Practice-based Evidence: Towards Collaborative and Transgressive Research

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ABSTRACT

Studies of the application of research in policy and service delivery suggest that the translation of research findings into practice is not straightforward. Practitioners are criticized for failing to base actions on research evidence, while academic research is sometimes condemned as 'irrelevant' to practice. This paper argues that this conflict derives in part from an academic model of research constructed in opposition to practice. Reflections on scientific *logocentrism* (claims to possess unmediated knowledge of reality) and 'transgressive' action research provide a critique of traditional research and suggest an alternative, practice-based research model. Three propositions for generating 'practice-based evidence' are identified. Firstly, the pursuit of knowledge should be acknowledged as a local and contingent process. Secondly, research activity should be constitutive of difference, questioning the legitimation and repression of particular aspects of the world. Finally, theory-building should be seen as an adjunct to practical activity. Together, these positions dissolve the researcher/researched and research/practice oppositions in traditional research and supply an ethically and politically engaged research. Practice-based research is explored in terms of four moments in the research process.

KEY WORDS

action research / postmodernism / post-structuralism / research methods / social theory

Introduction

S ocial scientific research into 'practice' (for example, education, social services, health care, policing) has contributed a mass of data on how services are delivered and offered important recommendations for improvements to services. Yet in academic circles there is a culture which implies that research ends when the paper has been published, a seminar or two has been given and the subjects have all – metaphorically and literally – gone home. This view is mediated in research methods texts, in institutional processes for funding research and in most research contracts (Elton, 2000; Print and Hattie, 1997).[1] Traditionally, the application of a piece of research in practical settings is seen as non-problematic, something which naturally flows from the conclusions of the research and is best left to the 'practitioners', be they citizens, education or care professionals or other social scientists (see, for example, Dawson, 1995, Lomas et al., 1993).

In reality, the uptake of service-oriented research findings in professional practice is extremely patchy; an issue which has begun to exercise those who have promulgated the 'evidence-based' approach (Dawson, 1995; NHS Executive, 1998). A consequent authoritarianism towards practitioners is reflected in developments such as the Cochrane Collaboration, which has promulgated a view that the randomized controlled trial is unequivocally the 'gold standard' of research evidence (often to the exclusion of social science research) (Sackett et al., 1996). Health practitioners have been recently presented with distillations of evidence in the form of National Service Frameworks for various disease categories and in future these will be benchmarks against which actual practice will be measured and judged (NHS Executive, 1999).

Critical responses to this 'academic encirclement' (Strong, 1984) of service-based practice have come from a number of different perspectives, ranging from critical theory (Carr and Kemmis, 1986), Foucauldian critiques of ever-burgeoning 'technologies of the self' (Gastaldo, 1997: 126–9; Lupton, 1998: 206; Rose, 1989) to attacks on the 'irrelevance' and over-theorized nature of educational research conducted by academics in university departments, rather than by teachers and educational policymakers addressing issues of effectiveness (Hargreaves, 1996).[2] In this paper I want to unpack the 'problem of implementation' from a different perspective; to re-evaluate the hierarchy of knowledge which situates research evidence in a position superior to other forms of knowing. The objective is to re-privilege the role of the 'practitioner' in generating useful knowledge, without rejecting the skills and perspectives of the 'academic' researcher.

Why is Research Not Implemented?

Some studies of the failure to adopt research findings into practice have not started from the assumption that research findings are top of a 'hierarchy of

evidence'. Mulkay (1972) looked at disputes in the early development of bio-chemistry and concluded, in Kuhnian style, that innovations were most successful where they matched current and widely-held cognitive and technical norms. The failure of *antisepsis* to be accepted in 19th-century surgery may have reflected the theory's imputation of the cause of infection to the surgeons themselves – an attribution not implied in the later and successfully adopted practice of *asepsis* (Fox, 1988).

Callon (1986) studied biological scientists' efforts to redress over-fishing in the French scallop industry. Their first problem arose when it was found that scallops which grew successfully in laboratory tanks would not attach themselves to rocks in the wild. Two years of fieldwork resolved the problem, but the project foundered because an imposed moratorium on fishing failed to acknowledge the dynamics of the local economy. Callon concluded that the fishers and biologists had such divergent world-views that it was impossible to translate scientific arguments into a form which seemed relevant to people whose livelihood depended on the scallops.

A study by Wood et al. (1998) looked at evidence-based guidelines on the use of oral anticoagulants for stroke prophylaxis, laparoscopic surgery for inguinal hernia repair and the proposals for obstetric care set out in a government circular known as 'Changing Childbirth'. While there appeared to be general acceptance of the latter, other initiatives were often adopted patchily and, in the case of anticoagulant prophylaxis, very slowly – despite the evidence of reduced morbidity and mortality. Wood et al. suggested that practitioners were not convinced by disembodied research findings, but wanted to see these findings contextualized within their own practical experience. They found it essential that practitioners 'bought in' to the proposed changes and that research had to take account of locally-situated practices which engage with the research. 'Research findings' represent not so much truth about reality, as one 'reified moment' in the ongoing saga of 'practice' (Wood et al., 1998: 1735).

