

Evidence-based management and action-at-a-distance

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Abstract

Organisational change in UK higher education has resulted in control of the student learning environment passing from specific disciplines such as psychology to central management teams and university-wide course frameworks. This poses the general question of how disciplines can exert influence upon broad pedagogic issues, when their control extends only to relatively local matters, and the specific methodological problem of how action researchers can investigate topics of general importance when they are only able to make local interventions. Though higher education managers emphasise accountability and evidence-based practice, their own decision-making processes rarely use pedagogic evidence. Examples from a research programme within one psychology department are described, that attempt to apply psychological research methods to generic issues of pedagogy. An important motivation for this programme is the belief that by generating evidence through research, psychologists can both intervene in debates outside conventional control, and assist management decision-making processes to move towards becoming evidence-based.

Action research and academic disciplines

Lewin (1952) described the process of action research as '... comparative research on the conditions and effects of various forms of social action, and research leading to social action'. Higher education is itself a dynamic social process and the 'life space' or 'field' of staff, students and their environment as it exists to them, is a legitimate focus for research of this nature. Action research is often viewed as an alternative approach to

social science research, because an additional objective is to participate in solving a problem within the process of investigating it: 'Action research aims to contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science by joint collaboration within a mutually ethical framework' (Rapoport, 1970, p.60).

A *cyclical* process of planning, action, and investigating the state-of-affairs after action has occurred is central to subsequent

conceptual developments of action research. Single-cycle or 'arrested' action research does occur, but is generally regarded as less satisfactory or general in its application than 'spiral' action research, in which the cycle of planning, acting, observing and reflecting continues endlessly (Zuber-Skerritt, 1992). As Zuber-Skerritt (1992) observes:

The general purpose of higher education is to change students (and in staff development, to change staff) in some desirable way. Practical problems cannot be resolved by pure theory (as theoretical problems can), but by adopting some course of action (i.e. by doing something). (p.26.)

The kind of theory that is developed must, therefore, be grounded in the practical experience of teaching-learning situations. Action research facilitates a 'dialectical' relationship between theory and practice; i.e. each improves the other in the process (Zuber-Skerritt, 1991). Action research is conducted by people who are themselves involved in the social context to be investigated, and utilises the research process as a form of action that changes the problem situation.

It is unproblematic for a course leader in psychology who has considerable control over the environment under investigation, to evaluate the status quo, introduce agreed change and evaluate again. However, psychology is a low-level element in a complex machine, the higher-order components of which are faculties/schools, course and programme frameworks, the university, the academic community, regulatory agencies such as the Higher Education Funding Council for England (HEFCE), and ultimately, the state. Pedagogic action research embedded within individual disciplines, such as psychology, faces a paradox. Researchers have sufficient control to act upon issues connected with their own teaching, but they often do not have the powers of intervention required to act upon broader issues having a far greater impact

upon the quality of learning by their students.

Many of the projects described in the present paper are attempts to employ the technical resources of psychology to influence events and processes at various levels above that of the discipline itself. The practical and methodological problem of how disciplines can intervene in events and processes that have a locus of control lying outside the subject team has become much more serious in recent years because of fundamental changes in the structure of management in higher education.

Managerialism in higher education

From about 1980 onwards, the traditional collegiate processes by which universities in the UK arranged their own internal affairs began to be replaced by a managerialist organisational paradigm. Boden (2001) offers a somewhat negative characterisation of this change:

Over the past decade, universities have, without exception, been subject to a creeping cancer of managerialism. Professionalised classes of managers have emerged and formed a corporate layer at the top of institutions. A glance through the relatively well-paid jobs at the front of the THES appointments will confirm this. All too often this has been accompanied by a shift in power away from academics to managers. (p.16.)

A more positive and balanced discussion of the growth of managerialism is presented by Ramsden (1998). Similar changes in the pattern of management have occurred in schools, in the civil service, and in medicine and the health service. Before the managerialist shift, each of the sectors identified above was held in high esteem both within the UK and outside, and their operations were thought to be efficient and of high quality. Since the shift, each area has either fallen into a condition of crisis, or seems to be converging upon such a condition. The apparent decline in quality has probably not been directly caused by changes in the para-

digm of management. Managerialist practices were introduced primarily to drive down costs, and cost-cutting has itself undoubtedly affected service quality. Nevertheless, there are features of the managerialist model within UK higher education that are unlikely to be conducive to quality maximisation. A central purpose of this paper is to suggest how pedagogic research employing the methodology of empirical psychology, can improve the managerialist model and the outcomes that it produces.

