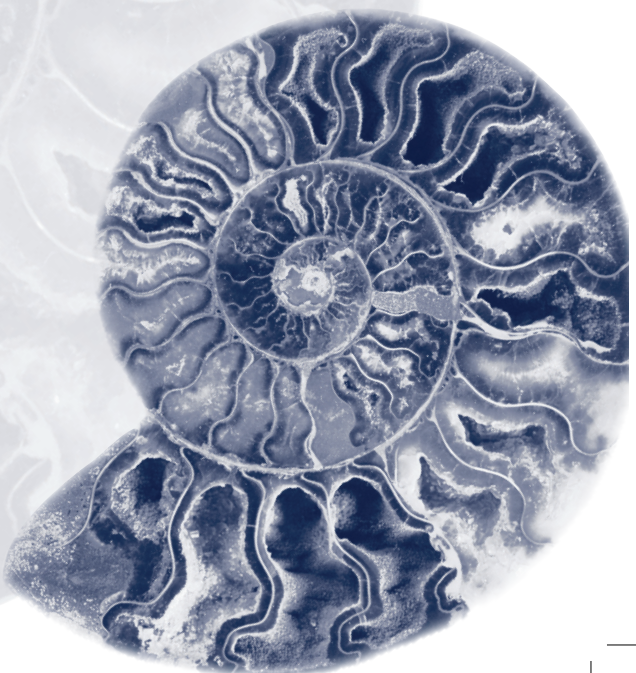
Society for Research into Higher Education

Research Supervisors & the Skills Agenda: Learning Needs Analysis & Personal Development Profiling

Martin Gough & Pam Denicolo
Editor: Alistair McCulloch

Issues in Postgraduate Education: Management, Teaching and Supervision



A Series of Consultative Guides produced by the Postgraduate Issues Network of the Society for Research into Higher Education

Series Two | Number One

Society for Research into Higher Education

SRHE is an entirely independent and self-supporting learned society, which exists to stimulate and co-ordinate research into all aspects of higher education. It aims to improve the quality of higher education through the encouragement of debate and publication on issues of policy, on the organisation and management of higher education institutions and on teaching and learning methods and the curriculum.

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Foreword to the series

The SRHE Postgraduate Guides have proven a very popular series and meet a growing demand for advice and guidance on the practical issues involved in the management, teaching and supervision of postgraduates who come from a wide variety of disciplines and backgrounds often with widely different needs.

This new series of the Postgraduate Guides, launched in 2007, contains a number of new titles as well as some revisions of the most popular guides from the first series.

As with the first series the aim has been to produce clear practical guides, devoid of jargon, intended as a useful set of tools that will help deliver and support the delivery of high quality postgraduate training.

The guides are developed by the SRHE Postgraduate Issues Network. The executive team responsible for conceiving and directing this new series is led by Pam Denicolo and comprises: Alistair McCulloch, Martin Gough and Helen Perkins, Director of SRHE.

The SRHE Postgraduate Issues Network

The Postgraduate Issues Network was set up in January 1995 to help its members find out about new developments in the field of postgraduate education and to interpret these for their own use and benefit. In particular the network is concerned with: financial issues, quality issues, issues of good practice, issues specific to and independent of discipline and issues relating to employment. The network has more than a hundred members, including a number in the USA, Canada, Australia and Hong Kong, and it continues to grow.

The network offers its members much more than a series of meetings: it aims to be a true network of mutual support. It does this by:

- providing speakers at meetings to focus on a topic of general or topical interest
- ensuring that there is the opportunity for members to raise their own issues to discuss in or after meetings
- circulating material from members between meetings, and
- stimulating informal support and collaboration outside meetings.

Helen Perkins
Director
Society for Research into
Higher Education

Pam Denicolo
Alistair McCulloch
Martin Gough
Richard Race
Convenors
Postgraduate Issues Network

Foreword

These guidelines for developing novice researchers are much more than that. While the guidelines fulfill the promise of directions and sound advice, they might also be taken as personal guidelines for reflective exercises that both novice and experienced researchers would do well to use in their own thinking about planning and execution of research programmes.

Exemplary practices as described need to be carried out by exemplars. The suggested processes indicate many opportunities for developing sound practices that foster the supportive spirit of supervised research endeavours.

Professor Michael Kompf
Department of Undergraduate and Graduate Studies in Education,
Brock University, Ontario, Canada

Preface: Why consult this Guide?

This text sees the SRHE Postgraduate Issues Network and its series of *Guides* returning after a number of years to the question of skills or, rather, being skilled at postgraduate level and beyond. As before, the emphasis is on the UK context. The third in the original series of these *Guides*, entitled *Developing Postgraduates' Key Skills*, published in 1998 (hereafter referred to as *Guide#3*), was edited by the founder of the series, Professor Pat Cryer, and comprised short, but rich, pieces by a range of authors, aimed especially at supervisors and others concerned with postgraduate level courses. There is a need to revisit from time to time guides which are, of necessity, written for the circumstances and readership of the time. The circumstances (and, dare we say it!) the readership have changed significantly in the area of postgraduate education over the last few years. Hence this new *Guide*.

One major trend in postgraduate research training is the increasing influence of the science training model of career and research skills development in both the social sciences and the arts and humanities, culminating in the creation of the AHRC. The major development at issue here is crystallized in the form of the 'Roberts' agenda, involving the expansion of training in research methods to encompass 'Generic and Transferable Skills' training. These developments are combined in the term 'the skills agenda'.

This new *Guide* is more than just an update of *Guide#3*. The report of the Roberts Review includes recommendations about both postgraduate research degrees and also early-career research staff development. Thus, we write this *Guide* for researchers and managers of research in all subject areas and include the postgraduate domain as well as that occupied by junior and contract research staff. (Hereafter, we refer to postgraduate and staff researcher groups by the umbrella term 'novice researcher' – please see the Glossary for this and other terms).

Our approach to skills development focuses on the related areas of Learning Needs Analysis and Personal Development Profiling. Both are relatively new in postgraduate research, although Personal Development Profiling is now an accepted part of undergraduate study. However, we should note that Personal Development Profiling is also an important way of demonstrating Continuing Professional Development (CPD) for continued registration as a professional practitioner in many disciplines. Taken together, Learning Needs Analysis and Personal Development Profiling offer powerful tools in ensuring appropriate development and training and, in an increasingly audit-driven society, a way of evidencing that development.

For the reasons above, this new *Guide* will be of interest to novice researchers as well as their supervisors and managers, and also senior institutional managers, such as those running Graduate Schools, together with policy makers. It should help provide added value to the experience for researchers of engaging in skills and personal development processes, including enabling them to write a better thesis or better research papers, and of translating their skills into the workplace environment, whether that work is within or outwith the Academy. By raising awareness of the nature of these processes and the institutional environment, common understandings between supervisors and their novice researchers are likely to arise, facilitating smoother and more fruitful relationships and, more likely than not, more effective working.

We do not intend to supplant *Guide#3*, which we encourage readers to continue to consult. We recognise that, despite its age, it continues to provide useful suggestions for delivering specific skills-oriented components of programmes. Much of Pat Cryer's wisdom contained in *Guide#3* still holds true, partly because some aspects of the political environment have not changed, and partly because some transcend the shifting sands of policy on postgraduate education. There are, however, areas where we will, of necessity, move beyond the earlier *Guide*.

About the authors

Martin Gough teaches for the Centre for the Advancement of Learning & Teaching and researches under the auspices of the Centre for Interdisciplinary Studies of Higher Education at University College London, although his views in this Guide are his own, as opposed to being representative of his institution. While a research student in Philosophy, he was centrally involved in the National Postgraduate Committee of the UK in the 1990s, leading to research work in the field of post-compulsory education and training. He is currently the UCL representative in the CETL in Preparing for Academic Practice, co-convenor for the Society for Research into Higher Education Postgraduate Issues Network, and an executive editor for the new International Journal of Graduate Education.

Professor Pam Denicolo, University of Reading, is the Director of the Graduate School for the Social Sciences, the Director of Post Graduate and Professional Studies in the School of Pharmacy and an active member of the University Committee for PGRS. Her passion for supporting and developing graduate students is also demonstrated through her being chair of the SRHE Postgraduate Issues Network and Vice Chair of the UKCGE Executive Committees and her contributions to UK GRAD activities, including the Rugby Team which reviews and evaluates the national implementation of the Roberts-funded generic skills training, and the RCUK/UUK working group on the European Charter and Code. As a psychologist working particularly in the fields of Higher and Professional Education, she has supervised around 45 successful doctoral students, examined many more. She is also a visiting professor at three HEIs abroad, with a particular remit to develop their research student support and training.

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Introduction: Using this Guide

This publication has two distinct dimensions. In the first instance, it continues in the style of the earlier SRHE Guides, providing an illustrated practical guide to what Learning Needs Analysis (hereafter LNA) and Personal Development Profiling (hereafter PDP) mean to your practice as a supervisor or your career as a research manager and why they have been introduced. We are, however, aiming also to provide a discussion of the nature of LNA and PDP rather than just a detailed 'nuts and bolts', or '50 ways to ...' guide on how to make best use of them. There are plenty of book-length guides and other resources which will provide more detail and a selection of potential resources can be found in the Appendices. Additionally, we hope to engender academic debate about the concepts and practices and the underlying assumptions of the wider skills agenda. In this way, this is also a supervisor's guidebook to the political geography of the terrain.

We hope to assist readers to find their own positions on the matter. The alternative is simply to continue to take the pressure and feel obliged to follow dictats from above on how to deliver your programme or manage your juniors. This latter option we see as potentially destructive to good supervisory relationships and also a travesty of the academic tradition, a tradition which has proved remarkably fit for purpose when left in the hands of conscientious professionals.