Research and practice need to be seen as differing world-views on the same subject matter: researchers see data while practitioners see people (Haines and Jones, 1994) and research data must be translated from the former to the latter world-view before it is recognized as relevant by practitioners. Shaugnessy et al. (1994) suggest that practitioners' perceptions of the utility of evidence will depend on its relevance to a particular setting and its validity for that setting. Practitioners need to recognize a problem for which the evidence is relevant before research will be seen as applicable in a practice setting (Williamson, 1992) and research evidence is most likely to be adopted by practitioners if it is first 'digested', replacing specific findings (the usual outcome of a particular study), with a 'big picture' (Brown and Duguid, 1991; Haynes, 1993). Dawson (1995: 202) concludes that practitioners and researchers must work together as part of a 'bottom-up' approach to implementation (Grimshaw and Russell, 1993; Haines and Jones, 1994).

From these various studies and different theoretical perspectives, three readings are possible.

1   Practitioners know best and should be left to get on with it, free of inter-
    ference from the professional researcher (the conservative view).
2. Practitioners are lacking in key knowledge and ways must be found to re-
    educate them into effective service delivery (the evidence-based practice
    approach).
3. Rather than blaming practitioners for disregarding research evidence, the
    fault lies with the model of research which has been developed in academia.
    This research model does not readily articulate with the practical impera-
    tives of service professionals. Research does contribute knowledge, but it is
    up to the researcher to change her mode of working so it contributes to
    practice.

This paper explores the third of these perspectives and argues that because 'evi-
dence' is contingent and needs to be contextualized, 'evidence-based practice'
should be supplemented by 'practice-based evidence' and a model of 'practice-
based research' (PBR).

Post-structuralism and Postmodernism: the Truth is Not Out There

Post-structuralist contributions to social theory over the past decade have led to
various models of postmodern social theory and research (for example,
Bauman, 1993; Butler, 1990, 1993; Cheek, 2000; Denzin and Lincoln, 1998;
Fox, 1993, 1999; Game, 1991; Rosenau, 1992; Stronach and MacLure, 1997).
Postmodernism is suspicious of and rejects 'grand narratives' that offer a unified
or monolithic perspective on the world, human-ness, or knowledge in general
(Lyotard, 1984). Derrida (1976) describes these narratives (for example,
philosophy, theology, historical studies and science) as *logocentrisms*, whose
objective is to achieve the *logos* – unmediated truth about the world.
      Scientific research in the era of post-Enlightenment modernity has just such
a search for truth as its goal. Through deductive or inductive reasoning and
progressive refining of theory, hypotheses will approximate more and more
closely to 'truth' (Popper, 1982). The aim of research within this framework is
to observe, analyse and consequently understand aspects of the world. Natural
science's faith in its capacity to know the world has recently been challenged by
quantum theory, although the hubris of some proponents – in their expectation
that one day we may 'know the mind of God' – remains (Glieck, 1988: 6–8).
Social scientists have tended to be more circumspect and have problematized
the relation between observation and reality in approaches such as interpreta-
tive sociology, ethnomethodology and – more recently – post-structuralism
(Denzin and Lincoln, 1998). Despite this, the desire for the *logos*: truth about
the object of study, remains a core value for many social scientists and is most
clearly exemplified in the language of research-funding applications and the
assertions of methods texts (Feinstein, 1992). In the latter, this orientation

towards truth-seeking (perhaps dressed-up as 'authenticity', 'credibility' and so on) is mediated in discourses on the concepts of internal and external validity in research.

First, 'internal validity' (the extent to which a study measures what it claims to be measuring) articulates a scientific *logocentrism* based on the premises of the particular discipline in question. Scientific methodology, according to this line of thinking, makes reality accessible, removing or minimizing distortions that methods of observation or analysis may introduce. Thus, research methodology is not just a matter of technique, but stems from pronouncements on epistemology: of how we may legitimately 'get to truth' (Denzin and Lincoln, 1998; Lakatos, 1978; Popper, 1982). Different scientific disciplines have developed their own methodologies which they accept as legitimate and designate as valid findings of studies conducted in accordance with these methodological norms.

If only – the argument goes – our methodology is adequate and appropriate, then we will be able to achieve an understanding based upon the observations that we make and the theory we develop to explain those observations. Scientific logocentrism – while on the one hand privileging research data gathered through specified methods – downgrades the 'mere experience' which is developed in practical settings (Lomas et al., 1993: 405; Wood et al., 1998: 1730). Methods texts are science's equivalent of a religion's holy book: setting out the right way to do things and the 'threats to validity' which come from not following the prescriptions and precedents.[3] This has also led proponents of 'evidence-based practice' to assert a hierarchy of research designs, with meta-analysis of randomized controlled trials at the top and qualitative studies somewhere close to divination (Denzin and Lincoln, 1998: 7; Greenhalgh, 1997).