Key features of the post-1980 model of university management are *top-down decision processes* and *employee accountability*. Senior managers establish a strategic plan, and individuals lower down in the university are responsible for implementing it. An important quality control mechanism within this regime is *evidence-based practice*, through which employees can demonstrate that they have achieved various sub-goals of the strategic plan. The concepts of *evidence-based medicine* in the health service, and *evidence-based teaching* in universities are now sufficiently familiar to require no further explanation. What is less commonly encountered, but is arguably much more important in a top-down organisational regime, is *evidence-based management*.

It is important that decisions made by senior managers in universities are securely grounded in evidence because in a hierarchical organisation, top-level decisions are the most influential determinants of the behaviour of the system. Additionally, very few individuals are party to top-level decisions. Such decisions are, therefore, particularly likely to be evidentially fragile, and to be subject to biases such as 'faddism' (copying decisions made in similar organisations), groupthink (endorsing or failing to challenge the decisions made by fellow-members of a small group) (Janis, 1989) and 'shift to risk' (small groups choosing riskier options than any group member would make alone)

(Turner, Pratkanis, Probasco & Leve, 1992; Worchel & Shackelford, 1992; Janis, 1989; McCauley, 1989).

Paradoxically, management as an area of professional activity has been very slow to accept the evidence-based practices that it has imposed elsewhere in organisations. This perhaps underlies Boden's anxious question '*who exercises governance over managers in the newly corporatised universities?*' (Boden, 2001, p.16). In fact, corporate authority structures are usually well-defined. A more critical problem is that providing there is appropriate support for a policy *within* the management hierarchy, there is no mechanism for ensuring that policies are grounded in *external* evidence. A number of reasons are commonly offered for this:

- Management decisions are dynamic, real-time, on timescales too short to permit evidence-gathering, etc.
- Management decision-making contexts are unique, hence not susceptible to evidence-based generalisations.
- University management requires courageous leadership, hence decisiveness in conditions of uncertainty, persuasiveness in getting others to follow corporate policy, etc.

In imposing accountability on others, managers have already encountered and refuted the very same arguments that they now espouse in defending their own freedom of action. What makes the situation of senior university managers unusual, is not that there is less reason to take account of evidence than at other levels in the organisation. It is the conjunction of the political problem of holding accountable those individuals with most power, and the methodological problems associated with the evaluation of large-scale organisational change. Consequences of this conjunction include:

- Office-holders often initiate strategic change and then move on to other posts before changes can be evaluated.

- In top-down systems responsibility for strategic change is sharply focused and agents of change may not be motivated to facilitate evaluation.
- Evaluation may be projected as a waste of resources once irreversible change has occurred.
- Baseline data is often not collected before change is introduced.
- Control conditions are almost never available.
- Strategic change can invalidate all convenient performance measures.

A strategy for psychology

Researchers within the Oxford Brookes Psychology Department have attempted to apply the methodology of empirical psychology to issues of concern in university management and to design research studies likely to produce data relevant to university policy development. The motivations for engaging in research of this kind are various:

- Integrating research skills with teaching practice. The artificiality of the distinction between research and teaching is unusually evident in the case of psychology, as student learning is an instance of the phenomena it seeks to explain.
- Good quality research on teaching is of immediate and practical value to academic peers from other disciplines and to university management. Promulgation of the findings can sometimes raise the esteem in which psychology is held within the academic community.
- Pedagogic research can influence remote decisions by enhancing the amount and quality of the evidence upon which these decision processes operate. Because of the development of university-wide administrative frameworks, (such as the *Undergraduate Modular Programme* at Oxford Brookes), pedagogic research can often only impact upon issues of general

importance to psychology by focussing upon aspects of learning and assessment dictated by the course framework.

- Modular organisation has introduced comparability between learning units and assessment, and created sample sizes that offers new possibilities for hypothesis testing studies. Data collected for routine administration is often easily accessible for secondary analysis (Lindsay, 1998).