This Guide's structure reflects the different purposes of illustrative guidance and prompt for debate, and readers may consult the three main parts in any order. We use headings for some sections written in the form of frequently asked questions or frequently raised objections. So, if you hold a particular reservation about the processes and requirements being introduced into your practice from elsewhere, then you may find the issue dealt with head-on here. In Part 1, 'How to Develop Your Novice Researcher', we outline LNA and PDP and provide suggestions for their implementation. In Part 2, 'Why Develop Your Novice Researcher?– The National Initiatives' we summarise national policy developments and their implications for institutions and programme-deliverers. In Part 3, 'Why Develop Your Novice Researcher? – Academic Integrity and the Development of Disciplines we outline a positive argument for embracing the skills agenda, focusing on the prospects for returning it to a position where it is under academic control. Following Part 3, we provide a summary of our main recommendations and then a number of appendices containing resources.

We certainly would appreciate your sharing with us, the authors of this Guide, any proposals for additions to it, including other sides of the arguments, other queries or other ways of supporting novice researchers to develop and demonstrate their research and career competence, since there will come the time when this Guide needs updating. Our contact details are shown on page iv.

Part 1 How to Develop Your Novice Researcher

In this Part we introduce the main elements and purpose of Learning Needs Analysis (LNA) and Personal Development Profiling (PDP), together with some guidance about supporting learners in the production of a personal development portfolio.

What is Learning Needs Analysis?[1]

In general terms, learning need is the difference between the current and required capacities to undertake one or more desired activities. For the novice researcher, analysis involves the comparison of their current knowledge, ability and approach against the standard required for the completion of their programme of study or contract.

A minimalist interpretation of this would be to identify a set of minimum required standards and to provide courses or events aimed at bringing a learner up to each standard. A benefit of this approach is that, in addition to its simplicity, any learner who can demonstrate that they meet a particular standard need not attend the relevant activities. Alternatively, the Research Councils' *Joint Skills Statement* (see Appendix 2) suggests that we go further. This suggestion arises out of the national initiatives (reviewed in Part 2) that push us towards providing novice researchers with opportunities to develop existing 'skills' beyond an externally established minimum and towards what each individual may be capable of. The terminal point will be different for each learner, and this interpretation of the requirements laid on Higher Education Institutions (HEIs) may more readily combine enjoyment with the, now quasi-compulsory, opportunity to develop oneself further as part of higher degree study or ongoing CPD.

How can we implement LNA?

We used the term 'standards' above. However, it is important not to take too seriously the assumption that there are universal and objective measurable standards of competence. Rather, the skills policy statements offer an overall framework for articulating goals which can be taken on board by a learner and supervisor, for instance, and used in more personally tailored ways. Indeed, the QAA Code of Practice (2004) encourages this sort of approach. Novice researchers at the beginning of programmes or contracts will have different starting points in terms of skills and knowledge. Wherever they start, they will have objectives. Some of these may be set by outside bodies, for example professional institutes or prospective

[1] If you come across the term 'Training Needs Analysis' in the context of the skills agenda for novice researchers, please treat it as equivalent to Learning Needs Analysis (yet other colleagues prefer 'Development Needs Analysis'). See Glossary for further explanation..

employers. Others may be owned more closely by the novice researcher, developed and hence valued more personally by them. Individuals, or learner and supervisor(s) working together, can identify both what the 'required end-point standard' will be, and also those areas to prioritise for achieving that standard and the order in which development should take place. The order will be determined in large part by the specific requirements of the project. This means that, in the early stages at least, the supervisor(s) will play a dominant role in driving the process of LNA. As the novice researcher's Personal Development Profile (PDP) develops, there will be a gradual handover of responsibility from the supervisor to the novice researcher.

Box 1.1 discusses this further.

Box 1.1 Supervisor's role in the LNA and PDP processes:

- Before the first meeting with the novice researcher, they should review the information provided during the application process to identify likely areas of competence and those which will clearly need further development. Such information can be gleaned from the original proposal (if produced by the candidate and not the supervisor), references, the CV and from an admission interview.
- At the beginning of the first year, a review of learning needs should be undertaken with the novice researcher to identify both immediate and longer term learning needs in relation to their proposed research and potential career plans. At this stage the supervisor acts as a guide to initiate what is the beginning of the PDP and to provide advice on available learning opportunities.
- Thereafter, the novice researcher is to be encouraged to become an increasingly autonomous learner, pursuing learning opportunities themselves and actively seeking out the supervisor's advice when necessary. The supervisor's main role then becomes one of monitoring the ongoing PDP and providing evaluative comment on it for the (at least annual) review of progress. During the course of each year it is possible that other learning needs will become apparent and there should be opportunities for joint discussion on how these can best be incorporated.

An example might help. A prospective student's CV might indicate that they have undertaken study in an area relevant to the proposed research. Further, they may have cited a few examples of relevant current work in the field in the research proposal. However, an interview might have revealed that this derived from the course material they studied previously and that the student had no practical experience of searching databases for relevant literature. Comparing this with the *Joint Skills Statement* (see Appendix 2) competences A3 (i.e. a knowledge of recent advances within one's field and in related areas) and C2 (i.e. design and execute systems for the acquisition and collation of information through the effective use of appropriate resources and equipment) demonstrates two learning needs, one related directly to knowledge and the other to means of acquiring knowledge. In this case, the student can be advised of further texts to read in the cognate

area and told about sessions and workshops on literature searching and about the other resources inside or external to the institution that may be helpful in this respect. They might also be given an assignment to survey recent developments in a particular sub-set of the field as a way of demonstrating their learning from all of these resources.[2]

What is Personal Development Profiling?

There are a number of related terms which use the acronym PDP (See Box 1.2). We use Personal Development Profiling as an umbrella term, because profiling can encompass the range of activities and tools involved in the process.

Box 1.2 Varieties of PDP

- PDP as Personal Development Planning, which we take to mean the stage following LNA, planning a schedule of activities to meet the learning needs already analysed.
- PDP as the Personal Development Profile, which would be any sort of record of LNA, planning and recording achievement in meeting needs and development more generally.
- PDP as Personal Development Portfolio, which is also a 'profile' but likely to be more pre-structured for usage by the learner, a tool designed for LNA, planning and profiling more generally – we prefer the term 'portfolio' to 'profile' because it suggests something more purposeful.
- So one answer to the question 'What is Personal Development Profiling?' is that it is LNA plus what follows as part of the process of effective individual development.[3]

Effective PDP involves a record, such as a structured portfolio or log, being maintained by the novice researcher. The record will be of research and generic or transferable skills identified, in collaboration with the supervisor, as areas of learning need, how those learning needs are to be addressed by activities, and the outcome of those activities. This outcome should refer to evidence that the learning needs have been met, and can take a range of forms. Examples are satisfactorily completed assignments or thesis chapters and feedback from peers after a seminar or team activity or from research participants after a research-oriented encounter.

Institutions can usefully provide each research student with a PDP portfolio or log book which also contains information on how it can be used. This could usefully provide information on the process of self-audit of skills and, for each formal stage in the course

[2] Appendices 3–5 include examples of aide-mémoires used a part of LNA and PDP.

[3] David Gosling (ed.), *Personal Development Planning*, (SEDA Papers 115, Birmingham: Staff & Educational Development Association, May 2003) suggests (in his Introduction, p.5) that the word 'planning' reflects current usage for the term PDP. We follow Alison Assiter,' Principles for Profiling' pp.29–35 in the same collection, in preferring the term 'profiling'.

of registration, the skills required to become an effective researcher. A different version of the portfolio may be required for research staff. This could be more directly tailored to the programme of work or the project, rather than to the stages of a programme of study. There should be space for the addition of typical learning needs relevant to the particular discipline area and for the emergence of new needs as the process continues. Each item on the list requires space for the learner to audit those skills, plan for their development and record how well that development goes. The portfolio can be presented in paper or electronic form so that additional materials of different formats and sizes can be added.

What support can supervisors provide to novice researchers in relation to PDP?

The novice researcher and their supervisor(s) should regularly review the self-audit, the development plan and evidence of progress to identify what developments or amendments to the plan are required, and to confirm that planned progress has actually been made. At the commencement of the programme of study or the contract, and at each formal stage in the research (for students, before progress reports are made, prior to the point of upgrade or transfer and prior to submission) the supervisor should identify any gaps that the novice researcher may exhibit in relation to the field, provide guidance on the practicality of the plan for development and provide suggestions about learning resources available in the department, the university and externally. The gaps are not necessarily simple 'deficits'. They may be areas where the researcher has potential which can be developed or areas where the researcher erroneously thinks they are doing well and needs a 'reality check'.

All this presumes that the supervisor understands how to identify the gaps, knows what resources can help close them and, of course, has a good understanding of the research process from the researcher's point of view, such as the upgrade process for students. PDP is a form of training for the researcher but we should not forget that supervisors may have development needs themselves and institutions should make sure that they also provide support for supervisors. Both formal and informal peer-led sessions on how to conduct LNA and support PDP have proven beneficial in some institutions.

'How well am I doing?' the novice researcher may enquire. The thorny question of assessment

One response to the skills agenda is the provision of single, discrete workshops. The basic Roberts[4] requirements are minimally satisfied by this approach. Accumulating a tally of evidence of attendance, rather than evidence of learning, may be sufficient for the novice researcher to meet institutional requirements. However, as academic supervisors and from a pedagogical perspective, we should ask ourselves whether such an approach is the best we can offer. Whilst some provision lends itself to being delivered in this way, this should not be the default position. For many, the value of any activity lies in how effectively its outcomes are measured. Hence we endorse the value of introducing some sort of assessment regime (c.f. *Guide #3*, chapter 3), so that learners can engage more completely

[4] See page 9 below.

with the provision and have a better sense of how well they have performed and what more they could do to develop themselves.