Secondly, the 'external validity' of research is concerned with the generalizability of research findings to practical settings. This is of importance, both in terms of inferences that can be made from the study group to the whole population and for the application of findings in practice. The basis for 'evidence-based practice' is the external validity of research. Thus, for example, health professionals, teachers or social workers should manage their patients, students or clients according to guidelines based on research evidence, rather than drawing upon their own experiences or harking back to their original training. If a study possesses external validity, the failure of research findings to be translated into practice can be blamed on the practitioners, who are assumed to be either recalcitrant or incapable of grasping the relevance of the research for their practice setting.

These two elements of research 'validity' do more than just set up rules for generating trustworthy evidence. Together, they differentiate between the claimed rationality and enlightenment of research evidence and the messy, 'irrational' uncertainty of practice (see, for example, Hammersley, 1997: 147; Silverman, 1999: 2). From such a perspective, 'research' constructs 'practice' as an irrational *other*, the other pole of a binary opposition. As such, the 'truth' of research – paradoxically – must sustain itself unsullied by the threatening

irrationality of the practical world, while at the same time claiming to be supremely relevant and valid for these practical settings. This tension is epitomized by Lincoln and Guba's (1985) reflection on external validity in naturalistic enquiry, in which they deny responsibility for 'transferability' of research findings altogether and place the onus squarely upon those who would use the findings in practical settings!

Exposing this constructed binary opposition between research and practice is the starting point for re-thinking their relationship. We must immediately overturn the imputed hierarchy of evidence that claims privilege for a certain kind of practice called 'research'. The re-valuing of 'practice' must acknowledge Derrida's commentary on research logocentrism and accept that neither research nor practical experience can ever provide a single or universal 'truth' about the world. That is not to say that we may not possess knowledge of the world, but rather that there are a number of 'truths' which are historically and setting contingent. It follows that research must be seen as an *extension* – as one form – of practice: research and practice are intertwined rather than opposite poles.

From such a perspective, research reports are not representations (accurate or flawed) of the world, but contested claims to speak 'the truth' about the world. Research writing, in this model, becomes narrative work (Maines, 1993: 17), exploring meaning through the mutable medium of language. This challenges science's privilege to speak authoritatively about the world (Game, 1991: 18). But at the same time, this analysis opens up possibilities for a research practice no longer obsessed by efforts to attain a transparent truth about the world (Flax, 1990; Hutcheon, 1989; Sanger, 1995).

If no privilege is attached to particular epistemologies, 'researchers' may explore a new richness of data generated in the play of text on text in novel and unending combinations. What may be drawn into the research enterprise are the endless readings of the social world which inhere in the practical activities of those who live and breathe a 'research field', the people who, in modernist research, were called subjects. Suddenly, research cannot be seen as separate from this world of practice, nor can the researcher's perspective be privileged in any way (Lather, 1993), because researchers are now part of the world that they explore and translate into research reports (Richardson, 1993).

If researchers can no longer stand apart from their research setting, it follows that their relationship with subjects should be wider than simply that of researcher/researched. Consequently, researchers must adopt an ethical and political position that structures the engagement which they have with the subjects of research. The politics of such a model of research are radical and are concerned with resistance and change (Fox, 1995; Game, 1991; MacLure, 1996).

Reporting research changes from efforts to represent or to persuade, to a reflection upon the relationship between the research text and other texts (Richardson, 1993; Sanger, 1995; Tyler, 1986), including those texts which comprise practice. Rather than excluding these, researchers may draw upon

them to provide the context for their research in a way which is more substantive than simply 'locating the study' within the 'literature'. Indeed the form of the research output may be radicalized: offering polyvocality (for example Curt, 1994; Mulkay, 1985), or in the form of a direct engagement (teaching, therapy, protest, worship). Whatever form is chosen, the research becomes part of the setting it is exploring and research becomes a facet of practice, inextricably tied up with the wider issues of political engagement, power and justice.

This analysis of research leads to a number of propositions concerning how we may seek knowledge of the world. Firstly, the pursuit of knowledge must be recognized as a *local and contingent* process. While understanding of the environment may be achieved through observation and inductive reasoning, it cannot be assumed that these observations or this reasoning can be translated to other settings, or even from the research setting to 'real life'. Gaining understanding of a locale does not mean that such understanding will inform other settings: indeed, a commitment to the celebration of difference requires that no such assumptions be made.