It is not possible to carry out a research investigation with full confidence that university management will base their policy on the research outcomes. It may be a weakness in standard models of action research that investigators must have considerable powers of intervention in the system that they study. This creates the dilemma that academic action researchers must confine their interest to the relatively trivial systems over which they have control, or gain power within larger-scale systems before research is possible. This methodological-cum-organisational problem seems to have no general solution. In our own pedagogic research we have evolved a series of general principles that have informed our research designs:

- ensure that research projects are directly relevant to specific policy issues;
- try to enlist the support of a management 'champion' (without losing control of the data);
- try to design studies that produce compelling (often quantitative) evidence and support definite conclusions;
- produce reports of research outcomes and policy implications that are widely disseminated within the university (and outside);
- present research findings and their policy implications to as many committees as possible.

Research designs for studies of this kind can rarely be experimental, (Lindsay, 1997) and more commonly involve secondary data analysis (Lindsay, 1998). Whenever it

is relevant to do so, an attempt is made to use models of organisational processes or of student cognition (Lindsay, 2000) to assist in interpreting and explaining research findings. This strategy doesn't guarantee that university management will base their policy on the research evidence. It does usually mean that evidence comes into the debate. At worst, policy formulators will be aware of the credibility risk to strategic decisions that fly in the face of evidence widely known within the university community.

Resource issues and student performance

Oxford Brookes Psychology group have deliberately targeted issues that affect the pedagogy of psychology via a generic impact upon Higher Education (HE). The research group has taken the perspective that the standard research methods of psychology can assist in transforming educational controversies into problems upon which empirical data can be brought to bear. For example, when, during the 1980s the unit of resource in HE was systematically reduced, this policy was routinely accompanied by the claim that there was no evidence that high student: staff ratios had an adverse effect upon student learning. A view even began to emerge that students in UK HE were 'overtaught', so that less contact with lecturers would enhance student achievement by promoting autonomous learning. Lindsay and Paton-Saltzberg (1987) examined the effects of class-size in HE on academic achievement using module enrolments at Oxford Brookes and mean module marks as proxies for class size and student learning respectively. The data showed a significant reduction in marks above 60 per cent, and an increase in both marks below 60 per cent and in failure rate as module enrolment increased. This finding has subsequently proved to be replicable (Fearnley, 1995; Gibbs & Lucas, 1996; Gibbs, Lucas & Simonite, 1996).

During the 1990s the purchasing power of student maintenance grants began to deteriorate as government ceased to uprate them in line with inflation. When university teachers reported that students were commonly finding it necessary to work while studying, one response was that the opportunity to acquire workplace skills was intrinsically beneficial, and that generic skills would transfer to academic work producing positive effects upon performance. Lindsay and Paton-Saltzberg (1993) examined the effects of concurrent paid work on academic performance by comparing the average marks of students on Oxford Brookes Modular Programme who were working, with those who were not. The data showed that full-time students who were undertaking paid employment gained marks that were significantly lower by an average of 2.69 per cent than students who were not. This was not due to ability as the difference was not present in first year marks gained before the students found work. The rate of module failure was about 300 per cent higher for working than non-working students, and an estimated 254 students per year gained a degree at least one class lower than they otherwise would have done, because of the effects of working. A questionnaire returned by the same sample also revealed that working students were close to unanimous that workplace learning had no beneficial effects on their academic study.

A related research study oriented towards issues of general policy was an evaluation of supplemental peer instruction (Lindsay, 1998). As its label suggests, supplemental peer instruction (SPI) involves tutoring of less by more experienced students that is additional to standard learning experiences. In this investigation the supplemental peer instruction (SPI) was provided outside the Department of Psychology, and the research results were reported by the providers (Price & Rust, 1995). Psychologists advised on what

