

Annex F

Relationship between teaching, and research, and proposals for research training

Table F1 **Benefits for teaching from research**

Direct knowledge-led. High quality research can provide very clear benefits to student learning, for instance through exposure to a curriculum informed by knowledge at the cutting-edge. This benefit is most often held to occur (and is perhaps most direct and effective) in postgraduate teaching and in the later years of undergraduate courses in the 'scientific' or laboratory-based disciplines.
Direct culture-led. This may be seen as the benefit from exposing students to the spirit of enquiry and the research method, to the search for and analysis of data, and the consequent development of their capacity to advance and defend theories and to subject ideas to critical analysis. This benefit is as clear in the arts, humanities and social sciences as in the natural sciences.
Indirect resource-based. Teaching can benefit from sharing the resources provided for research, from the role of research in attracting high calibre staff to institutions and departments, and the generally beneficial impact on reputation and resources which research can bring to departments and institutions.

Teaching benefits from a range of research and scholarly activity. This beneficial synergy works in a variety of ways in different disciplines and institutions, but three main mechanisms have been identified. We consider that developing an improved research profile can have direct benefits for teaching, and that the ability of institutions to offer research facilities and opportunities for their staff is an important and pervasive indirect benefit. However, the JM Consulting study on the interactions between research, teaching and other activities suggests that institutional policies to promote synergies are patchy and variable in effectiveness. There is little evidence that HEFCE policies have promoted research at the expense of teaching. Rather higher education is continuing to achieve significant increases in productivity, and this is at least in part a function of the generally synergistic relationship between teaching and research. However, there is some concern that a further increase in productivity cannot be achieved without radical change.

Table F2 **New studentships held in a calendar year by source of studentship (England)**

Source of studentship	1988	1989	1990	1991	1992	1993	1994	1995
Research Councils	3,434	3,674	4,328	4,046	4,116	4,184	4,265	4,497
UK Based Charities	467	510	555	634	586	630	711	684
UK Central Government	1,096	1,088	1,072	993	1,133	1,227	1,199	1,132
UK Local Authorities, Health and Hospital Authorities	343	333	283	296	294	374	404	519
UK Industry, Commerce and Public Corporations	618	771	756	926	999	991	1,093	1,183
Institutional Self Funded	n/a	n/a	n/a	n/a	2,255	3,614	3,752	4,301
Overseas	1,700	1,751	1,847	1,954	1,931	2,174	2,309	2,106
Other	895	991	1,115	1,291	470	581	488	598
TOTAL	8,552	9,117	9,956	10,139	11,784	13,775	14,221	15,020

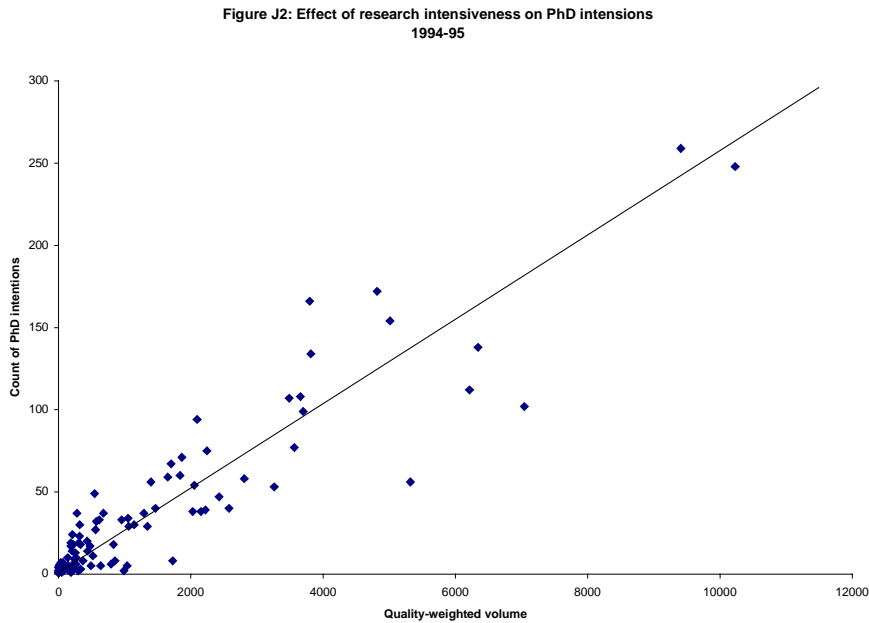
Table F3 Estimated new PGR studentships (using student FTEs) by source of funding (for England)

Time series of estimated new PGR studentships (using student FTEs) by source of funding (for England)

Source of studentship	1994- 95	1995- 96	1996- 97	1997- 98	1998- 99
Research Councils	3,361	3,892	3,552	3,428	3,585
UK Based Charities	288	443	459	467	643
UK Central Government	1,059	1,277	1,058	915	1,092
UK Local Authorities, Health and Hospital Authorities	99	73	78	52	64
UK Industry, Commerce and Public Corporations	1,049	1,242	1,315	1,495	1,652
Institutional Self Funded	6,703	7,862	8,066	7,797	8,431
Overseas	1,522	1,506	1,607	1,303	1,339
Other	0	343	552	608	682
TOTAL	14,081	16,638	16,686	16,064	17,489

One consequence of the increasing emphasis on research has been an increasing eagerness on the part of institutions to recruit postgraduates, both taught and research. There are currently 62,300 postgraduate research students in England. The major area of growth is in the number of institutionally-funded studentships. There was substantial growth after the elimination of the binary line between universities and polytechnics in 1992, but this stabilised prior to the 1996 RAE and the number has remained roughly constant since. The statistics show that this growth has occurred throughout the sector, with a similar rate of increase in both pre- and post-1992 institutions, so it is probably related, at least in part, to the funding incentives provided by the HEFCE's research funding model.