Ideally, the novice researcher should receive credit of some kind for the achievements demonstrated through PDP, possibly at key transition (for students) and reporting points such as transfer/upgrade and annual reviews of progress. Some institutions currently make evidence of such achievement a prerequisite for continued registration. Others go further and include some formal assessment of skills. This may not be as demanding of academic time as it might seem. Assessment will already be built into credit-bearing courses designed as generic research or skills based modules for programmes of study. So it may be possible in your institution to use parts of such degree programmes tailored minimally to meet the needs of novice researchers not themselves registered on those programmes: they could at least attend the same face-to-face sessions as undergraduate or masters programme students, for example. Rather than just attendance at a workshop, after which the learner would tick off their 'achievement', they could be required to do some independent work, perhaps similar to the degree programme students or of a reflective nature, and have to demonstrate learning in order to receive credit.

The inverse frontloading problem

Where much of a course is initially activity-based,[5] there is a challenge which is the reverse of the frontloading of abstract theoretical elements. The frontloading of abstract or theoretical elements is a problematic feature of much taught degree provision. Abstracted theoretical elements are delivered up front and are meant to be applied subsequently to inform practical activity. Experience tells us that often learners do not grasp how to apply that theoretical knowledge. This is because there is a need to cultivate the additional ability to apply abstracted explanations from one realm into correctly ordered activity in another realm.[6]

The challenge for us, as educators, is to bring to the experience of activity-based course tasks a sense of intellectual challenge, an inverse of the normal frontloading problem. We can do this by encouraging colleagues to view reflection on their own learning as worthwhile practice and as an instance of higher level thinking. Reflecting upon the experience of learning, preferably with theoretical guidance from tutors or facilitators on how to frame that experience, is an exercise in its own right and involves using tools, albeit intellectual and linguistic tools, in the same way as research itself involves the use of methodological tools.[7] With an extended programme of PDP, LNA and other activities followed by appropriate tasks, having an assessment dimension makes the learning experience more rounded, allowing the learning to be absorbed more deeply.

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[5] As in *Guide#3*, chapter 5; courses run under the UK GRAD banner, or the equivalent Personal and Professional Management Skills (PPMS) residential short course at UCL, have this character – see Appendices 1 and 4.

[6] The analysis of the frontloading problem and this additional meta-knowledge constitutes much of Part one of Michael Eraut's *Developing Professional Knowledge and Competence* (London: Falmer Press, 1994). Operators in the 'real world' external to the formal education system complain about graduates being too unworldly, unable to demonstrate immediately their additional wisdom in the world of work. We support Eraut's suspicion that those such as employers may be using this as an excuse to abrogate their responsibilities for decent induction programmes for new graduate recruits. More recently, Eraut has been developing his ideas further in the LiNEA Project (see Appendix 1).

[7] c.f. Pat Cryer, Guide#3, chapter 2, p.12

Our immediate concern in delivering such a programme should be to foster the generic skills which assist in the discipline-based studies themselves. There is still an issue about how to integrate the explicitly 'generic' into the learner's more immediate discipline-based research practice. Nonetheless, examples of concern to the learner's specific situation will arise and, once the processes of reflection are grasped, they will begin to see how these examples relate to the generic skills requirements, and, conversely, how these generic skills apply to them, their work and their development, rather than being seen as a distraction from their 'real' work.

This model serves partly to emphasise that competence is important, but that does not mean that there is a straightforwardly recognisable measure of attainment as a universal target for novice researchers in any one skill area. There is no objective 'pass' for all and sundry in skills x, y, z, and a related 'ticket of suitability for work' to present to an employer. Rather this is a personalised model of skill development, a way to understand the process of improvement from whatever level the novice researcher begins and whatever their ultimate goals are. This is the basis of an autonomous learning which will serve the researcher well for future continuing professional development.[8]

[8] For some examples of PDP material, see Appendices 3–5.

Part 2 Why Develop Your Novice Researcher? – The National Initiatives

In this Part we provide a brief overview of national initiatives for the development of research training in the UK and the main recommendations derived from the Roberts Review. We also provide information on funding, including how the use of that funding will be monitored by the funding bodies. Public policy debate in higher education is dominated by national level planning and reviews of macro trends.

The top-down message has been that there is a need for institutions, and therefore for us as the practitioners working within them, to change the way novice researchers are prepared for both research and career. There has been strong pressure for more attention to be paid to enhancing employability through training in core research skills and wider employment-related skills. So, one answer to the question you may be asking, 'Why should I do this, why should I alter my practice to accommodate a change in emphasis?' is quite simply that you may be required to do so and may find this easier than resistance. Along with the stick of top-down policy directives comes the carrot of funding, so there are positive incentives to comply. Funding would be dependent on achieving this enhanced employability, or on providing sufficient evidence for it, in the novice researchers under your charge.

Reviews, reports and a White Paper

The Research Councils and the AHRB,[9] having combined efforts and establishing the RCUK Postgraduate Training Group, in 2001 published the *Joint Statement of the Research Councils / AHRB Skills Training Requirements for Research Students* (included here as Appendix 2). They intentionally did not provide assessment criteria to check whether research training met the required standards, and expected each Council would have additional requirements specific to its fields of enquiry and would continue to have its own approach to the evaluation of research training it funded within individual institutions.

RCUK and other bodies have drawn on the results of a project undertaken by Janet Metcalfe and the UK Council for Graduate Education for the Higher Education Funding Council for England. (HEFCE, 2003). In 2003, stimulated by developments in the EU (The Bologna Agreement, 1999), a document drawing on the Metcalfe Report, and entitled *Improving Standards in Postgraduate Research Degree Programmes*, was distributed to all UKHEIs. This took the form of a consultative document to review good practice, determine the role of threshold standards and identify indicators that could be used to monitor their attainment. Institutions were alerted that funding was to become conditional on achieving these minimum standards. Building on initial informal responses, further consultations

[9] Arts & Humanities Research Board, now the Arts & Humanities Research Council (AHRC).

took place through two documents issued during 2003/4. These consultations resulted in significant changes, in particular the removal of specific thresholds and metrics regarding the delivery of higher degrees. 2003 also saw the publication of the White Paper 'The Future of Higher Education', which responded in part to the Roberts Review of the previous year.[10] At the same time, the AHRB was also conducting a review for its own subjects and drew conclusions which emphasised the importance of career tracking for its UK graduates and of consulting the views of employers.[11]

The Roberts Review recommendations

The Roberts Review contained recommendations about increased stipends for Research Council-funded students and increased research assistant (post-doctoral) salaries. It was also concerned with improving completion rates for PhDs. A further major impact in relation to postgraduate research programmes and research staff contracts has been through its recommendation that HEIs should provide additional training for both students and also research assistants and other contract researchers. As a result, from October 2005 research council-funded researchers have been required to complete a quota of training which, in practice, means a minimum of an additional two weeks in each year of study or work.

The QAA Code of Practice

Elements of these recent reviews have been brought together within the revised (2004) *QAA Code of Practice for Postgraduate Research Degree Programmes*. Following discussions between the various organisations concerned, it was decided that, rather than introduce different requirements and monitoring mechanisms for postgraduate research training from each of the interested parties, it would be better to have a single document perform this role. This was accomplished through the revision of the QAA Code of Practice which now acts as a single point of reference. A broad-based working group was established by the QAA in early 2004 which, after a series of consultations, delivered a revised Code to the sector in September of that year. Box 2.1 reproduces some key points of the Code.

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[10] Roberts Review (2002). Government agreed in its response that there needs to be a new impetus to improve standards of PhD training to encourage universities to address the skills acquired by PhD students. Therefore the government expects that all universities will ensure that high quality minimum training standards are met. It agreed that the funding noted above would be made conditional on institutions meeting these standards and it provided additional funding to the Research Councils to enable the enhanced training as recommended by Roberts. The ongoing post-Bologna debate continues to raise further awareness of the pressures to, for instance, 'foster... professionally relevant transferable skills' (EUA 2005: Sybille Reichert & Christian Tauch, European Universities Association, *Trends IV: European Universities Implementing Bologna*, http://www.eua.be/eua/en/policy_bologna_trends.jspx ; sec.5. 'The Relation of the Bologna Reforms to Research and Research Training', p.34), along with the communication from the Commission of European Communities to the Council and European Parliament, 'Researchers in the European Research Area: One Profession, Multiple Careers'.

[11] c.f. AHRB 2002: Arts and Humanities Research Board, *Review of the Postgraduate Programme*, http://www.ahrc.ac.uk/images/4_92089.doc ; (sec. 21, 53, 60, 61)

Box 2.1 Precepts in the QAA Code of Practice relating specifically to skills development

The Code contains a number of precepts, each with explanatory notes or examples. Of particular relevance here are the following three, grouped under the heading of 'Development of research and other skills':

> **18** Institutions will provide research students with appropriate opportunities for personal and professional development.
>
> **19** Each student's development needs will be identified and agreed jointly by the student and appropriate academic staff, initially during the student's induction period; they will be regularly reviewed during the research programme and amended as appropriate.
>
> **20** Institutions will provide opportunities for research students to maintain a record of personal progress, which includes reference to the development of research and other skills.

(QAA (2004)

The Code of Practice is worth examining in more detail, since explanations are given alongside the 27 precepts. However, we highlight these three because precept 18 refers more precisely to generic research and transferable skills training, precept 19 to LNA and precept 20 to PDP. At this point, it is worth also noting precept 5 which is relevant to these issues. It reads:

> Institutions will only accept research students into an environment that provides support for doing and learning about research and where high quality research is occurring'

The Code elaborates on this.