Secondly, research as a political activity should be *constitutive of difference*, rather than demonstrative of similarity (for example, generalizability). Traditionally, researchers seek mastery (White, 1991) of their setting, pigeon-holing phenomena into categories based on their qualities or hierarchical position in relation to each other. In contrast, research which is constitutive of difference acknowledges different qualities, yet accepts them as of equal value rather than privileged in hierarchical or oppositional relationships to each other. This political engagement with the world means that research avoids legitimating or repressing particular aspects of the world it observes, such as the mess and irrationality of practice, for instance. For an interesting commentary on the need for such as perspective, see Brown and Duguid (1991).

Thirdly, *theory building* – while necessarily part of any activity of 'understanding' – should be seen not as an end in itself but as an *adjunct to practical activity* within the setting in question. In particular, this would result in the avoidance of meta-narratives or grand theory which globalize and deny difference. The value of theory will be in its applicability in immediate practical activities in settings in which it has been developed. Understanding makes sense only if data are placed in context (Mauthner et al., 1998). Given the commitments of those engaged in practice, in this formulation 'research' and 'theory' will be similarly committed to an ethical and political engagement with 'practice'. It is to this issue that I now turn by way of an exploration of action research.

Action Research: Engaging Ethically and Politically with Practice

Action and practitioner research implicitly link to practice. Despite a long history within the social sciences, these models have been marginalized and are

often ignored in methodology texts. Action research grew up in the 1940s and 1950s, underpinned by the principle that theory would be developed and tested by practical interventions or actions; that there would be consistency between project means and desired ends; and that ends and means were grounded in guidelines established by the host community (Stull and Schensul, 1987).

Such an advocacy model for research sustained a distinction between researcher and researched, while acknowledging the importance of the perspectives of the researched subjects. Nixon (1981) described a model of 'practitioner research' which embodied professional ideals, focused on changing practice, identified and explained inconsistencies between aspiration and practice and involved professional practitioners in testing new forms of practice and related theories. Practitioner research is a developmental process in which practice is a form of research and vice versa (Elliott, 1995).

Schensul (1987) suggests that collaborative action research can:

▪ bring together people with diverse skills and knowledge;
▪ de-mystify the research process, allowing practitioners to shape the data collection process;
▪ build a research capacity into a community which can operate independently;
▪ increase the likelihood that practitioners will use the research findings; and
▪ improve the quality of research by enabling access to key bodies of knowledge in a community.

The varieties of action research have been categorized by Carr and Kemmis (1986) as:

▪ technical (in which an outside expert undertakes the research within a practice setting);
▪ practical (in which the researched are encouraged to participate in the research process); and
▪ emancipatory (in which the researcher takes on the role of a 'process moderator' assisting participants to undertake the research themselves).

The third of these models is of most interest here, because of its challenge to a researcher/researched opposition. Zuber-Skerritt (1991) suggests that, within this paradigm, action research is participative and collaborative, emancipatory, interpretive and critical, so that 'action and practical experience may be the foundations of … research and research may inform practice and lead to action' (Zuber-Skerritt, 1991: 11).

Other writers have explored the elision of researcher and researched from differing theoretical perspectives. Stronach and MacLure (1997) take a post-

modern view of educational action research, arguing that the concept of 'researcher' is no more than a construction achieved in opposition to definitions of practitioner (1997: 100). They are attracted to the concept of a 'transgressive validity' for research, as outlined by Lather (1993: 676; see also Richardson, 1993). In this perspective, the 'validity' of research is a function of its capacity to transgress, challenge or subvert existing conceptions.

Stronach and MacLure (1997) comment that, within the spirit of transgressive validity, this concept would necessarily be subject to transgression itself. However, a concept of 'transgressive research' is not problematic in quite the same way, inasmuch as what is implied by this term is practice-oriented research that is constitutive of difference, challenges power and constraint and encourages resistance and new possibilities. While many of the processes involved in undertaking research of this kind would be similar to those of the 'emancipatory' action research (Carr and Kemmis, 1986), transgressive research is based in a principle of difference rather than of a shared rationality. As such, what is proposed here – a model of PBR congruent with the kind of post-structuralism employed throughout this paper – amounts to a fourth model of action research in addition to those in the Carr and Kemmis typology.

Action research in this transgressive mood suggests a commitment to intertextuality with practice, collaboration and difference. The intertextual and collaborative nature of research in this mode breaks with the traditional model of a dispassionate and detached researcher. Its transgressive character introduces the notion that research should be constitutive of difference: that it should engage with a wider project of *resistance* to power and control. Together, these commitments indicate a research which is implicitly and explicitly *engaged* and, as such, must be seen as political, both at the micro-level of interpersonal power and sometimes also at the macro-level of struggle and resistance. In this way it articulates with other bodies of work which have argued for an engaged research practice, including feminist research, queer theory and disability studies. For example, Ramazanoglu has argued (1992: 209) that feminist methodologies are the outcome of power struggles over what it means to 'know' and what counts as valid research. Feminist commitments to resisting patriarchy has led to a suspicion of grand narratives (Holmwood, 1995: 416) and a preference for research which is local, engages with the concerns of women and values experience (Gelsthorpe, 1992: 214; Oakley, 1998: 708).

