

# RESEARCH UNIT FOR RESEARCH UTILISATION

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### Discussion Paper 1

# From knowing to doing:

*A framework for understanding the evidence-into-practice agenda*

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## 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 ‘modernised 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, has been the development of a similar set of concerns at practice level. Getting evidence to inform professional practice has become a major concern of key sector areas such as health care, 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, Nutley and Smith, 1999, 2000). Yet despite some diverse exemplification, there is widespread common agreement on some basic underpinnings:

1. That there should be some agreement as to what counts as evidence in what circumstances.
2. That 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. That such evidence should be actively disseminated to where it is most needed, and made available for the widest possible use.
4. That strategies should be put in place to ensure the integration of evidence into policy and encourage the utilisation 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 utilisation (RU).

Policy players and service delivery managers are recognising that devising better mechanisms for pushing research information out (dissemination) is having only limited success and are seeking more effective ways of implementing evidence based practice. In addition, research commissioners are paying increasing attention to how the work they commission is utilised, and are insisting that researchers pay far greater attention to their potential user audience. Thus a growing realisation 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 more integrated a fashion, the concerns surrounding research utilisation and evidence-based practice

implementation (RU/EBP implementation). In addressing this, this paper seeks to devise an organising schema by which the key issues for RU/RBP implementation may be elucidated and linked to established bodies of knowledge.

## **Mapping the terrain: organising 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 organises the literature according to six 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 utilised
3. Models of the process of utilisation
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 conceptualising what RU/EBP means in practice.

Our argument is that this way of mapping the existing literature is not just a useful organising schema but also a valuable framework for thinking through RU/EBP implementation problems and processes. 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. In addition, each of these sections ends with a set of questions, which seek to tease out how the arguments might be extended or utilised in understanding RU/EBP.

[Figure 1 about here]

### **1: 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 paper 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, chapter 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).

[Boxes 1 and 2 about here]

Tacit knowledge has always been an important part of being a skilled practitioner; explicit knowledge is promoted as central to more recent conceptualisations of EBP. Indeed, the implementation of EBP is often viewed as changing the way in which individual professionals (such as doctors, teachers and social workers) make decisions about their practice by improving the interaction between explicit and tacit knowledge (Box 3). However, due to its deeply embedded nature, tacit knowledge is also a potential barrier to EBP implementation. 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 overestimated but also because there is no simple sense in which explicit and tacit knowledge can be integrated (Hammersley, 2001).

[Box 3 about here]

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 utilisation, is socially and politically constrained. In short, we could argue that all knowledge is socially constructed, an issue we return to later (under Models of Process).

The preceding discussion highlights a number of key questions that emerge from the literature on the types of knowledge relevant to an understanding of RU/ EBP implementation:

- ◆ Should RU/ EBP implementation be concerned primarily with tacit knowledge, seeing this as the key to understanding the utilisation of explicit knowledge (especially research evidence)?
- ◆ How much emphasis should be placed on know-about, know-how, know-who and know-why as opposed to the current emphasis on know-what? How is knowledge in these areas developed?
- ◆ What does the integration of explicit and tacit knowledge entail?

- ◆ Do the key research questions relate to ‘from doing to knowing’ (the social construction of knowledge) rather than vice-versa?

## **2: Types of research utilisation.**

There is a swathe of literature that considers what we should understand by the term *utilisation* of research or knowledge. This discusses different types of utilisation 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, 1992). 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). A more refined list of types of research utilisation is provided in Box 4. 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 research utilisation is more broadly defined than its direct translation into changes in practice.

[Box 4 about here]

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 actual practice. The Institute of Medicine (1999) has analysed this gap in terms of the underuse, overuse and misuse of research findings. The primary concern for those wishing to implement evidence into practice tends to be the underuse of research, where findings about effectiveness are either not applied, or are not applied successfully. However, concerns have also been raised about overuse, 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 minimise the problems of under-, over- and misuse.

The direct use of research can also be characterised 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 (see Box 5). Replication of research findings more often proceeds in terms of applying generic principles rather than prescribed practices. For example, the Effective Practice Initiative in probation services, is developing approaches to the assessment and case management of offenders which are based on wider ‘what

works' principles drawn from research findings. 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 (see Box 6).