> Such a learning environment will also enable research students to make judgements requiring creativity and critical independent thought, accepting that uncertainty is a feature of the conduct of research programmes. This environment should enable students to grapple with challenges that develop intellectual maturity and encourage a high level of reflection on the student's own learning about research as well as on research outcomes.

For the novice researcher, and as part of their 'learning about research', the Code prescribes an introduction to some of the wider issues surrounding their immediate research environment. We recommend that institutions invest in integrated and robust (in the academic sense) provision directed at this area, since a wider understanding of the research environment will complement the LNA and PDP by enabling the individual to

develop and refine their goals, and hence identify their needs, in relation to it.[12]

Monitoring the use of funds

RCUK decided that, to fund the new training, each university would receive a single annual payment in proportion to the number of Research Council-funded research students and assistants. Institutions are, however, expected to provide equivalent training for all of their research students and staff, whether or not they are Council-funded. Other funders are being lobbied to encourage them to contribute to the cost of training. Regardless, the RCUK does permit the combining of Council funds for economies of scale in setting up provision for a wider audience. This enables spending for the benefit also of those not funded by the Councils, although it does not solve the issue of funding for provision of training in institutions which do not have many (or any) Research Council-funded students. Typical provision funded by this 'Roberts money' comprises pump-priming of new activities, extending existing provision, improving the quality and impact of provision, redressing the perceived imbalance between generic and specific technical skills training, and supporting the development of staff to provide such training.

Taken together, these developments constitute the fulfilment of the first two phases of the Office of Science and Technology's expectation that:

- the funds will be used specifically for training;
- HEIs will make strategic decisions about improving research student training;
- employers will report in due course that skill levels have improved.

The funding for supporting this training in an institution is conditional on the provision meeting minimum standards, as articulated in the QAA Code of Practice. We suggest that following the suggestions provided in Part 1 of this Guide would provide a solid foundation for meeting these standards, or at least would stimulate thinking about them in ways which are pertinent to your institution. The Research Councils' expectations are shown in Box 2.2.

[12] Such integrated provision is strongest in the context of an accredited course forming a component of a degree programme. As mentioned in Part 1, it may be possible to adapt such a course to make it available for researchers aiming to accumulate Roberts framework points. An example is described in Appendix 6.

Box 2.2 The Research Councils' expectations regarding the development of skills training

HEIs have been expected to:

in 2004/5

- describe overall strategy, with discretion given to individual disciplinary differences;
- identify key performance/success indicators for outputs and benefits;

in 2005/6

- report against a generic set of indicators based on year 1 reports;
- report against their own success indicators;

in each autumn following

- continue monitoring as appropriate until 'normal business' is achieved;
- monitor and reflect outputs and benefits.

Each institution's individual strategy must include an oversight mechanism and provision for monitoring, evaluation and improvement in quality, differentiation between disciplines and a means of meeting individual need through LNAs, PDPs and some form of accreditation. In their annual reports [to the QAA/research councils], institutions should also indicate the benefits of their strategy to non-RC funded researchers.

'Skills Training Funding for Research Council Funded PhD Students and Postdoctoral Researchers' (2004).
http://www.grad.ac.uk/downloads/rc_expectations.pdf

Being involved in the delivery of research supervision and training within our own institutions, we can appreciate both the external imperative and the carrot of (directed) funds. However, it is important for the experience of the novice researcher that the right structures are in place to make the most effective use of these funds. The simple provision of stand-alone short courses provides only a thin veneer of compliance with a top-down framework (even if the veneer is sufficiently thick for the purpose of compliance). We address the issue of appropriate structures, including cultural aspects, more deeply in Part 3. However, the top-down system currently in place is one which we expect to persist and with which we will have to work for the foreseeable future.

Part 3 Why Develop Your Novice Researcher? – Academic Integrity and the Development of Disciplines

In this Part we look at the process of LNA/PDP from the perspective of the developing practitioner as novice researcher, as more productive worker and ultimately as expert supervisor in turn.[13] To this end, we consider the fundamental issues lying behind the introduction of the skills agenda.

From the account of the national initiatives in Part 2, we can see that there are pragmatic reasons for you, the supervisor, to comply with this top-down regime and enjoy a quieter life. Most negatively, the reason is that, if they are resisted, then it may result in your institution being rebuked by the QAA and censured by the funding councils, and losing a lot of money. However, viewed from this perspective, more positive reasons to embrace the opportunities arising from the skills agenda tend to be obscured.

There are, nonetheless, real and justified fears within the academic community about the skills agenda – that simply adopting top-down dictats will force change in the nature of the research degree or research practice itself. This fear rests on the assumption that novice researchers will have to do something different or additional to what they previously had to do to succeed, that is, produce and defend a disciplinary-based thesis and/or successfully complete a research project. If training in a discipline is changed, then in time the discipline itself will be changed. The issue is not that disciplines and disciplinary knowledge are static and not subject to change, but that practitioners expect them to evolve through the momentum of continuous internal evaluation of their own practices and of new discoveries. So the fears constitute concern over a loss of autonomy for practitioners (in this context academics) in relation to how they conduct themselves in their practice, to the benefit of outside interests who would exert increased influence.

Without engaging in a full discussion of the concept of autonomy and its character as a central general educational aim,[14] a summary of the place of autonomy in the academic enterprise is helpful. In general terms, autonomy needs to be understood in the positive, Kantian sense, so including a sense of value as well as freedom.[15] The freedom is freedom to explore in one's own terms new avenues of academic enquiry. But with this freedom comes responsibility – responsibility which includes, amongst other things, responsibility to others.

[13] That is to say, while the supervisor is meant to be an expert in their field, they will nonetheless be a novice when they first assume the role of supervisor and they will wish to become more proficient in that role.

[14] John White engages in a thoughtful investigation of the concept of autonomy in workplace, occupation and career in his post-Gorzian monograph *Education and the End of Work* (London: Cassell, 1997)..

[15] The place to start with eighteenth century iconoclast Immanuel Kant is his *Groundwork for the Metaphysics of Morals*, which is the groundwork in turn for his '2nd Critique' the *Critique of Practical Reason*. The positive vs negative dichotomy in theorising about freedom is introduced to us by Isaiah Berlin in his essay 'Two Concepts of Liberty' in his collection *Four Essays on Liberty* (Oxford University Press, 1969).

Despite these fears over a potential loss of autonomy we are able to provide a more theoretically, rather than just pragmatically, grounded standpoint for endorsing, in an appropriate way, the skills agenda. Our response arises initially through an examination of the pedagogy of science (which we take to include social science) in higher education, that is, the induction process for those building a career in science and technology or in the social sciences. We make the presumption that by extension we may treat the pedagogies of other disciplines likewise, especially at higher degree level. Our position is that, as members of the academic community, rather than resist the agenda outright, we need to embrace it in a certain way, a way which can enhance autonomy and re-orientate the agenda towards the idea of appropriate research generally espoused in the academy. Below we consider the fears held by others, that the trends all point in quite the opposite direction, by employing the language of typical queries or statements of objection as sub-headings. In turn, our discussion can itself form material for more academically robust generic 'skills' provision, still within the Roberts mould, at least in the component providing for learning about the research environment.

(a) Won't my discipline be changed beyond recognition by external interests?

The potentially insidious part of the skills agenda is the possibility that outside interests, such as employers concerned mainly with their own socio-economic interests and their relative influence on society through it, are simply serving themselves better by forcing their ideas of change on the academic domain. So, for instance, whereas beforehand it was possible and appropriate to succeed at doctoral level in discipline S by not engaging with LNA and PDP, now it is necessary to include this additional practice, even though the content of the additional practice may have little to do with subject knowledge S, being mainly directed towards finding a general graduate level job three years hence. Perhaps the only conclusion to draw is that external interests have inserted this new procedural knowledge of how to do LNA and PDP and displaced something traditionally finding its home in a degree in S, so changing the nature of what a degree in S is.

To begin to approach the apparent problem from a different angle, we suggest that following the spirit of the QAA's precept promoting 'learning about research' for novice researchers (precept 5, and see Part 2 above) actually offers us a way to explore further the nature of our own disciplines. In particular, we may explore the prospects for a framework of true autonomy for the individual practitioner, including the novice researcher, within each of our disciplines. As a starting point, we can interpret the QAA precept to mean that part of the account of the practice into which we are inducting novice researchers will need to be articulated in the form of consideration of the place of research in society.

We can then ask how this may inform the pedagogy of the discipline, delivered by you the supervisor, who therefore has some control over the direction of the discipline and its relationship with the wider society. How you exercise that control depends upon your views on ethics and society. The options are summarised in a simplified way in Box 3.1.

Box 3.1 Three views on the relation of research to society:

1) The research community (and thus society) is served unproblematically by more investment in research from, along with the accompanying hegemony of, big business.

2) Research generates outcomes which are enhanced by the avoidance of service to the partial interests of certain influential employers, aiming rather to explicitly serve the public good.

3) The third position is 'purist', promoting the pursuit of new knowledge and understanding for its own sake: implications of this position are the view that no-one should be constrained or diverted by extraneous influences away from following the direction in which their research interests lead them; nor should there be constraints on methodology for the pursuit of those interests.[16]

The problem with this third position in the context of the development of a discipline, the more so the more resource-intensive it is, is that you need funding to follow through your ideas and projects, so you are implicitly accepting any conditions that may be attached to awards of core-funding. If you receive those resources from a private sector employer or if you receive an allocation of public money for your research, you are implicitly endorsing respectively either the first or the second view. You may in principle object to the explicit conditions attached, but you may decide that pursuing your project shaped by those conditions is preferable to your idea remaining a pipe-dream.