As a footnote to this section, it is perhaps worth acknowledging that perceiving research as transgression serves as a reminder that within this model it is not possible to be restrictive as to what may or may not be undertaken as part of a 'research programme'. Rather, it is important that the open-endedness of the research process is acknowledged, such that any 'propositions' must be constantly under review and also – as Heidegger (1958) has it – 'under erasure' as limits to be transgressed themselves (see also Watson et al., 1995).

Transgressing the Research/Practice Divide

I now want to set out some further thoughts on what is entailed in doing practically engaged research. While not intending to be prescriptive, this will assist in both deconstructing traditional research and re-constructing something very different. The reflection will have as much to say about epistemology and ontology and about the implicit ethics and politics of this approach, as with details of 'how to do it'. At the heart of what follows will be the three propositions of practice-based research (PBR) identified earlier (contingency, constitution of difference and relation to practice) and the rejection of three dualisms: researcher versus researched, research versus experience and theory versus practice.

To assist in developing this PBR perspective, I will look at four 'moments' in the research process, illustrating each with reference to the author's research programme on computer-mediated communication and professional learning (Fox et al., 1999).

1. Setting a Research Question

Over a number of years spent teaching (modernist) research methods I emphasized to students that, without a clear research question, it is impossible to undertake research and that all subsequent stages in the research process are bedevilled by an absence of clarity which undermines the efforts of the researcher. However, this argument is based on the assumption that research is a linear process and the end result of research must be some kind of answer to a question. Thus a social scientist might ask the question: 'how is care delivered in residential accommodation for older adults?' A natural or biomedical scientist might ask: 'does ultraviolet radiation exposure lead to incidence of cutaneous melanoma in exposed subjects?' In both these questions, the outcome of the research will be judged, inter alia, upon the extent to which the research question has been answered.

From a PBR perspective things are rather different. Taking the first proposition established earlier, if *knowledge is local and contingent*, then it may be impossible to establish what are the correct questions to ask until one has a fairly clear understanding of the characteristics of the setting. A research question would only emerge after a considerable period spent familiarizing oneself with the local issues. This kind of approach to setting a research question is not wholly dissimilar to that of ethnographers and other qualitative researchers who work in a field for an extended period, creating research questions which link to the specificities of the setting.

Taking the second proposition, if the *research should be constitutive of difference*, then it is important that the research question should not have the effect of closing down or limiting the ways in which the subjects of the research will be understood or will conceive of themselves. The ethics and politics of the research thus begin with the question which is asked – indeed, the concept of a

'subject' of research must be challenged and deconstructed in the research process. Within research conducted from this kind of perspective, 'subjects' become 'participants' and are not 'subjected' to research or to the will of the researcher. Thus it will be important to involve participants in the process of setting a research question which is relevant to their own concerns and which will open up rather than close down the possibilities of action open to the participants. Note that this analysis is not only applicable to social science settings, in which the subjects are human, but also to natural or biomedical research (for example, research into human diseases or nutrition). Even if the research substrate is a cell line or an infection agent, the 'subjects' may be considered to include the human beings who will ultimately benefit or suffer as a consequence of the research.

The final proposition, that *theory should be related to practice*, means that research questions should be developed in such a way that the theoretical consequences will be of direct practical relevance. This does not rule out 'blue sky' or pure research, but does mean that researchers involved in these areas need to think carefully about the application of their research findings over a longer time period than the single investigation they are undertaking.

In the research into the use of computer-mediated communication for professional learning (Fox et al., 1999), the key research question only finally emerged after two years of action research and development. Only after many interviews, discussions and workshops, did we have a firm research question concerning professional development and networked virtual classrooms. To the extent that we worked with health professionals to establish the question, they 'own' it and the question articulates with their concerns and with the possibilities which might be opened up for them in the future. Concomitantly, any theory which is developed relates directly to the concerns of those involved in continuing professional development. This grounding of theory is not an attempt to attain internal validity in the traditional sense in which this concept has been developed in naturalistic enquiry (Lincoln and Guba, 1985), but simply to ensure that the findings are immediately relevant and setting-specific.

2 Research Design, Study and Instrument Validity

In traditional research, the issue of research design and the validity of the study and the instruments used are tied up with questions of whether they are appropriate and may adequately answer the research question (Cain and Finch, 1981; Denzin and Lincoln, 1998). Thus a randomized controlled trial would not be considered appropriate to answer an exploratory question of a 'how' type. Similarly, a survey would not be appropriate or adequate to compare two alternative forms of treatment. In the PBR approach, these 'technical' questions are subsumed within epistemological, political and ethical propositions developed previously.