hypotheses to test, what data to collect and how to analyse them. The general policy issue is the dilemma between seeking to enhance student learning via peer instruction, versus substituting cheap partially-trained student instructors for trained professional academics. The logically prior question is whether SPI can be demonstrated to work. Again, using the Oxford Brookes Modular Programme database it proved possible to establish a fairly compelling case. The basic design was to identify a group of students who had elected to take SPI and a control group who had not. As all students were drawn from the same discipline, comparisons could be made between the module marks of the SPI/non-SPI groups on modules taken before SPI (to establish a baseline), modules with SPI (to measure immediate effects) and modules taken after SPI (to measure positive transfer). The analysis showed no initial differences between the control and SPI groups, but both immediate and transfer benefits for the students who had taken SPI (Price & Rust, 1995). The direct implication is that students demonstrably benefit from peer instruction, and the benefits persist and generalise. There are also less direct implications (no less important for policy debate). One is that that universities could employ students at reasonable rates of pay, under relatively benign and convenient working conditions on tasks which would be likely to benefit their own learning as well as those to whom SPI was administered. A less positive implication loops back to the class-size issue. Measurable benefits to student learning from SPI provided by individuals who are little more than willing novices, suggests that far from being overtaught, students stand in need of additional tutor support. The very effectiveness of SPI is further, if oblique, evidence of the negative consequences for student learning of a higher SSR.

Computers and student learning

A research study (Breen, Lindsay, Jenkins &

Smith, 1998; Breen, Lindsay, Jenkins & Smith, 2001) focussing on a quite different set of policy issues investigated student conceptions of learning based upon Information and Communications Technology (ICT). As most recent issues of *The Times Higher Education Supplement* attest, it is nowadays a commonly held belief that ICT-based learning will before very long, replace first books, then lecturers. According to this vision, a new educational economy will arise, within which time will be abolished by 'asynchronous learning', distance by the instantaneous transmission of information over the web. Most important: labour costs will dwindle, and the messy business of managing academics will be replaced by universities that are little more than warehouses for compliant machines, trading information with students living conveniently off-campus and working from their own PCs. This vision, likely to seem dystopic to those who enjoy and value teaching, survives despite accumulating experience that computers may improve the quality of teaching, but don't seem to save labour or money. Our investigations of student conceptions used a variety of methods, including diary recording, questionnaires, and of most interest here, focus groups of students drawn from ten different samples (*part-time vs. full-time; UK vs. international; science vs. non-science; mature vs. traditional; IT-novice vs. IT-expert*). The diary and questionnaire studies supported one another in showing that PC-ownership amongst students is increasing in frequency, but this does not reduce the demand upon university facilities. In fact, PC owners use university facilities more than non-owners, and heavy PC users use university facilities more than light users. University computers were particularly likely to be used for printing, web-based activities, and work with specialist packages.

The focus group discussions were guided by a schedule of prompts that

encouraged students to describe positive and negative experiences with ICT resources such as computers, the web, e-mail and CD-ROMS. However, discussions also ranged over non-ICT resources such as lecturers, books, journals, videos and workbooks. Content analytical procedures were used to extract 16 features that were used to commend or condemn the various teaching support resources (examples of features are *cost*, *currency*, *information quality* and *accessibility convenience*). The focus group dialogues were transcribed, and each sentence was classified as irrelevant, or associated with the resource type and feature to which it was most appropriate, and classified as positive or negative. The frequency of positive and negative object – feature pairings (e.g. e-mail + information quality) were then analysed for each of the ten focus groups. Positive and negative pair frequencies were calculated separately for each group, so that it was possible for instance, to report which groups used which pairings, the number of groups that positively (and negatively) paired a feature with an object, and the total number of pairings across all groups. The number of groups using a pairing was treated as a crude measure of the *generality* of a belief/attitude, whilst the total number of pair occurrences was taken as an equally crude measure of the *intensity* with which the belief/attitude was held.

The data revealed a surprisingly large number of between-group differences, for example, *first year international students* were atypically positive about e-mail, presumably because it allowed contact with home to be maintained. *Preparedness* was negatively paired with *computers* by the mature student groups, who made more negative evaluations of computers on this feature than any other group. The *mature (computer) expert group* approved of the currency of CD ROM-based information, while the *first year non-science* group appreciated its quality and *second/third year non-*

science commended its specificity. Some *part-time* students criticised the quality of CD ROM-based information. *Second/third year science* and *non-science* students believed that they were inadequately prepared for using CD ROMs.

At least as interesting as the between-group differences were the shared perceptions and attitudes. These may be inferred from the *general recommendations* that were made to various senior committees within Oxford Brookes as a result of the study (the version reported here is abbreviated):

1. The University's resource-based learning (RBL) policy for ICT should assume that students already have ... a sophisticated framework within which different forms of RBL are assigned specific roles in learning support. ICT facilities are not seen as a generic mode of learning, but are evaluated and understood within this context.
2. The University should explicitly recognise the central role played by ICT resources by identifying the time and cost to students of using it, in the same way that class contact commitments, and specific texts with an identifiable financial cost are currently identified in course descriptions.
3. The University should recognise that the main obstacles to increased student use of ICT are perceived disbenefits rather than failure to perceive benefits. The main disincentives are *competition* for access to university ICT facilities and the cost of PC ownership.