This quandary does not apply if you are a person with sufficient means of your own. Such means may be available to researchers in disciplines where you can pursue ideas sufficiently through scholarship, and there are amateur branches of many scientific disciplines as well. This is one way your autonomy as a researcher can be preserved. But unless you are a person with great personal means at your disposal, some research pursuits, those requiring large budgets, will be out of your reach. If your means do stretch to funding the required resources then that, in effect, risks making you one of the private partial interests who can influence the direction of the academic domain and its disciplines, so collapsing this position into a version of the first one again.

Our point here is not to urge readers to choose between these three positions. They are not mutually exclusive, so you can hold a view which tries to find an agreeable compromise between them. Our point is to suggest that you, the supervisor, can through your institution present this as material for reflection and discussion by your novice researchers. This serves to help meet the demands of the QAA Code precept 5 (see page 10) but, more importantly, it is a positive way to engage with the pedagogy of your discipline, by engaging in academic enquiry in this area. A good researcher is one who is learning about how their

[16] This position draws from Paul Feyerabend's tract in philosophy of science arguing for 'epistemological anarchism': *Against Method: outline of an anarchistic theory of knowledge* (London: NLB, 1975)..

discipline, and the research environment more widely, works and is one who critically evaluates their situation and the various viewpoints on it. This learning and evaluation constitutes part of their personal and professional development within their discipline and also more generally (which, incidentally, we did not need the Roberts Review to tell us).

(b) But aren't 'skills' about low-level competences or general attributes which employers want in any worker, rather than the really high-level intellectual qualities appropriate for academic work, especially at postgraduate level and above?

Many readers will agree that we can hold an intellectual debate about the role of research within the Academy and broader society. However, some will remain suspicious about the idea of developing 'skills' in novice researchers, as required by the QAA Code of Practice and highlighted in precept 20. The subject knowledge and additional generic skills components placed in higher education programmes are often perceived by academics as two components bolted together rather than being integrated. This is the case particularly where the 'skills' component is defined by external bodies such as government or employer organisations, concerned more about graduate employability than about subject knowledge.[17] The apparent schism between the components is reinforced by the assumption that senior academics are responsible for subject-based curriculum content and consonant research agendas only. That is, they assume that they should not deliver the generic skills because that part is seen as being alien to their practice, rather than being part of their role[18] and, if it must happen at all, it is someone else's job.

Let us say, for the sake of argument, that central government and employer organisations have established a strong enough case that one important purpose of higher education is to provide first degree graduates suitable for entering the job market. Furthermore, let us assume that three years full-time study in the Academy is not by itself especially good preparation for the job market. From this it would seem to follow that prolonging a student's time inside the ivory tower beyond the first degree is not conducive to better preparation for life and work more widely without the addition of a skills training element.[19]

However, the general transferable skills agenda, aiming to combat the perceived unworldliness of the postgraduate existence, and by extension the research assistant/fellow existence, does require closer examination, since it may not be the panacea it claims to be. Grounds for *prima facie* objection to it are its potential for more pernicious interference in autonomy closer to the core of the academic enterprise, i.e. the pushing of the boundaries of knowledge itself.

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[17] The list of skill areas in Table PPMS of this Guide (see Appendix 4), which we use deliberately to emphasise the point, will raise suspicions in those seeking to protect the sanctity of respective subject knowledges, that the agenda is about something alien to those subjects, despite the fact that academics as a community are consulted about, and some individual academics are deeply involved in drawing up such lists.

[18] As noted by Neville Bennett, Elisabeth Dunne & Clive Carré, *Skills Development in Higher Education and Employment* (SRHE & Open University Press, 2000), p.7.

[19] c.f. 'Too many non-academic employers of PhDs express concern that their new recruits are "intelligent — but unworldly".' D.Clark, Foreword, *Journal of Graduate Education* (1, .4, (1995), 101–102), p.101.

If the skills agenda usurps hegemony of the research process as a whole, fears will strengthen that prospects for budding academics and other novice researchers making, and taking control over the processes of, original contributions to knowledge will be overshadowed or reduced by the space taken up in their induction into the discipline by the generic skills agenda. It is a more fundamentally-based fear than the one we considered in sub-section (a) above, which was just about new practices and knowledges being introduced from outside, rather than from within the discipline and displacing existing ones. The deeper threat to autonomy here is that the new practices might in some way have unintended impacts on the more general practice of the discipline by altering the manner in which those existing practices are conducted.

The instances of public policy-making impinging on the UK postgraduate sector do provide grounds for such fears. Pat Cryer, writing in the 1990s, notes that national reviews[20] call for core skills provision especially to meet the perceived needs of postgraduates moving on from higher education, but seem not to assume that there are skill areas appropriate for postgraduate levels which are any different from those already addressed at undergraduate level. The Dearing Review addressed this issue more explicitly:

> We recommend to institutions of higher education that they should, over the next two years, review their postgraduate research training to ensure that they include, in addition to understanding of a range of research methods and training in appropriate technical skills, the development of professional skills, such as communication, self-management and planning. (Dearing Review (1997): National Committee of Enquiry into Higher Education, *Higher Education in the Learning Society*, Recommendation 31).

In general terms, these professional skills are not peculiar to academic practice. However, Cryer[21] claims that there are indeed skill areas which are developed especially at postgraduate level as part of study without the need even for additional programme components. Rather, what is required are opportunities for the student to reflect on their development and recognise what those skills are, so that the student can take them forward and make best use of them in future careers. Taking a lead from this, we can adopt the position that the process of academic enquiry and the process of personal development, the latter of which may be framed within the language of skills, are components which can gel organically, rather than being separate but bolted together in an uneasy alliance. This is reflected in the treatment of the issue in the QAA Code of Practice which states under the heading of 'Development of research and other skills':

> These skills improve the student's ability to complete the research programme successfully. Development and application of such skills is also understood to be significant in the research graduate's capability for sustaining learning throughout his or her career, whether in an academic role, or in other employment. Research students are encouraged to recognise the value of transferable skills in enabling them to take

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[20] Cryer, P. (1998) 'Transferable Skills, Marketability and Lifelong Learning: the particular case of postgraduate research students', *Studies in Higher Education*, (vol. 23, no. 2 207–216), p.208. Earlier reviews include: ABRC, 1993; Harris Review, 1996; HEQC, 1996 – see Appendix 1.

[21] *ibid*., pp.214–216; & in Guide#3, chapter 2, 'Helping students to identify and capitalise on the skills which they develop naturally in the process of the research degree programmes'.

ownership and responsibility for their own learning, during and after their programme of study. (p20)

One way to approach this is to say that engaging in personal and professional development enhances future career progress, but also to note that the individual's professional career has actually started at the point at which they began to engage in postgraduate study (if not before). It would be a clichéd distortion of the picture to say that the student is simply deferring professional work until graduation from their higher degree, as if continuing to be a student is just an indulgence. The skills being developed, if appropriate, are thereby integral to the studies themselves, not additional components just for enhancing life beyond the Academy, a point Cryer seems to de-emphasise by her focus on employability.

The language of skills will still jar with many academics and many others. The conception prevailing in Western culture tends to be biased towards 'realism'. Realism about skills is a view which holds that some sorts of independently existing and identifiable entities are skills, whereas other entities are not. For most realists the identifiable entities which are skills are abilities formed in the bodies of persons for conducting various practical activities.[22]

However, by rejecting realism about skills as entities and adopting 'irrealism' instead, we see how it makes sense to say that the claim that you have the skill of riding a bicycle is just to say that you are skilled at riding a bicycle, using the dreaded word as an adjectival term instead. In general terms, irrealism says:

{A has skill X}
is equivalent to
{A is skilled at doing X}.

We ask the reader to allow us the semantic freedom to equate the terms 'competent' and 'skilled'. We can then see how this works for an example:

{A is competent at conducting lab work}
is equivalent to
{A is skilled at conducting lab work}

is equivalent also to
{A has lab work skills}.

This demonstrates that the language of skills is not so alien to academic practice as is often suggested. Academic practice does not consist just in physically inactive intellectualising, since it requires practically ordered behaviour for various tasks at its core, depending upon

[22] One of their favourite examples of a skill is riding a bicycle, used to make the point that more intellectual practices, such as critical thinking or 'Learning at any level higher than the three Rs' are not skills, but something else entirely. The phrase 'Learning at any level higher than the three Rs' comes from Duke Maskell & Ian Robinson, *The New Idea of a University* (London: Haven Books, 2001), chapter 5, 'The New University as training in skills', p.78). The point is regurgitated somewhat uncritically by, for instance, Frank Furedi, 'It's now no longer critical and nor is it thinking', *The Times Higher Education Supplement* (24 Sept. 2004), p.58; c.f. also Stephen Johnson, who puts forward an argument against critical thinking being a skill in the context of sub-HE level education, *Teaching thinking skills*, Philosophy of Education Society of Great Britain (Impact series, no. 8, 2001). For a more recent critique of skills, see Stephen Rowland's *The Enquiring University: Compliance and contestation in higher education* (Maidenhead: McGraw Hill, October 2006), chapter 4 'The Skills Agenda', pp.45–59.

the discipline.[23]

The more recent reviews and statements do go further in articulating the particular needs of postgraduate students by comparison with undergraduates, as we outline in Part 2 above. The Research Councils' *Joint Skills Statement* (see Appendix 2) deliberately lays out skill areas and sub-areas which place the more generic skills, which by name are suitable for lower educational levels, in the context of study at doctoral level.