First, if knowledge is local and contingent, we can make no assumptions about the methodological approach or the tools or instruments which should

be used to uncover this 'knowledge'. Similarly, we cannot assume that one research design or instrument will be sufficient to answer a question – methodological pluralism or eclecticism may well be the key here. Just as it was necessary to spend some time in exploration before setting a research question, it will also be necessary to explore the setting fully to have a sense of how research might be pursued.

This relates to the second proposition of PBR, in that this period of exploration should be conducted with the full involvement of all those concerned with the research, specifically the 'subjects' or participants, as in action research designs. Conversely, the politics and ethics of difference militate against such designs as randomized and blind studies or surveys, which sustain differences between 'researcher' and the 'researched'. Methodologies which fit into this principle include qualitative approaches which enable participation, such as interviews, focus groups, Delphi groups and other discursive contexts, as well as case studies which are concerned with specific settings and small- rather than large-scale approaches.

The use of such methods would also support the final proposition, inasmuch as the theory that is developed from the research would be closely linked to the practical concerns of the participants, as opposed to the concerns of a 'disinterested' researcher or scientific community. As was noted earlier in this paper, the difference between traditional and PBR research can be seen clearly in relation to issues of internal and external validity of a study. If a study concerns itself with the development of contingent and local knowledge through methods that ensure participation and the involvement of all those in a setting, then the internal validity (the extent to which a study measures what it sets out to measure) will be high. On the other hand, the external validity or generalizability to other settings will be low or non-existent. Measurements of internal and external validity would be more valuable as indicators that one's approach fits within the PBR propositions rather than as ends in themselves.

An example may be found once again in the research on computer-mediated 'classrooms' for health professionals (Fox et al., 1999). The research design appropriate to a question concerning experiences of such virtual education would need to take account of the particular settings (economic, cultural, religious, national and so on) in which the health professionals were located. It would be developed in conjunction with the learners themselves and would be capable of developing theory that would be relevant to the people involved in the study and would relate to their own practical concerns. The design of the research was developed over a two-year period, as the researchers learnt more about the setting. During this period the participants have been closely involved in the development of the educational programmes and, in some instances, have crossed the traditional divide from 'researched' to 'researchers' themselves. In addition to collaborative educational evaluations, we are also now using Delphi approaches to draw on participants' local knowledge and to ensure the relevance and utility of findings.

3 Data Collection and Reliability

In the traditional paradigm of research, validity and reliability are closely related, with both contributing to the accuracy of the data. While validity is affected by systematic error and is a consequence of the instrumentation or procedures developed for data collection, reliability is concerned with random error. Thus reliability is affected not so much by the adequacy of the instruments used to collect the data, but by the processes of data collection themselves. This is of great importance in social science research, where the 'instruments' may be human beings' own perceptions of situations or may involve direct interaction with subjects, for instance, during interviews. Reliability is reduced where, for example, a researcher varies the questions asked, depending upon the identity or characteristics of the interviewee. Alternatively, some feature of the researcher may affect the responses made by interviewees. The 'Hawthorne' effect of enhanced performance under observation is a good example of how the data collection process may influence responses.

If the propositions of PBR were applied to the process of data collection, from a traditional standpoint the reliability of the data would be seriously compromised, as should be obvious bearing in mind the previous discussion of design and validity. There is a requirement for a degree of reflexivity within PBR which would make the process of data collection prone to both inter- and intra-observer biases. For example, it is probable that an instrument such as a questionnaire or interview schedule would be developed in close consultation with the people who would eventually be the respondents. Indeed, the conflation of the identities of 'researcher' and 'researched' would make the concept of 'observer bias' deeply problematic.

However, rather than confounding the research process, within the PBR paradigm, the 'bias' would be seen as a virtue, guaranteeing that the research was relevant and adequate to answer the research question. While this way of thinking about data collection is highly appropriate for social science, it might also be considered appropriate in biomedical research. For example, a research study could be devised to explore the effects of a particular drug upon patients suffering from some condition. The design of the study would involve the patients, so they would identify the parameters which were relevant for them in assessing the utility of the drug for them. These would vary from 'hard' measures of efficacy, through to the acceptability of the drug for individual patients. As a result, the assessment of the drug might be highly transgressive of medical and health economic commitments! From a scientific perspective, the results might be seen as highly subjective and subject to random errors (loss of reliability). Within the PBR perspective, given the reservations commented upon earlier concerning internal and external validity, subjectivity and bias would be seen as advantages, ensuring that the research findings were relevant to the study population.

These issues were confronted when developing the research on virtual classrooms (Fox et al., 1999). The action research framework was highly

reflexive and participants were directly involved in the development programmes. This tended to raise issues of bias which, from a traditional perspective, could be seen as compromising the measured changes resulting from the educational intervention. However, from an educational point of view, the research and evaluation activities were intimately tied up with the learning process outcome and research instruments such as interviews often contributed to reflexivity among participants about their learning. This offered the potential for 'transgressive' learning that could assist participants to challenge established social and political orders.