In addition, the data allowed ten *specific policy recommendations* to be made. Three examples are given below (once more in abbreviated form):

- i. Some identifiable groups of students are apparently not receiving sufficient preparation or exposure to ICT use and show atypically negative attitudes. These groups include international and mature first years, part-time students and students from applied disciplines.

- ii. The general recognition by students that ICT is crucial for learning leads directly to feelings of inadequacy, disenfranchisement, and hostility towards the university on the part of students unable to use it. The University needs to ensure that all students are adequately prepared to benefit from the use of ICT. In particular, it must be recognised that some categories of students (e.g. mature students, international students and part-time students) cannot be presumed to have had pre-university training.
- iii. Many negative student attitudes to ICT seem to derive from the use of inappropriate cognitive models to interpret experiences of ICT such as cost and competition for access. In some cases the University has unintentionally supplied or reinforced these inappropriate models, it has done little to supply models which are to be preferred. For example, students see the cost of PC ownership as being daunting in magnitude, as occurring at a single point in time, as additional to traditional costs and as unnecessary because of poorly-specified ICT demands within the curriculum, and because adequate generic university provision is available. All of these features can be challenged:
- The cost of a PC spread over three years is not greatly different in absolute magnitude from expenditure on one book for each of the 24 modules required for a degree.
 - There is no reason why the entire cost of a PC should fall at a single point in time. The University might consider arrangements that allow cost to be spread. This would produce a better fit between outlay and student income and would facilitate a more realistic appraisal of overall cost.
 - Book-cost per module is constrained by permitting only one text to be nominated for purchase. Other resource costs should be restricted or identified in the same way

and a realistic ceiling should be specified. Modules requiring expenditure on non-text learning resources should reduce expected expenditure on books.

- ICT resource needs of specific modules should be explicitly identified as part of the module description just as time allocation for traditional teaching categories is identified ('20 hour lectures...', etc.). This would alert students to the fact that use of ICT is a formal expectation, and encourage staff to consider a range of different IT-based learning devices in designing their modules.
- The University should formulate and project to students a strategy for institutional ICT provision which promotes realistic expectations.

Pedagogic research of the type described above has sometimes been designed in cooperation with management to assist decision-making. Sometimes it has been carried out unbidden, but nonetheless achieved an impact upon policy, and sometimes management has seemed to work hard to ignore or even dismiss the research findings (Lindsay, 1989; Lindsay, 1998). The remainder of the present paper focuses in slightly greater length on an example of successful policy-oriented research. This research has dramatically influenced Oxford Brookes University's own strategic agenda, has helped inform general academic debate, and has allowed the university to punch above its weight in national discussions. This example illustrates just how effective the research strategy described at the beginning of this paper can be. Elsewhere in this issue of *Psychology Teaching Review* (Lindsay, Breen & Paton-Saltzberg, 2002) an example is given of research data that raises serious questions about several aspects of current fashions in Higher Education at national level. This data may have had an informal effect within Oxford Brookes, but has had little or no impact at university level or above.

Lecturer research and student learning

Studies of modular dynamics (see Lindsay, Breen & Paton-Saltzberg, *'Pedagogic Research and Evidence-Based Management'* elsewhere in this issue), may have helped sensitise student advisors at Brookes to the risks associated with module load. They have not on the whole been successful in shaping institutional policy. Studies of the 'teaching research nexus' certainly have. A considerable number of previous investigations have tried to correlate the research productivity of lecturers and student evaluations of their teaching. A meta-analysis by Hattie and Marsh (1996) provides convincing evidence that the two measures are independent. The methodology of these studies is oddly behaviourist in stance however, given that students are rational, articulate agents, who can be directly asked how their learning is affected by lecturer research activity. Beginning in 1995, a series of studies at Oxford Brookes did exactly this, in the context of focus group discussions. The results suggest that lecturer research is positively valued by students and perceived by both undergraduate and postgraduate students as having beneficial effects on their learning (Jenkins, Blackman, Lindsay, & Paton-Saltzberg, 1998; Breen & Lindsay, 1999). Tables 1 and 2 (following) present some typical data. Four studies sought to investigate student learning experiences of lecturer research at the undergraduate and postgraduate levels. In 1997, the first exploratory study of undergraduate student perspectives on staff research was conducted using focus groups. The findings revealed that students perceived both advantages and disadvantages from lecturer research, but students did not actually perceive themselves as stakeholders in research activity. From this initial study, policy suggestions were formulated as to how staff research could be better managed by individuals, departments, institutions and funding bodies to the advantage of students.