To illustrate the academic nature of these as 'skills', let us take one area, that of section (E) 'Communication skills'. This merely suggests that it is important to be able to explain and discuss your work at different levels, suitable for various audiences, in various presentation formats, including putting yourself in a position to teach and mentor those at earlier stages in your field than you are.[24]

At this point the pedagogic sceptic might ask, how do you transfer understanding of state of the art research to an uneducated public audience, when the leading researchers have barely got to the point of understanding it themselves? Our immediate answer is, simply. It seems that a number of people can do this, because they succeed in doing it, albeit to varying degrees of success, so it must be possible.[25]

All this supports our view that academics, postgraduate tutors and supervisors, have to see skills provision as part of their role, if only to usurp it and wrest it back from the externally-positioned interests which would otherwise, if we are not proactive, come in and re-define postgraduate level skills, and hence the character of postgraduate courses, in line with their own priorities. The skills agenda will not go away just because academics do not understand it quite as well as their subject knowledge and research fields or because they wish they could ignore it. If our earlier argument about communication skills is sound, it could be regarded as an abdication of duty to the discipline to ignore it. This leads to the following question.

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[23] What distinguishes intellectualisation anyway? If lab work seems too routinely practical and procedural for appreciation by the more recondite disciplines then we could substitute 'writing for journals', 'textual analysis' or 'deductive inferential argumentation' for X. If anything is a skill (noun term), the ability to articulate arguments or show flaws in others' arguments is too. The practice of deductive inferential reasoning at higher intellectual levels, such as in a philosophy undergraduate programme or in theoretical computing, is largely a written exercise. However, to excel in philosophy, you have to be able to hold your own in challenging discussion with others, as well as to think correctly, and so the more obviously practical interpersonal, more general and pervasive yet not so explicitly codifiable, components of the discipline come to the fore. The practical components of a disciplinary practice are often taken for granted and tacit, by comparison with the explicit codifiable subject content. Simon Barrie offers a related but different objection to the Joint Skills Statement mentality, the assumption not that the areas cannot be intellectual but that generic skills exist and can be defined explicitly and that this can be done independently of disciplines, specific contexts or communities of practice. 'A research-based approach to generic graduate attributes policy', *Higher Education Research and Development* 23,.3, 2004)261–275. We suggest that our "irrealism" meets this objection too.

[24] So we find that the British Association (for the Advancement of Science) and the Royal Society are perennially urging the importance of promoting the public understanding of Science, especially through dialogue (c.f. Ralph Kohn, 'Why I ... believe we must encourage debate between scientists and the public', *The Times Higher*, 3 Sept. 2004, p.16). Richard Dawkins is perhaps a more familiar presenter of the face of science to the public, his professorship being oriented towards public understanding – see Appendix 1.

[25] To delve deeper into the theoretical question how it is possible, we can draw on Michael Luntley's contrast of thin with thick conceptions of practice: 'Articulating Practice'. In Chambers, E., Evans, Y. & Lack, K., (ed.) *Proceedings of HAN Annual Conference 7 October 2000* (The Open University IET, 2001); pp.61–70. For reasons of economy of space, we leave our own explanation of how this is useful here for another discussion.

(c) If we have to do this, why don't we buy in external trainers rather than waste academic time doing it ourselves?

One often promoted solution to meeting the demands of the Roberts Review and the *Joint Skills Statement* is to bring in 'expert trainers' from outside the university to instill the appropriate skills into presumably deficit-ridden unworldly research students, on the assumption that academics are incapable of doing this. This would be consistent with the ethos of the current top-down agenda and is advocated by Phil Crang when he says that 'professionals can do this much better than we. We are glad to let them do so...' [26]

While Crang's external professionals contribute to a department-based programme which can integrate the input of the outside guests more easily, we would take issue with the apparent implication in Crang's words that academics are not professionals, and caution that the assumption that outside trainers are the guardians of practical knowledge, apart from being false, would in practice also risk making provision too minimalist.

It would be minimalist, in the sense of covering the bare minimum of a skill area, just to tick the box that the student had experienced this little episode and can get the Roberts 'point' towards their accumulable quota, as a stand-alone experience bolted on to their 'real' work, the research. Such minimalism could be precipitated by giving priority to cost efficiency demands, since buying-in people for stand-alone sessions would be cheaper and less labour intensive than formulating robust programmes with such sessions as integral components. However, we contend that it is not quite that simple.

Firstly, the deeper problem with the 'trainer-led' model lies in the probability that the external trainer will lack familiarity with local educational arrangements and also lack the academic expertise (or, dare we say, skills) which can facilitate integration. A trainer without higher education research experience, coming as a consultant, say, from the business or voluntary sectors (granted that not all external trainers are like this), will know little about how to integrate skills expertise specifically into a research degree and, as a result, students may not receive the full potential benefit.

Secondly, the generic skills framework for novice researchers needs to be an academically grounded provision, even if existing academics might need to develop some of their skills first! (c.f. Orchard et al, in Guide#3, p.32.) Academics need to take the initiative and make generic skills provision bottom-up, thus owning the process themselves. Depending upon matters of scale in an institution, some provision can be delivered more centrally across disciplines and by staff not necessarily in the same discipline as the novice researchers. Outside trainers, of course, can be used effectively but it is still important that the programme as a whole lies within an academic framework.

Finally, we should see Academic Professional Development as a proto-discipline within the academic community, related to the discipline of Education but not necessarily rooted there, especially when an institution's academics in that field are concerned more with compulsory levels of education. A professional development academic group, a loose

[26] Cited in Guide#3, chapter 1, 'Developing key skills indirectly within a research training programme', p6.

grouping which can collaborate easily with and include academics from other more established disciplines but based around research-led practice, constitutes the most appropriate way to organise centrally the staff of an institution who run the more generic programmes. Such a group is also in a stronger position to command a degree of input to institutional decisions about how to develop such programmes.

Making the provision bottom-up implies full involvement in the process of the communities of novice researchers. It is the researchers' development that is at issue and they can, if they are given the opportunity, take control of the reins of what remain largely top-down initiatives.[27] We suggest that this will make our lives as academic deliverers easier too, even if it means losing some of our own control, allowing the novice researchers themselves to determine elements of their own programmes of study and training.[28]

In the final analysis, we may yet find that outside influences, such as employers outwith higher education, are successfully bringing about change here and there, to this programme of study or to that department's ethos, through the training elements or through other means. We acknowledged at the start of Part 3 that disciplines and disciplinary knowledge are not static, but that they would expect to evolve through the momentum of continuous evaluation of their own practices and new discoveries. However, this evolution and evaluation does not occur in a vacuum. Outside influences are there to be responded to by disciplinary communities. Without this, disciplines run the risk of ossification.

What engineers see as relevant and viable in the 'real world' has a bearing upon what universities teach in their courses on engineering, and we would not necessarily want it any other way. What major charities and other organisations see as valuable aims, such as eradicating diseases or poverty, determines what research is funded in medical and many social science fields. Again, this is not very contentious. The output of professional novelists will often be the focus of literary studies. The very origin of disciplines lies in forms of work not themselves defined by university communities alone. If the discipline is strong then it will not be defined by, but rather in partnership with, partial interests.

The above discussion has focused more on the research studies or work in terms of their disciplinary *content*, such as subject knowledge (more explicit) and accompanying research practices (more tacit). There are however also fears about how the PhD, or research practice more widely, as a more specific *process* might be changed, and we examine this in the following sub-sections.

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[27] Local department-based postgraduate or research staff groups or institution-wide postgraduate associations, supported by the NPC (see Appendix 1), are often keen to set up and run provision which contributes to the training and personal development of their members.

[28] We may draw also from conceptual links made between skills development, its nature, and autonomy; c.f. Fazey, D.M.A. & Fazey, J.A., 'The potential for autonomy in learning: perceptions of competence, motivation and locus of control in first-year undergraduate students', *Studies in Higher Education*, (26,.3, 2001, 345–361).

(d) It is difficult enough as it is to submit a PhD within the expected period of study, and research projects often spill over beyond their funding. Won't the extra skills development components be simply a distraction from timely completion for my researchers?

The top-down framework introduced through the recommendations of the Roberts Review (see Part 2) requires Research Council-funded research students (and research staff) to undertake the equivalent of ten days per year of research and generic skills training. Many institutions have created a points accumulation system to track engagement, whereby one point equates to a half day's activity. If this additional training was simply 'bolted on' as extra work to what the student would be doing over the course of their studies, we could expect full-time students to take six weeks longer than they would do otherwise to complete their programme of study.

Our response to this query is that if the integration of the training elements and the student's independently directed study activities are not managed well, then there will be instances where it appears that the student has to do extra work merely for the sake of meeting the institutional requirement to accumulate the extra Roberts 'points'. There is a well-founded perception that senior managers governing a whole institution, and even some at subject level, may prefer to take the simpler path of imposing a one-size-fits-all training framework of standalone workshops or training events, this being easier to account for through merely recording the attendance by the participants rather than through ensuring provision actually meets learning needs.