4 Data Analysis and Hypothesis Testing

In traditional research paradigms, the phase of data analysis completes the cycle of the research process and should enable the research question to be answered. Where there is a hypothesis, this can be tested using inferential statistics or methods such as analytic induction (Mitchell, 1983). The PBR perspective is more open-ended than this linear or cyclical model of research. Just as the research question emerged during a preliminary exploration of the research setting, the analysis of the research data is likely to be part of an ongoing process of evaluation and reflection.

In terms of the proposition that knowledge is local, the analysis of the data will be intimately linked with the reflections on the research process by the participants and researchers. Indeed, the data would include these processes of reflection and it would be impossible to understand fully the data if the context were to be lost or ignored (Mauthner et al., 1998). The second proposition, that all action should be constitutive of difference, requires that the analysis of the data is constituted within the ethical and political commitments of the participants. Finally, the proposition that theory should be related to practice requires that data analysis would inform the practical concerns of participants and researchers, for example, through recommendations for changes in practice.

The data analysis phase is also implicated in the more general issue of the translation of research findings into practice and, for these reasons, it is hard to see a clear end point to the research process within this paradigm. There is a blurring of the phase of 'research' with that of 'normal practice', so that it is impossible to discern where one begins and the other finishes. It should be obvious from the assessment of this phase of the research process that, within the PBR model, research cannot be seen as an independent activity, but must be seen within the ongoing ethical and political engagements of all the participants: both researchers and researched.

During the research on virtual classrooms for professional learning (Fox et al., 1999) we have been keen to establish a rolling programme of development intervention and research. The elision of the research/practice divide was reflected in a number of aspects of the way the research was conducted:

- the discussions in the virtual classroom were the material for the learning process, the successful outcome of the development programme and the data for evaluation and research;
- the facilitator's own involvement became part of the research data and the medium of the classroom was used to encourage participants to reflect on the learning process (for a discussion of the epistemological nature of such data see Fox and Roberts, 1999);
- a finding from an early intervention both created a new 'research' agenda and the basis for a further refinement of the learning environment; and
- participants 'graduated' from learners into facilitators and, in one or two cases to date, into researchers.

These four moments in the research process address many of the important issues in designing a research programme which meets the expectations established in the propositions for practice-based research. However it is worth reflecting briefly on a further aspect: the ethics of the research process. In many traditional research studies, ethical issues are often tagged on to a discussion of methods: the discussions of design, data collection and analysis are strangely stripped of ethical or political contexts and these have to be grafted on at a later stage. Bauman (1989) suggests that modernist organizations lack an intrinsic morality, making activities like the Nazi genocide simply another organizational problem to be solved by instrumental means. Similar criticism may be raised against many research practices which have flourished in the 20th century, including many studies in psychology and the use of animals in experimentation. Research ethics weigh the benefits of research against the ethical principles on which they impinge and make judgements based on privileging ends against means. By contrast, PBR – as it has been set out here – has no requirement for an additional section on the ethics of research, because the ethics and politics are integral to the propositions and practices of research in this paradigm. A commitment to difference (as operationalized in the emphases on reflexivity, collaboration and transgression) is in itself ethical and political. The research process flows from these propositions, rather than remaining separate and unengaged.

Discussion: Overcoming the Research/Practice Divide

I have sketched out a practice-oriented model of research influenced by post-structuralism and action research, which I have suggested is appropriate for addressing problems in improving service delivery and implementing policy. Rather than setting up a false opposition between traditional (academic, objective, detached) research and PBR, I have explored and deconstructed some of the reasons why research has been seen as distinct from practice. I have not attempted to propose a single way of doing PBR, but have asserted some ethical and political propositions which are congruent with the post-structuralist

critique of traditional research. And I have drawn on models of action and practitioner research, which have been important in subject areas such as education, to turn theory into practical suggestions for PBR.

As has been seen, the implications for the organization of research raised by this kind of approach to the research/practice divide are far-reaching and challenging. Attacks on the claimed irrelevance and non-practical nature of academic research by neo-liberal and conservative sources have been perceived as deeply threatening by many of those involved in research in academic settings. Thus the critique (mentioned earlier) of educational research as non-cumulative, theoretical and practically irrelevant to the classroom (Hargreaves, 1996) was met by a concerted response from academics, including a letter campaign to the *Times Educational Supplement*, arguing that such research was essential and did, indeed, engage with practice. The principal arguments for academic educational research were later variously summarized (Foster and Hammersley, 1998; Hammersley, 1997) as follows:

▪ that research should not simply be responsive to current issues and that there is a need for 'basic' research which does not address policy directly;
▪ that research is best suited to answer technical rather than practical questions;
▪ that practical relevance could threaten the rigour of research; and
▪ that research is not a process of individual discovery but a collaborative activity. Practical relevance derives from synthesis of many individual pieces of research into a more concerted propositional framework.