The undergraduate study demonstrated that focus group data from student discussions of positive and negative effects of lecturer research can be analysed both qualitatively and quantitatively. A second study was conducted which used a modified version of the focus group interview schedule suitable with postgraduate students. Undergraduates and postgraduates could now be compared. Quantitatively, both undergraduate and postgraduate samples showed a substantial preponderance of positive over negative comments. Qualitatively, there was also a great deal of consistency in the benefits of lecturer research that were identified, including enhanced knowledge currency, enhanced lecturer credibility, competence in supervision and enthusiasm/motivation. Both groups were also consistent in identifying reduced availability of lecturers, competition with teaching, and curriculum distortion as negative effects of lecturer research activity. In addition to the 'generic' benefits of research identified by both groups, postgraduates emphasised the importance of the salience (interest, relevance and utility) of lecturer research to the content of their learning.

The focus groups in the undergraduate study included six to eight students from one of eight disciplines and the taught masters group (postgraduates) were drawn from the same group of disciplines. Between-discipline comparisons revealed that the frequency of positive comments about lecturer research activity increased as the quantity and quality of research in their discipline increased (as measured by Research Assessment Exercise ratings). In the undergraduate samples, the frequency of negative comments about research also increased with RAE rating, while amongst postgraduates negative comment frequency diminished as RAE rating increased.

Individual differences in student experiences of academic research were investigated using questionnaires. Previous

research has suggested that student motivation to learn is closely entwined with their attitudes towards lecturer research. To explore this relationship a 71-item Likert-type questionnaire was administered to 100 final-year undergraduates. It was confirmed that *type* of student motivation is systematically related to faculty research. On the basis of a factor analysis, it was proposed that *Intrinsic Motivation*, and a specific form of *Course Competence* are associated with positive attitudes to departmental research activity while *Extrinsic*-, *Social*- and *Achievement*-oriented students appear to be indifferent, or have negative attitudes towards research. Happily, the motivational styles associated with positive attitudes to lecturer research were also those likely to lead to effective learning. On the basis of these findings, it was possible to advise how positive forms of student motivation could be enhanced.

The questionnaire was subsequently administered to 150 postgraduate students (75 taught masters students and 75 research degree students). Again, data obtained were compared with the findings from under-

graduates. Though the data confirmed that on undergraduate, taught masters and PhD courses, positive attitudes towards research are associated with specific types of student motivation, these differ between the three groups and thus require different teaching and learning strategies to enhance their development. Again, encouraging a motivational style associated with a positive attitude towards research activities within the university environment would be expected to have the collateral benefit of improving student learning. Differences between academic disciplines were also explored in these questionnaire studies. *Hard-pure-life type* disciplines (e.g. Biology) were found to have more positive attitudes towards research than applied disciplines. It was concluded that in motivating students in the applied disciplines to develop positive attitudes to research activities it is important for explicit links to be made between theoretical knowledge and practitioner skills.

Table 1 presents quantitative data from eight undergraduate samples drawn from different disciplines; Table 2 presents similar data from eight postgraduate groups

Table 1. Percentage of dialogue contributions categorised as positive (+), negative (-), and neutral (0) towards teaching and research, used by undergraduate students in focus group discussions.

RAE RATING	Research						Teaching					
	+		-		0		+		-		0	
	1992	1996	1992	1996	1992	1996	1992	1996	1992	1996	1992	1996
High(%)	34	40	21	13	45	47	20	30	14	16	66	54
N	2	4	2	4	2	4	2	4	2	4	2	4
Medium(%)	26	31	9	9	65	60	17	22	10	11	73	67
N	2	3	2	3	2	3	2	3	2	3	2	3
Low(%)	18	9	8	3	74	88	15	29	7	7	77	64
N	4	1	4	1	4	1	4	1	4	1	4	1

Student samples from which the data in Table 1 is derived were drawn from eight disciplines categorised by level of research activity (High, Medium, Low) according to the 1992 and 1996 Research Assessment Exercises. N = number of disciplines in a given RAE band.