[Boxes 5 & 6 about here]

Distinguishing different types of utilisation highlights the ways in which using research is more varied and complex than a simple replication of findings about 'what works'. It also raises a number of questions for implementing EBP:

- ◆ To what extent should we be concerned with the enlightenment as well as the instrumental uses of research? What are the implications for assessing research impact when we look at research's wider influence?
- ◆ In promoting practice based on evidence, how can we avoid the dangers of the overuse and misuse of research findings? What factors might encourage the under-use, overuse and misuse of research?
- ◆ If generic principles are the key to replication, how, and at what stage, do we begin to draw these out? Who should be responsible for their development?
- ◆ How can we best achieve a balance between replicating 'what works' and the need for knowledge to evolve? What roles should researchers and practitioners play in this process?

### **3: Models of process.**

The process of research implementation has been conceptualised 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. Wiggins, 1990; Marteau et al., 2002) have noted the lack of theory building around the process of research utilisation.

The traditional *research into practice* model is unidimensional, plotting the course of research from creation through dissemination to utilisation, and emphasising 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 research utilisation. 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-conceptualised 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. Use is a complex change process in which ‘getting the research out there’ is only the first step. In a review of the literature on dissemination and knowledge utilisation, the National Center for the Dissemination of Disability Research (NCDDR, 1996) identifies four main dimensions of knowledge utilisation which are usually considered – source, content, medium and user - and a number of key issues for effective dissemination associated with each (see Box 7 for some examples).

[Box 7 about here]

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 research utilisation in terms of ‘knowledge transformation’, which is a ‘knowledge-led, problem constrained learning process’ (see Box 8).

[Box 8 about here]

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 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 health care 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 (see Box 9). This research suggests that facilitation may be the key variable, and that the strength of evidence may not always be 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.

[Box 9 about here]

Both uni- and multi-dimensional models of research use understand 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 questions the Cartesian duality of science and nature, object and subject. Drawing primarily on post-structuralist thought, which states that theory cannot stand outside practice, it 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 refusing the dualism of research and practice, the hierarchy inherent in this dualism, which privileges the objective 'facts' of research over the subjective 'knowledge' of practice, is also denied (see Box 10).

[Box 10 about here]

If research 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 in Foucauldian terms involves assessing the knowledge/power dynamic that underpins practice. 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. Wood et al. (1998) analyse the power/knowledge dynamic which has historically delineated the highly medicalised, 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 boundary was a crucial factor in determining the success or otherwise of the evidence-based changes proposed.

Over time, models of the process of research utilisation have grown increasingly complex. The neat separations of researcher/practitioner, evidence creation/dissemination, knowledge/implementation have received sustained criticism. This inevitably has implications for EBP implementation:

- ◆ Which forms of model make practical sense to different groups involved in the research utilisation process?
- ◆ Where should our starting point be - with researchers or with practitioners?

- ◆ Linear models are conceptually useful but deny the real world complexity of EBP implementation. Increasingly complex models are difficult to apply in practice. How can we begin to balance these competing requirements?
- ◆ To what extent do the paradigms underlying different models of process necessarily shape how research will be implemented? Which might be more appropriate in different circumstances, and why?
- ◆ How might we assess both the impact of research, and what influences this impact?
- ◆ How can we begin to better theorise the process of research utilisation?

#### **4: Conceptual Frameworks**

Discussions about types of utilisation and models of the process of utilisation are underpinned by a variety of conceptual frameworks. Sometimes the use of such frameworks is explicit. For example, one review of research utilisation 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 research utilisation (Dobbins et al, 2001; Dopson et al, 2001; Nutley and Davies, 2000). 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 organisational change management literature by Kitson et al, 1998).

In Box 11 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 summarised 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 organisational change). One of the tasks of the Research Unit for Research Utilisation is to systematise and extend these reviews (Nutley et. al., 2002).

[Box 11 about here]

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), organisational behaviour (organisational 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 (organisational 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 of other types of evidence, particularly that which already resides within the organisation (such as routine monitoring data).

So, different frameworks seem to provide different insights (an example is provided in Box 12). This suggests that the following key questions need to be addressed in order to improve our understanding of RU/ EBP implementation:

[Box 12 about here]

- ◆ What conceptual frameworks are the most helpful in developing understanding RU/ EBP implementation?
- ◆ To what extent are different conceptual frameworks tackling the same or complementary issues?
- ◆ What are the main areas of convergence/ divergence in terms of insights or guidance for RU/EBP?
- ◆ Are there key issues or concerns that are left largely unaddressed?
- ◆ What are the overall implications for understanding RU/ EBP implementation?
- ◆ Is it possible to develop a common terminology for talking about these implications, which will translate well across the various conceptual fields?