From such a perspective, might the arguments in this paper for a PBR be seen as another demand for practical relevance at the expense of academicism (albeit argued from a different theoretical position)? The answer to this question is, yes and no!

Firstly, *yes*; the PBR model is intended as a trenchant criticism of 'traditional' research practice, for reasons outlined in this paper, not the least of which concerns the *application* of research evidence and the sociological explanations for why this is often patchy or inadequate. It is clear both from studies reviewed earlier and from failures in service delivery that there are problems in translating traditional research into practical activity. Research findings that have practical implications need to engage with the practice that they wish to inform – for both economic and ethical reasons. The PBR model is one way of assuring that findings are seen as useful and relevant, by overcoming the traditional oppositions between researcher and researched, research and experience and theory and practice (MacLure, 1996) – in each of which the first is the privileged term. PBR is a method to assure relevance because it is built into the very fabric of the research process.

Second, it is important that research is not disengaged from the *politics* of the setting which it explores. Social scientists have argued throughout the past 50 years for emancipatory, radicalizing approaches to the study of the social

world, yet the disengaged model of research which is the legacy of positivism and natural science has failed to deliver on this agenda. What is offered here is an epistemology which does not separate the search for knowledge from practice, or data from social relations, one that is congruent with other methodologies from feminism and elsewhere which engage politically with their fields of study.

On the other hand, *no*; the PBR model does not demand that all research stops if it is not immediately 'relevant'. The neo-liberal critique of academic research is grounded in a non-problematized assertion of what is relevant or irrelevant, the former often equating positive evaluations of effectiveness or cost-effectiveness. Practitioners and policymakers are rarely in a position to see the whole picture and, indeed, will not have the theoretical and methodological tools to undertake the very research which will provide them with useful answers to problems. In contrast, the commercial sponsorship of blue skies research in the natural sciences (from mapping the human genome to metallurgical properties) makes the point that 'relevance' is not always immediately obvious to researchers, yet may be seen as worthwhile by others.

From the post-structuralist position developed in this paper, there is no one version of what is relevant or irrelevant. However, at the same time, the privilege accorded to research as 'objective' or 'rigorous' is also over-turned. What has been argued here is that research and practice are no longer to be seen as in opposition. Rather, they are both aspects of a continuum of human activity and are constituted in relation, one to the other. Research cannot be irrelevant because it is by necessity and definition engaged with practice.

Examples of how research/practice divisions can be overcome offer an implicit acknowledgment of their interdependence. But this does not mean that all research need be conducted using action or practitioner approaches. For example, in biomedical sciences, controlled trials can say important things about external validity, which case studies cannot. Yet the former may follow the latter, building on collaboration between scientists, clinicians and users. In social science, longitudinal or cross-sectional surveys will continue to contribute important data, yet these can be articulated in wider programmes of PBR that connect directly into service delivery and policy, ensuring that findings are taken up and translated into practical improvements. And of course, some social research is not service- or policy- orientated, but simply explores the qualities of lived experience: such understanding may have value in its own right.

So while this paper sets out some practical suggestions for a PBR, the intention is not to create yet another model of the 'best' way to research. If PBR is intrinsically transgressive, this rules out a single truth about how things should be done. Indeed, reflexivity about practice requires that one is always critical and open to new ways of thinking. The ideas developed here have much to say to the academic and the contract researcher, to those who fund research and to those engaged in practice. Research which is integral to practice, which is 'everybody's business', can lead to 'practice-based evidence', but also challenges

many deeply-held commitments and will inevitably transgress norms, values and interests in the research community.

Notes

1   Research councils and other funding bodies request information from grant applicants about how users will be involved in research. Acceptable responses tend to focus on evidence of prior consultation with stakeholders and strategies for the dissemination of research findings.

2   Curiously, David Hargreaves' (1996) argument was based on a spurious comparison between education and medicine and the claim (based on the authorship of papers in one issue of one clinical journal) that, in medicine, most research was conducted by clinicians. In fact, the overwhelming proportion of biomedical research is conducted in university departments (Strong, 1984) and its lack of impact on practice was the reason for the inception of the evidence-based practice movement. Opponents of Hargreaves, such as Martyn Hammersley (1997), offered a conservative defence of academic research, arguing that the solution of practical problems is not the role of research and that 'basic' research was essential for the discipline's advance. For an update on this debate within the educational research community, see Mortimore (2000).

3   Behind debates about methodology there are more fundamental issues of epistemology – philosophical questions about how it is possible to know. In sociology, positivism and naturalistic perspectives have argued the toss, while more recently, realism and postmodern approaches have taken issue over questions of representation in social enquiry. The continuing crisis of modernism rests in its deepening acceptance that the holy grail of unmediated knowledge is unattainable. From quantum physics to social theory, it is now acknowledged that the observer irrevocably affects what is observed.

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