Table 2. Percentage of dialogue contributions produced by postgraduate students in focus group discussions categorised as Positive (+), Negative (-), and Neutral (0) towards teaching and research.

RAE RATING	Impact of research on teaching +		Impact of research on teaching -		Impact of research on teaching 0	
	1992	1996	1992	1996	1992	1996
High (%)	38 (1.9)	26 (2.7)	8 (0.4)	4 (0.4)	1994 (97.7)	925 (96.9)
N	2	4	2	4	2	4
Medium (%)	58 (2.3)	34 (2.2)	17 (0.7)	6 (0.4)	2447 (97.0)	1506 (97.4)
N	2	3	2	3	2	3
Low (%)	1 (0.2)	37 (1.4)	12 (2.3)	27 (1.0)	502 (97.5)	2512 (97.5)
N	3	1	3	1	3	1

Student samples from which the data in Table 2 is derived were drawn from eight disciplines, categorised by level of research activity (High, Medium, Low) according to the 1992 and 1996 Research Assessment Exercises (percentages in brackets). N = number of disciplines in a given RAE band.

sampled in the same way. The most conspicuous feature of the data in Tables 1 and 2 is the consistent preponderance of positive over negative comments, and clear tendency for the number of positive comments to increase with RAE rating.

Both undergraduates and postgraduates think that research activity makes their lecturers more enthusiastic, increases their credibility, and ensures that their knowledge is up-to-date. They also think that involvement in research means that lecturers are less accessible, and can sometimes lead to curriculum bias if narrowly focussed research is given too much attention (Jenkins, Blackman, Lindsay & Paton-Saltzberg, 1998; Lindsay, Breen & Jenkins, 2002).

Whilst both undergraduates and postgraduates agree about the generic benefits of lecturer involvement in research, postgraduates also apparently expect the lecturers who support their learning to be

involved in research; and they insist that this research should be relevant to the content of their courses. In one study for example, out of 8 different university departments, there was only one case in which the frequency of negative comments about research exceeded favourable comment, and interestingly, this was the Department which received the lowest RAE rating in the sample (Lindsay, Breen & Jenkins, 2002).

The differences between undergraduate and postgraduate samples seemed to be related to participants' reasons for studying. Undergraduates are seeking to extend their general education, and they expect the people who teach them to capture their interest, to present current knowledge and to speak authoritatively within their discipline. Postgraduates also have more specific goals: they may want to become researchers themselves, or to acquire knowledge that

can be applied in some definite professional or commercial context. The more specific expectations about lecturer research amongst postgraduates is clearly related to the more specific goals by which they are motivated.

Attitudes towards research activity in their department is strongly influenced by the goals that students are pursuing (Breen & Lindsay, 1999; Breen, Lindsay & Jenkins, 2002). Amongst undergraduates this underlies the association between positive attitudes to research activity and some motivations (*Intrinsic Motivation and Course Competence*) but not others (*Extrinsic, Social and Achievement*). Amongst research students and masters students, positive attitudes towards research are associated with an orientation towards acquiring theoretical knowledge for the purpose of 'developing one's potential', attaining 'freedom at work', becoming involved in 'interesting' and 'creative work', 'influencing society' and 'achieving important things' in professional practice. Motivations that are not associated with positive attitudes to research tend to emphasise obtaining qualifications, or establishing a successful or a secure career without any reference to the acquisition of knowledge.

Student attitudes to lecturer research are also affected by academic discipline. For example, Breen and Lindsay's (1999) data suggest that positive student attitudes and motivations can be enhanced by interactions between undergraduates and faculty based around shared beliefs and values derived from the discipline. Lindsay, Breen and Jenkins (2002) found that *hard-pure-life* type disciplines (e.g. Biology) have more positive attitudes towards research than applied disciplines. Several of the Oxford Brookes investigations noted a consistently negative attitude towards research among Business Administration students. Jenkins, Blackman, Lindsay and Paton-Saltzberg (1998) suggest that this could result from an inappropriately narrow conception of research and

certainly the meaning of 'research' can shift dramatically between sciences, humanities and applied disciplines.