### **5: Implementation innovations.**

Conceptual syntheses may help clarify the kinds of interventions those seeking to promote research utilisation/EBP implementation might employ. The Research Unit for Research Utilisation 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 within the Cochrane Collaboration. This identifies six main types of intervention (see Box 13).

[Box 13 about here]

EPOC have also undertaken systematic reviews of a range of interventions designed to improve the practice of individual healthcare professionals. A summary of findings from these (*Effective Health Care Bulletin*, 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.

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* (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 emphasises the importance of the local circumstances that mediate implementation strategies. There is also increasing recognition of the role of the wider organisational and systemic contexts within which evidence is used: practitioners do not and cannot work in isolation (see Box 14).

[Box 14 about here]

In promoting change, we can identify three types of intervention aimed at RU/EBP – those that are professionally-based, organisation-wide or involve systemic reorientation (see Box 15). 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 three key challenges:

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

[Box 15 about here]

Implementation issues have clearly moved a long way from a simple focus on individual practitioner behaviour. However, a striking feature of the literature on research utilisation/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 separation of research and practice is a false dichotomy in the first place. Fuhrman (1994) proposes that we need to develop forms of research that bring producers and users closer together, such as action research projects. Huberman (1987) asks for ‘sustained interactivity’ between researchers and practitioners throughout the process of research, from the definition of the problem to the application of findings. Wood et al. (1998) request a focus on local relationships and flows across boundaries, instead of the discrete entities of research and practice.

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 previous Box 11).

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:

- ◆ How should we decide on the level of focus for implementation interventions? If we focus on wider organisational and systemic approaches, do we lose sight of the individual practitioner - and *vice versa*? How might we balance and integrate interventions at different levels?
- ◆ What characteristics of practice will shape the appropriate level of intervention, and in what ways?
- ◆ Evidence from other areas suggests that it is difficult to make partnerships work well. Could partnership be a useful way forward for EBP implementation, or will it face similar barriers? And what does 'partnership working' really mean?

## **6: Evidence Based Practice**

The final box within the map of the terrain refers to the literature on how evidence-based practice is conceptualised. Across the different public policy areas in the UK and beyond there is much talk about evidence-based practice 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 evidence-based practice in many policy areas (e.g. criminal justice, education, health care 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 conceptualisation 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 utilisation, 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 evidence-based practice might be defined.

Here we limit the discussion to just two of the dimensions that can be used to characterise 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 organisation/system). Box 16 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 conceptualising evidence-based practice (see Figure 2):

[Box 16 and Figure 2 about here]

- **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 16).
- **The reflective practitioner** is one who uses observational data (including that arising from routine monitoring systems) to inform the way s/he learns from the past and makes adjustments for the future.
- **System redesign** emphasises the importance of using evidence to reshape total systems. This tends to mean a top-down, centrally driven concept of evidence-based practice – for example the *Effective Practice Initiative* in Probation (outlined in Box 16)
- **System adjustment** refers organisational 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 health care, 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 organisation’ 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 conceptualising evidence-based practice suggests a number of questions that require further research:

- ◆ What are the key dimensions along which concepts of EBP vary?
- ◆ Is it possible to identify common positions along these dimensions?
- ◆ Is it useful to combine these dimensions and positions to produce matrix models (like Figure 2) of the main ways of thinking about evidence-based practice?
- ◆ Does the concept of the learning organisation offer a useful integrated model of EBP as suggested by the matrix set out in Figure 2?

## 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 research utilisation and evidence based practice implementation (RU/EBP implementation). One thing is clear: simple models of this process (rational, linear, sequential, with a clear separation between evidence and utilisation) 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 paper 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 organising 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 positive science; or in the integration of explicit and tacit knowledge).

We believe that the schema as laid out has a number of advantages:

1. It allows us to organise 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.
2. 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.
3. It allows integration not only across generic literatures but also across different sector areas, especially health care, social care, education, and criminal justice.
4. 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).
5. A pragmatic aim of the schema is to synthesise insights that may offer practical guidance to those developing implementation strategies.
6. 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 areas 1-6 above. 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 organised. 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.