Figure F2 **Effect of research intensiveness on PhD intentions 1994-95**



There is some evidence that relatively small amounts of research funding can be significant in prompting students to consider a research career. This figure shows HESA data on PhD intentions against research funding. As expected, there is a general correlation at high levels of research intensiveness, but there is also a clear relationship at low levels of research funding - maybe even a disproportionate propensity of students in some institutions to consider going on to a research career. It may be argued that if these low levels of funding were withdrawn these students would be lost to the world of research.

Table F4 **Reasons for establishing collaborative arrangements to enable institutions to meet agreed minimum standards for research training**

Increasingly the range of research skills and experiences students require cannot be supplied by a single thesis supervisor; this holds true just as much in the arts and humanities as in the sciences
There are significant economies of scale in the delivery of research training, particularly the generic skills acquired early in the training experience
Increasingly, globalisation requires that students' training experiences expose them to world class facilities and world class researchers
There is an increasing need to teach supervisory skills, and this may be facilitated by collaboration.

We are concerned that the rapid expansion of postgraduate research activity in the sector, coupled with the determination of many institutions to develop their research profile, in some cases from a very low base, has resulted in an inappropriate dispersal of postgraduate research trainees. As a result, some of these trainees are isolated, lack physical and intellectual support, and do not receive a level of training that prepares them for a career either in academe or outside it. Responses to the call for evidence shared our concerns, and showed widespread support for a move towards greater concentration of research training.

Our concern is to balance the legitimate aspiration of institutions to develop their research capability with the rights of students to receive appropriate research training.

Table F5 Provisional criteria for collaborative models to enhance research training

Assist young researchers up to and including their first established post, although focused on postgraduate researchers.
Be sensitive to the different research training cultures and career progression pathways in different disciplines
Avoid reinforcing disciplinary boundaries
Facilitate the concentration of training activities, in order to achieve critical mass
Impact on institutional practice, providing opportunities and incentives for best practice to be shared.
The effects of the model on 'barriers to entry' to postgraduate research (PGR) provision must also be considered, because of potential knock-on effects on selectivity.

We have devoted considerable attention to considering what mechanisms and structures could be developed to enhance the development of research people. The criteria detailed above are those that we believe are essential for an effective and efficient approach.

Table F6 Options for developing enhanced research training and career development

Method	Advantages	Disadvantages
Add responsibility for PGR training to the remit of the Learning and Teaching Support Network (LTSN)	Disciplinary basis. Makes use of existing networks and integrates PGR training with advances in L&T generally. Does not divide research from L&T or undergraduates from postgraduates - will tend to be the same academic staff in institutions who teach and supervise all three groups.	LTSN already has ambitious remit. Centres have been established without PGR work among their aims. Does not address the question of research careers more broadly
Programme modelled on the Integrative Graduate Education and Research Training (IGERT) Programme of the NSF	Model already in use in the USA. Integrates researcher development with the development of multidisciplinary research fields. Fosters collaboration both between and within institutions	Creates a new initiative. The model seems more appropriate to Research Council than Funding Council use. Funding is awarded for up to 5 years, but because it is associated with a particular research programme, improved practice may not become imbedded in the institution.
Create new subject centres on the model of the existing LTSN – Research Training Support Network (RTSN)	Disciplinary basis. Creates new centres focussed on the specific goals of PGR and researcher development	Creates new initiative. But model is proven and allows institutions to identify and implement the most appropriate arrangements to enhance the research training experience
Direct collaborations between similar departments (the Scotdoc model)	Disciplinary and regional basis makes for strong links. Local management based on academic and institutional autonomy rather than a centrally-directed programme.	A diverse web of collaborative arrangements would be needed. Difficult to ensure that all were well managed and effective, also difficult to ensure that all PGRs were included in such schemes. Not clear how well such arrangements would work if the partners were seen as unequal. Unclear what level of additional financial support is required
Create collaborate graduate schools through funding constraints and incentives (Hub and spoke model)	Creates clear hub and spoke models and economies of scale. Synergy from breadth and depth of environment will definitely enhance student experience. Eliminates student sense of isolation. Critical mass creates basis for infrastructural investment in student support facilities.	Clustering will always exclude some specialised sources of supervisory input. Lone scholar tradition still strong in some disciplines. There may be sectoral consequences depending on how it is implemented. Unclear to what extent these entities could be truly “collaborative”. May be difficult for part time students to access.

We consider that three of these five options could meet the requirements detailed in Table F5: research training support networks, collaborative graduate schools, and the Scotdoc model. We believe that there is some benefit in allowing institutions to choose which approach is best for them, given their particular circumstances. It would then be the role of the HEFCE to establish minimum criteria and assess the outcome of the provision against these criteria. Such a process would need to be related to the RAE, but could be separate from it.