The amount of research going on in a department might be expected to affect the impact of lecturer research activities on student learning. Using RAE rating as a proxy for the quantity of research, Lindsay, Breen and Jenkins (2002) reported a clear relationship between student views on the value of lecturer's research, and the RAE rating of their department. The higher the RAE rating, the more positive comments students made about the way research affected their learning. Amongst undergraduates, the number of negative comments also increased with RAE score. Postgraduates however said less negative things about research as RAE ratings went up. This pattern of results can be explained on the following assumptions:

- a. Both groups of students value research by staff because it enhances enthusiasm, credibility, currency, etc.
- b. A high level of research activity in a department will increase student awareness of ongoing research and its impact upon teaching, and students will be more likely to have positive comments to make.
- c. For undergraduates, negative features of lecturer research activity (reduced access and availability, etc.) are also likely to become more evident as the amount of research activity in a department increases, hence more negative comments.
- d. Postgraduates are more likely to be involved in lecturer research and to see direct benefits for their own learning. They are less likely to experience reduced access because of different patterns of contact (e.g. longer teaching year, small group or one-to-one supervision, etc.). Hence more research leads to less negative comments.

The pattern of interaction between student motivation and lecturer research activity is a complex and subtle one:

- i. Students as a whole seem prefer to learn from staff who are involved in research.
- ii. Students who are motivated to seek knowledge, value research activity more than those who seek qualifications.
- iii. Students in disciplines organised around a cumulative knowledge-base (e.g. Biology) are more likely to value research than those from disciplines based on the application of softer and more transient knowledge (e.g. Business Administration).
- iv. Postgraduates are more likely than undergraduates to see themselves as stakeholders in lecturer research, and are less likely to perceive disbenefits.
- v. Students value research activity, but as its impact upon them increases, undergraduates increasingly report downside effects, whilst postgraduates do not.

Policy-based actions resulting from the research into the teaching-research nexus

Six actions have been implemented as a result of investigations into student perspectives on the impact of lecturer research on their learning.

- Firstly the results were used to shape a **University-wide conference** on linking teaching and research (http://www.brookes.ac.uk/services/ocsd/5_research/link1/ltr1.html).
- This conference provided the understanding and generated political support for a **policy statement** asserting the institutions commitment to the integration of research into teaching and learning. (<http://www.brookes.ac.uk/brookes/LTS.html>).
- A **working party** on deepening teaching/research linkages was established in March 2001 as part of a review of university course provision. This working party will set out the detailed proposals for implementing the strategy.
- The **appointment of a senior researcher** to work across the University was an

important move towards overall monitoring of the integration of teaching and research.

- A successful bid was made to the Fund for the Development of Teaching and Learning (FDTL) to link teaching, research and consultancy in the disciplines of Planning, Land and Property Management and Building into the overall University policies at Brookes, Sheffield Hallam and the Universities of the West of England and Westminster (<http://www.brookes.ac.uk/schools/planning/LTRC/>). The **FDTL project** aims to spread awareness about the use of research resources to enhance teaching and learning by encouraging communication and examples of good practice among staff via workshops and conferences and the development of good practice guidelines.
- Finally a **Pedagogic Action Group** was established whose aim it is to promote the use of pedagogic action research as a central source of robust evidence for future teaching and learning related policy formulations.

Conclusions

The present article began by arguing that the adoption of a managerialist decision-making paradigm by universities has created an urgent need for pedagogic research data that can support evidence-based management. A wide range of policy-oriented research studies has been described, all of which were motivated by a need to intervene in policy debates at a higher level than the department in which the research originated. A strategy is described, based upon action research, which creates a reasonable chance of accomplishing this goal. This strategy has been repeatedly implemented with modest success. A particularly useful example is the series of research studies of the relationship between teaching and lecturer research summarised in the latter part of the article.

As well as helping to change policy within Oxford Brookes, the evidence generated by the studies has been disseminated through academic journals, presented to international conferences and reported by wide circulation publications such as *The Times Higher Education Supplement*. This has helped shift the debate from a sterile and not entirely appropriate fixation upon correlational studies of the relationship between teaching evaluation and research output, to a more constructive focus upon the issue of how teaching can be enhanced by academic research.

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