### **Box 1: Knowledge required for EBP**

**Know-*about* problems:** for example, 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.

Abstracted and augmented from Eckblom, 2001

### **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 organisational knowledge as all the 'software' of an organisation, 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 organisation 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.

### **Box 3: Integrating knowledge in evidence-based practice**

Evidence-based medicine is about '*integrating individual clinical expertise with the best available external clinical evidence from systematic research...*' (Sackett et al , 1996: 71)

Evidence-based practice '*is more than a matter of simply accessing, critically appraising, and implementing research findings. It also involves integrating such knowledge with professional judgement and experience.*' (Davies 1999: 166-167)

### **Box 4: Four main types of research utilisation.**

1. ***Instrumental use.***

Research feeds directly into decision-making for policy and practice.

2. ***Conceptual use.***

Even if practioners 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. ***Mobilisation 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 synthesised. It might come into currency through networks of practioners 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.

Adapted from Weiss (1998).

**Box 5: Replication of research findings.**

***e.g. The Effective Practice Initiative.***

Studies have found that the effectiveness of probation programmes based on ‘what works’ principles declines when programme delivery diverges from that prescribed in their manuals. For accreditation, the delivery of programmes is internally audited and direct observation or video sampling ensures proper replication (Furniss and Nutley, 2000).

***e.g. The Kirkholt burglary prevention initiative.***

A number of replications of the highly successful Kirkholt burglary prevention project were mounted as part of the Safer Cities programme but failed to deliver such good results. Tilley (1993) argues that strict replication is impossible, and proposes a ‘scientific realist’ approach which focuses on how causal mechanisms trigger desired outcomes within particular contexts.

**Box 6: The replication/innovation continuum**

***The need for knowledge to evolve: a crime prevention ‘arms race’.***

Eckblom (2001) describes an ‘arms race’ between offenders and those involved in crime prevention which demands the evolution of ‘what works’ knowledge. As technological and social change create new opportunities for offending, crime preventers race to acquire, share and apply new knowledge.

***‘Tinkering’: using research in education.***

Hargreaves (1998) argues that knowledge needs to evolve within the real world context in which it is applied. Teachers must ‘tinker’ with research findings to adapt them to practice in the classroom. Where it is properly supported, systematised and shared, ‘tinkering’ can lead to innovation.

**Box 7: Four key elements to be considered in research utilisation**

1. The source of information - whether individual, agency or organisation
  - Perceived competence
  - Credibility of experience and motive
  - Sensitivity to user concerns
  - Orientation toward dissemination and knowledge use
2. The content or message
  - Credibility of research and development methodology
  - Credibility and comprehensiveness of outcomes
  - Utility and relevance for users
  - Capacity to be described in terms understandable to users
  - Cost effectiveness
  - Competing knowledge or products
3. The dissemination medium - the ways in which knowledge is described, packaged and transmitted
  - Physical capacity to reach intended users
  - Timeliness of access
  - Accessibility and ease of use, user friendliness
  - Flexibility, reliability and credibility
  - Clarity and attractiveness of the information 'package'
4. The user
  - Perceived relevance to own needs
  - User's readiness to change
  - Format and level of information needed
  - Level of contextual information needed
  - Capacity to use information or product (resources, skills and support)

Adapted from NCDDR (1996)

### **Box 8: Research use as 'knowledge transformation'**

'Knowledge transformation' draws on old knowledge in a particular problem context to engage in learning towards a solution. There are four necessary conditions:

1. a knowledge base
2. a problem definition related to that knowledge base
3. transformation/learning strategies involving various modes of representing 'old' knowledge as well as the acquisition of 'new' knowledge
4. appropriate motivation.

Adapted from DesForges (2000).

### **Box 9: A multi-dimensional model of research implementation**

Kitson et al. (1998) have developed a multi-dimensional framework for research utilisation which emerged from the equation  $SI = f(E, C, F)$  in which successful implementation (SI) is a function (f) of the relation between:

#### ***E - evidence:***

- the research findings
- clinical experience
- patient preferences;

#### ***C - context:***

- an understanding of the prevailing culture
- the nature of human relationships as summarised through leadership roles
- the organisation's approach to the routine monitoring of systems and services; and

#### ***F - facilitation:***

- personal characteristics of facilitators
- the facilitator's role and position within the organisation
- the skills, knowledge and style of the facilitator.