However, the framework adopted by an institution need and should not be received in this way. In practice, the sorts of activities which supervisors and departments, and the students themselves, already regard as valuable or necessary can receive formal recognition from the framework. Beforehand, some activities may have gone relatively unnoticed. There are activities central to the academic development of the novice researcher, such as training in general research methods for the field, learning relevant ICT applications, presenting work to conferences, student representative roles, introductions to being more proficient in types of teaching and demonstrating, which can now receive recognition and be perceived as more of an achievement. There are other activities, such as career planning, which are not necessarily seen as core to the academic enterprise, but which the novice researcher will need to consider, especially if they wish to keep their options open for a career outside academia.[29]

Our response to the query from the supervisor's point of view is to suggest that, not only does the framework not inherently affect your freedom to develop your novice researcher in ways complementary to their work or studies, it can enable the development to be more systematic and effective. Departments and institutions can organise and publicise available workshops and courses under one resource heading and, with appropriately framed LNA/PDP (see the next sub-section), the experience of the novice researcher should feel more

[29] Research students from science areas find that post-doctoral, and pre-doctoral, research staff posts are available in some numbers. This is not true for arts and humanities. However, research staff posts tend to be based around finite funding contracts and, even when a science researcher is confident of continual renewal in the form effectively of a rolling contract, typically only 20 per cent eventually attain a proper permanent academic position in the UK.

integrated into their work, as opposed to seeming like ad hoc additions. We might even venture that the submission of the thesis or completion of the work for the project, the process as a whole, will be more rather than less timely. With the supervisor's professional supervision and other help, and with the department's and institution's resources, the novice researcher can develop their own ability for self-management, which should assist them to set realistic goals within the time available.

(e) There may be a substantiated concern to enhance personal and career development structures in scientific fields populated by young researchers...

(i) ...but my area is e.g. humanities and so surely none of this applies to me and mine.

(ii) ...but many of my researchers already have skills: they are mature people who have seen life, so all this does not apply to them.

There are strongly grounded worries that both national policy-makers and institutions are using a science paradigm deficit model for the development of their early career researchers. The typical candidate would have gone to university straight from school and straight from first degree into higher degree, and then there may be post-doctoral work to follow on, all full-time. While this may be something of a caricature of the science community, a one-size-fits-all set of skills development requirements based around this deficit model resonates more with science than it does other fields.

One facet of autonomy is relative control over processes governing one's research field, with implications for how we understand the choice to do research work or postgraduate study in the first place.

The following by no means applies to all applicants for science research study, but we do have to recognise that it applies to some, that at the point of applying to undertake doctoral study they have no real sense of their own unique contribution to pushing the boundaries of knowledge. The funded place is there in their field of study and their first degree studies were sufficiently successful to enable them to apply with confidence. At other times that decision is effectively taken for them by their undergraduate tutors. We suggest that we can expect the nature of the respective postgraduate recruitment process will have some bearing upon a student's sense of autonomy over their own research project.

In arts and humanities the AHRC may be perceived by some to be over-concerned with the employability of its funded postgraduates, but we have to treat the AHRC as a major authority on what is appropriate for arts and humanities generally, even if subject associations might want to object to its unavoidable generalisations. That said, as a matter of relative contrast, many social science and humanities prospective UK home postgraduate research students have to work out their own ideas first about their potential contribution to knowledge, persuade a department to offer them a place and supervise them, and then seek funding against intense competition, with most being unsuccessful in that quest. Many are so committed to pursuing research that they then undertake part-time study in order

to make time to earn a wage to support themselves rather than give up on their intellectual quest.[30]

In some fields there are high proportions of mature postgraduates with experience of both work and the wider world. Some may well have retired. The majority are self-funded or funded by their employer. Many of these will be studying part-time. This sits badly with a deficit model of the skills agenda which says that research students are unusually unworldly and need bringing up to some 'objective' level of competence.

If all research students in any one institution fall into the science young researcher paradigm, it might appear that the deficit model served both the researchers', as well as the institution's, interests. We disagree. Even in this scenario it would be naïve to assume this. The constituency is unlikely to be as homogeneous as appearances might suggest. That aside, the one-size-fits-all model would be inappropriate for many non-science and 'non-traditional' postgraduates, who tend to make up a significant part of the postgraduate population, often the majority, in many institutions, including those dominated by 'hard science'.

However, we do not need to embrace the deficit model. LNA and PDP can and should be focused more on the needs of the real individual and this is why, once thoroughly organized, they are so important, because they are meant to be tools of self-direction. We find in the skills agenda an opportunity for novice researchers to exercise some autonomy in the sense of political self-determination in setting up provision (as we saw in sub-section b). Skills provision as personal and professional development, which is how precept 18 of QAA Code of Practice characterises it, is most effective when the person takes control over how they are developing. This is one interpretation offered for the Dearing Review's skill area of 'Learning to learn', that it is more than just a skill, and rather to do with self-direction and success in adaptability when faced with new situations. [31]

It is important that individual novice researchers have the opportunity (and are given the support to enable them) to articulate their own learning needs, relating them to their own particular situation and goals, and working in collaboration with the supervisor, who can bring additional expertise to the identification of needs specific to the research and, if relevant, to the achievement of the qualification. There needs to be flexibility as to what counts as skills development, so that individuals pursue their own development and meet requirements, but do not have to sit through workshops inappropriate for them simply in order to satisfy formal requirements.

There could be, for instance, more official recognition of other intellectual activities not directly constituting part of the research project content. So, complementing, or even instead of, face-to-face sessions attended, there could be recognition of independent work, such as investigating and writing about research or making the PDP log a more intellectually

[30] It is worth noting that, in 2004, over half the doctoral students registered at UK HEIs were studying on a part-time basis.

[31] Whitston, K., 'Key Skills and curriculum reform', *Studies in Higher Education*, (vol. 23, no.3, 1998, 307–320); Rawson, M., 'Learning to Learn: more than a skills set', *Studies in Higher Education*, (vol.25, no.2, 2000, 225–238) – this is the "meta-competence" which we, as pedagogues, should be making our focus for the benefit of our students and other novices in our charge; c.f. Bridges, D., 'Transferable Skills: a philosophical perspective', *Studies in Higher Education* (vol.18, no.1, 1993, 43–51), p50; pre-figuring the Dearing Review.

robust document, as long as this writing is not also the main thesis of the dissertation or focus of the research project report. This would of course involve some degree of 'checking' or assessing the PDP.

There is already encouragement for students to be involved in activities such as representation at department, institution, regional, national and international level, in both subject-specific and non-subject-based bodies. Many choose to take on a role in the running and developing of staff or postgraduate student associations, which can require significant commitment. But typically this type of activity is not recognised officially as skills development, even though such activity is integral to academic practice taken broadly and is often valued as good experience by employers. It should be recognised as an appropriate way of developing and demonstrating genuinely generic skills.

Summary

In the foregoing we have addressed some of the specific queries arising from the more general question about why we, those who support novice researchers in one way or another, should engage with this new agenda. Concerns about disciplinary dilution, the balance between low level skills and high level intellectual activities, added distractions from timely completion, the differences between the way research is conducted in the various disciplines, and the variability in the skills that early stage researchers present when they join an HEI, have all been explored to some degree. We invite you to consider the various arguments and come to your own conclusions.

Whether you decide to engage with the agenda for 'virtuous' reasons (because it will be helpful for novice researchers), for rational ones (because it makes sense to you), for pragmatic ones (because that is the way things are going), or through inertia (because active resistance would be time-consuming), we hope that you find the discussion helpful. Box 4.1 contains a summary of our recommendations.

Box 4.1 Main recommendations:

1. Supervisors need to challenge the skills agenda insofar as it reflects purely partial external interests. To do this, supervisors and all researchers (i.e. not just those funded by the Research Councils) should look to raise their awareness of the agenda and the institutional environment developing around it, by making it a topic of discussion.

2. Supervisors need to engage purposefully in the agenda, seeking to realign it with academic autonomy and disciplinary identity, as well as career development for researchers.

3. Supervisors, whilst providing their professional expert perspective, should grant as much autonomy as circumstances will permit to the novice researcher for them to articulate their own learning needs and to direct their own personal and professional development, with opportunities to articulate those priorities in collaboration with peers.

4. Institutions should encourage interaction and discussion amongst novice researchers as a way of helping them to get maximum benefit from PDP-related activities. These activities should themselves be credited formally wherever possible.

continued ....

Box 4.1 continued ....

5. Institutions should permit a much greater degree of flexibility as regards appropriate activities for meeting the Roberts requirement of the equivalent of ten days per annum under the skills framework. Attending isolated workshops might be sufficient for some topics or skills, but ongoing activities of many different sorts can better cement learning. There may also be value in introducing some sort of assessment regime so that learners can engage properly with the provision and have an indication about how well they have performed and what more they could do to develop themselves.

6. PDP should use specific research and other skills as a focus, but should also link to issues in the wider environment, including the role of values. Institutions could usefully invest in integrated and robust provision focused on the research environment and the purposes of research.

7. Externally commissioned trainers need to be used with care by institutions. It may seem that a non-disciplinary professional could deliver generic professional development elements better than supervisors infused with their disciplinary practice. However, 'professional development' does have a research-led academic status in its own right and institutions seeking to make the most of the skills agenda should seek to make academic appointments in this area. This would not only strengthen institutional provision but would also assist the broader community to develop its understanding of professional development and lifelong learning.

As described in Part 2, institutions in receipt of Roberts money are required to monitor their use of the Roberts framework funds. As part of institutional audit, all institutions are required to show how they engage with the skills agenda developed over the last few years. The authors of this Guide hope that it will provide inspiration to institutions, trainers and developers, and researchers regarding ways of using PDP and LNA to better align the skills agenda with the real needs of their staff and students.

Appendix 1: Places to Look

Guide#3: Pat Cryer (ed.) *Developing Postgraduates' Key Skills*, (Society for Research into Higher Education & the Times Higher Education Supplement, 1998); this was the third in the first series of Guides.

It goes without saying, really, that the first place to look for resources in setting up provision is on your own doorstep. Your department/school/faculty or institution will already have some sort of research methods programme on which you can build. There will be texts dedicated to the field of study, including texts on research methods and skills. Many institutions have a graduate school overseeing postgraduate study across the institution. It may run, or at least oversee the running of, workshops and other events applicable to non-discipline-specific audiences. A staff development unit is more likely to cater for research staff. The careers service will have responsibility to provide support for career preparation for all researchers.

