figure 2).

**The evidence-based problem solver** Here the emphasis is on the ways in which individuals use research evidence to make decisions and solve problems on a day-to-day, case-by-case basis. This is evidence-based medicine’s view of what EBP should entail (outlined in Box 7).

**The reflective practitioner** Observational data is used (including that arising from routine monitoring systems) to inform the way the practitioner learns from the past and makes adjustments for the future.

**System redesign** The importance of using evidence to reshape total systems is emphasized. This tends to mean a top-down, centrally driven concept of EBP – for example the Effective Practice Initiative in Probation (outlined in Box 7).

**System adjustment** This involves organizational or system level use of monitoring data in the cybernetics mould (what Argyris and Schon [1996] refer to as single loop learning).
These are pure types, and practice is rarely likely to reside within just one of these boxes. Different blends are evident across public policy areas like healthcare, education, criminal justice and social work. The fact that none of the pure types appears to be mutually exclusive of other approaches suggests that it might be appropriate to envisage an integrated model of EBP. The concept of the ‘learning organization’ may provide a framework for developing this integrated vision (Nutley and Davies, 2001), but there could be a danger in developing such a theory- rather than practice- driven model of EBP.

This brief discussion of different ways of conceptualizing EBP demonstrates one way in which understanding of the first five aspects in the organizing schema can be combined to provide fresh insights into EBP. That each of the areas described are inter-related, with ways of thinking in one area having implications for ways of thinking in another, may guide us to more novel and useful conceptualizations, conceptualizations which both take into account the complexities of the subject and have practical application in designing more effective strategies for RU/EBP implementation.
Conclusions

Interest in evidence-based policy and practice (EBPP) reaches into all areas of government and has attracted sustained attention in recent years. Yet alongside the rise in interest and attention has been a certain unease or even disillusionment at the difficulties encountered in securing deep and widespread change, difficulties in particular with RU/EBP implementation. One thing is clear: simple models of this process (rational, linear, sequential, with a clear separation between evidence and utilization) have proved unequal to the task of informing effective implementation strategies.

Yet there exists much useful and practical knowledge both within the EBPP paradigm and from broader more generic social science. This article is concerned with the need to take stock of and consolidate the knowledge available from across these sprawling literatures, to establish robust knowledge of practical value; knowledge which also acknowledges the diversity and contested nature of much of the thinking around EBPP. The organizing schema developed aims to capture many of the debates within the field, and to incorporate learning from across disciplines. Sometimes there emerges a surprising amount of convergence (e.g. partnerships); other times divergence and irreconcilability is seen (e.g. over the nature of evidence; in social construction versus positivist science; or in the integration of explicit and tacit knowledge).

We believe that the schema as laid out has the following advantages.

- It allows us to organize the rather wide-ranging debates over RU/EBP implementation, to see where work is addressing similar issues, and so examine more closely the inter-linkages between different aspects of the debate.

![Diagram](image-url)
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- It encourages us to be more explicit about the theoretical or conceptual frameworks underpinning thinking in this area, and thus provides bridges to more developed areas of social science, psychology, management studies etc.
- It allows integration not only across generic literatures but also across different sector areas, especially healthcare, social care, education, and criminal justice.
- Integration across diverse literatures more readily allows an assessment of when these diverse areas converge (offering coherent advice) and when they diverge (offering sharply different perspectives).
- A pragmatic aim of the schema is to synthesize insights that may offer practical guidance to those developing implementation strategies.
- Finally, the schema may assist in the identification of important gaps and omissions that may be amenable to further empirical research, and in so doing it can also provide important guidance as to the appropriate theoretical underpinnings of such research.

Clearly, the development of this schema is a ‘work in progress’ and thus open to debate and amendment. Its success or otherwise hinges on its practical application in the above areas. We believe that the preceding discussions go some way towards establishing a case for such a schema but are open-minded as to how the specifics of the schema should be organized. As such, we welcome contributions and debate.

Notwithstanding the critiques of EBPP (especially those from post-modern perspectives), we are unlikely to see a significant retreat from rational and evidence-supported models of policy and practice. Therefore the importance of integrating understanding about what works in implementing what works (RU/EBP implementation) becomes more urgent. Developing integrative schemata such as this is just one step: we also need substantial empirical fleshing out of these conceptual bones before EBPP itself can become more properly evidence-based.

References

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