Each must be considered simultaneously, and Kitson et al. (1998) give each equal weight. Implementation is most likely to be successful when all three are rated highly. By involving practitioners in discussions about the local position on each of these dimensions, tailored action plans for implementation can be developed.

**Box 10: 'Research in practice': post-structuralist approaches to research implementation**

Wood et al. (1998) found that health professionals do not simply apply abstract scientific research but collaborate in discussions and engage in work practices which 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'. Research is rarely self-evident to the practitioner but varies according to the context in which it is received. Within particular contexts, research is related to 'situated knowledges', structured local ways of thinking and acting. This 'contextualisation' halts the process of 'becoming' and makes evidence more amenable to control. Implementation involves reconnecting research with practice, taking account of locally situated practices that inform and are informed by research. This approach encourages a focus on *local* ideas, practices and attitudes, and suggests that the key is to engage the interest and involvement of practitioners in change programmes.

### **Box 11: 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 characterised in terms of the 'S-shaped curve' and the pattern of diffusion has been identified as ranging from highly centralised to highly decentralised (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, p 38, Figure 3). Recent studies have questioned the apparent orderliness of the diffusion process and instead characterise it as a nonlinear dynamic system (Van de Ven, 1999).

#### **Institutional theory**

Institutional theory emphasises that no organisation 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 organisations (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 organisational 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 organisations adopt them in order to seek legitimacy (DiMaggio and Powell, 1983; O'Neill et al 1998; Westphal et al, 1997). This pattern of behaviour is heightened during times of high uncertainty, when organisations are more likely to imitate other organisations, especially those deemed to be norm setters (DiMaggio and Powell, 1983).

#### **Managing change in organisations**

There is a wealth of literature concerned with understanding and managing change at individual, group and organisational 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' (Carnall, 1990; Schein, 1985). 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 organisational 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' - organisational culture (Williams 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 tend to adopt a rather unitary view of organisations and that not sufficient attention has been paid to the conflicting interests found within organisations (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 personalisation approach (Wiig, 1997; Hansen et al, 1999). Codification strategies tend to be computer-centred; knowledge is carefully codified and stored in databases. In a personalisation approach it is recognised that knowledge is closely tied to the person who develops it, and hence what is developed are enhanced opportunities for sharing knowledge through direct person-to-person contact. The role of information and communication technology within this is to help people communicate knowledge, not to store it.

## Individual learning

Social psychology has long been concerned with understanding the process by which individuals learn. Behaviouralists have studied the effects of different stimuli in conditioning learning, while cognitive psychologists have sought to understand the learning processes that occurs within the 'black box' between the stimulus and the response (Dubrin, 1990). Models of the process of learning include Kolb's learning cycle (Kolb et al 1988), with its emphasis on promoting better understanding of different individual learning styles (Honey and Mumford, 1992). Organisational psychologists have enhanced our understanding of the factors that help or hinder individual learning within organisations (Mumford, 1988). Recent concerns have focused on how to promote lifelong learning and the role of self-directed and problem-based professional education regimes in achieving this (Schmidt, 2000; Collin, 2001).

## Organisational learning

Organisational learning is concerned with the way organisations build and organise knowledge and routines, and use the broad skills of their workforce to improve organisational performance (Dodgson, 1993). The literature in this area has highlighted a number of factors that facilitate or impede ongoing learning. These include: the importance of appropriate organisational structures, processes and cultures (Tushman and Nadler, 1996; Dodgson, 1993; Starkey, 1996); the characteristics of individuals who bring new information into the organisation (Michael, 1973; Allen, 1977); and the role of research and development departments (Mowery, 1981; Dodgson, 1993). Analyses of the learning routines deployed by organisations have distinguished between adaptive and generative learning (Senge, 1990). Adaptive learning routines can be thought of as those mechanisms that help organisations to follow pre-set pathways. Generative learning, in contrast, involves forging new paths. Both sorts of learning are said to be essential for organisational fitness, but by far the most common are those associated with adaptive learning (Argyris and Schon, 1998).

***Box 12: Insights from organisational learning***

Many of the existing strategies for implementing EBP (which centre on issuing practice guidelines, backed up by audit and inspection regimes) would seem to reinforce the predisposition towards adaptive learning. If evidence-based practice is centrally defined and imposed, organisations are likely to get stuck in an adaptive learning loop and this raises questions about how new knowledge will be generated. The generation of new knowledge often relies on local invention and experimentation (Hargreaves, 1998), but this may be stifled by centralised control of both what counts as evidence and what practices are condoned. The concept of organisational learning therefore suggests that an approach to EBP implementation that casts the practitioner as problem solver (as in evidence-based medicine – see Box 3 above) may be better suited to the development of learning organisations than the top down implementation of detailed guidelines and protocols.

**Box 13: Examples of interventions aimed at achieving practice change**

**Professional interventions**

- Distribution of educational materials
- Educational meetings
- Local consensus processes
- Educational outreach visits
- Local opinion leaders
- Patient-mediated interventions
- Audit and feedback

**Financial interventions**

- Provider interventions
- Patient interventions

**Organisation interventions**

- Revision of professional roles
- Multidisciplinary teams
- Formal integration of services
- Skill mix changes
- Communication and case discussion

**Patient-oriented interventions**

- Mail order pharmacies
- Mechanisms for dealing with patient suggestions and complaints
- Consumer participation in governance of health care organisations

**Structural interventions**

- Changes to setting/site of service delivery
- Changes in medical records systems
- Presence and organisation of quality monitoring
- Staff organisation

**Regulatory interventions**

- Changes in medical liability
- Management of patient complaints
- Peer review

Adapted from Davies et al., (2000)

**Box 14: Considering the context: broad-based approaches to implementing EBP**

Two forms of organisational technique for implementing EBP have been deployed in the health care field:

1. Quality Improvement (QI) methods
2. Breakthrough collaboratives.

Good quality evaluations of either are rare but key success factors centre on

- thorough planning of interventions
- practitioner leadership
- a supportive cultural context
- effective monitoring systems.

(Halladay and Bero, 2000).

Halladay and Bero (2000) suggest that clinical governance within the UK NHS represents a systemic conceptualisation of the uptake of evidence and subsequent change in clinical practice. This makes system managers as much as clinicians responsible for the use of evidence, and relies on evidence from routine monitoring as well as research.

**Box 15: Strategies for implementing evidence-based practice**

Type of intervention	Distinguishing features	Complexity of intervention
Professionally based interventions	Single interventions typically available for use within a professionalised health care organisation. They are disaggregated from their context for the purpose of study and assessment.	LOW
Organisational interventions	Multi-faceted interventions, relying on the adoption of explicit change management techniques; focused within the boundary of the health care organisation, but with a reliance on inter-organisation reference and/or collaboration.	Increasing complexity
Systemic re-orientation	The attempt to alter the fabric and structure of the system in which health care is provided. It involves the re-conception of the task as one taking place within a holistic system of care inclusive of health care organisations, universities, professional bodies, patient groups, payers and regulators.	HIGH

From Halladay and Bero (2000).

### **Box 16: Two dimensions of evidence-based practice**

#### Type of evidence

A distinction has been made between two models of how evidence is generated and used to influence practice – the research implementation model and the outcomes feedback model (Kendrick, 2001). In the implementation model, research based evidence (particularly in relation to what works) is used to shape practice. In contrast, the outcomes feedback model relies on monitoring routine observational data and feeding this back to practitioners. Evidence is not fed into the system as a priori knowledge but is derived from monitoring the process and outcome of care as it happens. Variations in outcomes trigger explanatory investigations, with the aim of identifying the best form of remedial action.

#### Focus of attention

The focus of attention range from the individual to the broader organisation/system (see Box 15). Much of the early work in evidence-based medicine took as its focus the practice of individual clinicians. Thus the implementation of evidence based practice was in large measure interpreted as changing the way in which individuals made decisions in relation to treating individual patients (Sackett et al 1996). However, while it may be true that in medicine ‘the great majority of decisions are made by clinicians as individuals, in a relatively unconstrained context’ (Walshe and Rundall, 2001:445), this is by no means the case for practice decisions in other areas. The highly constrained nature of much practice has led to a shift in focus away from the individual towards the system within which they operate (Nutley and Davies, 2000). For example, the *Effective Practice Initiative*, within the Probation Service in England and Wales, has promoted a holistic approach to EBP implementation. This encompasses: a new approach to assessing the risks and needs of offenders, a national core curriculum of offender supervision programmes, a new staff and programme accreditation scheme, and a revised scrutiny regime (Furniss and Nutley, 2000).

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