Your subject area research council may organize special events. **UK GRAD**, set up by the research councils, organizes events and workshops focused on the needs of postgraduate students. Many of these are organised at regional level. You might like to explore UK GRAD's website and publications, including its databases of practice, which include examples of PDP and other resources:
http://www.grad.ac.uk/

The **UK GRAD** website also gives further examples of how colleagues across a range of disciplines and institutions have implemented the Roberts agenda and also addressed generic issues in research. You might even like to add your examples to it.

There is an equivalent body to UK GRAD for research staff, **UK Higher Education Researcher Development Group (UKHERD)**:
http://www.ukherd.org.uk/

A number of other bodies have websites that provide relevant information.

The **Higher Education Staff Development Agency**:
http://www.hesda.org.uk/

The **Staff and Educational Development Association** is the professional association for staff and educational developers in the UK:
http://www.seda.ac.uk/

The **Higher Education Careers Services Unit**:
http://www.hecsu.ac.uk/

The **Centre for Recording Achievement** has pioneered PDP at various educational levels:
http://www.recordingachievement.org

The **Higher Education Academy** takes an interest in ideas such as LNA and PDP both as central organisation and also through its learning and teaching support network subject centres:
http://www.heacademy.ac.uk/

HEFCE funds a suite of **CETLs** (Centres for Excellence in Teaching & Learning), which run investigations into various topics respectively. One of note is the Centre for Excellence in Preparing for Academic Practice, focussing on the academic career path by contrast with other career paths, and, amongst other things, examining the role of LNA/PDP:
http://www.learning.ox.ac.uk/cetlindex

The **LiNEA Project**, 'Learning during the first three years of postgraduate employment' (funded through ESRC TLRP):
http://www.sussex.ac.uk/usie/linea/index

NPC: the National Postgraduate Committee of the UK, the independent representative body for postgraduates, produces its own guides as well as formulating responses to national policy developments:
http://www.npc.org.uk/

The National Association of Graduate-Professional Students is the umbrella group for students studying in the United States, undertaking advocacy for student needs and rights at all levels:
http://www.nagps.org/

Eurodoc is an example of a large transnational body, being the council for postgraduate students and junior researchers in Europe, so enjoying a representative remit wider than just students. The European national level postgraduate student organisations are listed on its website:
http://www.eurodoc.net/organisations/

The home page of Richard Dawkins, Charles Simonyi Professor of the Public Understanding of Science at Oxford University can be found at: http://www.world-of-dawkins.com/

General policy reviews and reports

ABRC (1993): Advisory Board to the Research Councils, *The Nature of the PhD* (HMSO).

Centre for Recording Achievement & National Postgraduate Committee (2004), *National review of emerging practice on the use of personal development planning for postgraduate researchers*, UK GRAD, http://www.npc.org.uk/page/1098797810.pdf

DfES (2003): Department for Education and Skills White Paper, *The Future of Higher Education*, http://www.dfes.gov.uk/hegateway/hereform/index.cfm

Dearing Review (1997): National Committee of Enquiry into Higher Education, *Higher Education in the Learning Society* (HMSO) and http://www.leeds.ac.uk/educol/ncihe/

Harris Review (1996): *HEFCE/CVCP/SCOP Review of Postgraduate Education* (Bristol: HEFCE).

Metcalfe Report (2003): *Improving Standards in Postgraduate Research Degree Programmes*, http://www.hefce.ac.uk/pubs/hefce/2003/03_23.htm

QAA (2004): Quality Assurance Agency for Higher Education, *Code of Practice on Postgraduate Research Degree Programmes* (Gloucester: QAA, September 2004) online at http://www.qaa.ac.uk/academicinfrastructure/codeOfPractice/section1/

Roberts Review (2002): *SET for Success* (HM Treasury, April 2002)
http://www.hm-treasury.gov.uk/Documents/Enterprise_and_Productivity/Research_and_Enterprise/ent_res_roberts.cfm

Appendix 2: The 'Joint Skills Statement'[32]

Skills training requirements for research students: joint statement by the research councils/AHRB

Introduction

The research councils and the Arts and Humanities Research Board (AHRB) play an important role in setting standards and identifying best practice in research training. This document sets out a joint statement of the skills that doctoral research students funded by the research councils/AHRB would be expected to develop during their research training. These skills may be present on commencement, explicitly taught, or developed during the course of the research. It is expected that different mechanisms will be used to support learning as appropriate, including self-direction, supervisor support and mentoring, departmental support, workshops, conferences, elective training courses, formally assessed courses and informal opportunities.

The research councils and the AHRB would also want to re-emphasise their belief that training in research skills and techniques is the key element in the development of a research student, and that PhD students are expected to make a substantial, original contribution to knowledge in their area, normally leading to published work. The development of wider employment-related skills should not detract from that core objective.

The purpose of this statement is to give a common view of the skills and experience of a typical research student, thereby providing universities with a clear and consistent message aimed at helping them to ensure that all research training is of the highest standard, across all disciplines. It is not the intention of this document to provide assessment criteria for research training.

It is expected that each council/board will have additional requirements specific to their field of interest and will continue to have their own measures for the evaluation of research training within institutions.

(A) Research skills and techniques – to be able to demonstrate:

1. The ability to recognise and validate problems and to formulate and test hypotheses.
2. Original, independent and critical thinking, and the ability to develop theoretical concepts.
3. A knowledge of recent advances within one's field and in related areas.
4. An understanding of relevant research methodologies and techniques and their appropriate application within one's research field.
5. The ability to analyse critically and evaluate one's findings and those of others.
6. An ability to summarise, document, report and reflect on progress.

[32] available also as an appendix to the QAA's revised Code of Practice online at: http://www.qaa.ac.uk/academicinfrastructure/codeOfPractice/section1/appendix.asp#append3

(B) Research environment – to be able to:

1. Show a broad understanding of the context, at the national and international level, in which research takes place.
2. Demonstrate awareness of issues relating to the rights of other researchers, of research subjects, and of others who may be affected by the research, e.g. confidentiality, ethical issues, attribution, copyright, malpractice, ownership of data and the requirements of the Data Protection Act.
3. Demonstrate appreciation of standards of good research practice in their institution and/or discipline.
4. Understand relevant health and safety issues and demonstrate responsible working practices.
5. Understand the processes for funding and evaluation of research.
6. Justify the principles and experimental techniques used in one's own research.
7. Understand the process of academic or commercial exploitation of research results.

(C) Research management – to be able to:

1. Apply effective project management through the setting of research goals, intermediate milestones and prioritisation of activities.
2. Design and execute systems for the acquisition and collation of information through the effective use of appropriate resources and equipment.
3. Identify and access appropriate bibliographical resources, archives, and other sources of relevant information. Use information technology appropriately for database management, recording and presenting information.

(D) Personal effectiveness – to be able to:

1. Demonstrate a willingness and ability to learn and acquire knowledge.
2. Be creative, innovative and original in one's approach to research.
3. Demonstrate flexibility and open-mindedness.
4. Demonstrate self-awareness and the ability to identify own training needs.
5. Demonstrate self-discipline, motivation, and thoroughness.
6. Recognise boundaries and draw upon/use sources of support as appropriate.
7. Show initiative, work independently and be self-reliant.

(E) Communication skills – to be able to:

1. Write clearly and in a style appropriate to purpose, e.g. progress reports, published documents, thesis.
2. Construct coherent arguments and articulate ideas clearly to a range of audiences, formally and informally through a variety of techniques.
3. Constructively defend research outcomes at seminars and viva examination.
4. Contribute to promoting the public understanding of one's research field.
5. Effectively support the learning of others when involved in teaching, mentoring or demonstrating activities.

(F) Networking and teamworking – to be able to:

1. Develop and maintain co-operative networks and working relationships with supervisors, colleagues and peers, within the institution and the wider research community.
2. Understand one's behaviours and impact on others when working in and contributing to the success of formal and informal teams.
3. Listen, give and receive feedback and respond perceptively to others.

(G) Career management – to be able to:

1. Appreciate the need for and show commitment to continued professional development.
2. Take ownership for and manage one's career progression, set realistic and achievable career goals, and identify and develop ways to improve employability.
3. Demonstrate an insight into the transferable nature of research skills to other work environments and the range of career opportunities within and outside academia.
4. Present one's skills, personal attributes and experiences through effective CVs, applications and interviews.

Appendix 3: University of Manchester Faculty of Engineering and Physical Sciences Graduate Resource Book – Section 2: Development Needs Analysis

Our illustration here uses the term 'Development Needs Analysis' rather than LNA in this context and (with kind permission of Tony Bromley) we represent a few rows of his group's Graduate Resource Book. Each row of this section in turn uses each item on the list provided in the 'Joint Skills Statement' (see Appendix 2 – we reproduce just skill items A2 and A3 here, to provide sufficient illustration). You will notice that this LNA tool seems to presume a relatively objective progression path, as if all PhD students in this disciplinary domain have a unitary scale, 1–4, on which they can be placed and up which they may develop, if not already developed.

University of Manchester Faculty of Engineering and Physical Sciences Graduate Resource Book
SECTION 2: Development Needs Analysis

Notes: DNA is about setting targets for the level of competence expected of an experienced PhD student. It is not about assessing weaknesses in new researchers.
The content of the first column of this DNA is composed of the 36 skills (grouped into 7 categories) listed in the Joint Skills Statement of the Research Councils.
The DNA should be used multiple times as appropriate beyond the suggested 'initial' and 'year 1' columns in a cycle of review, discussion with supervisor, training and reflection. Students should rate themselves against the descriptor and be able to provide evidence to support their claimed rating.

Skill Level Ratings: 1 = Good first degree graduate standard, 2 = a PhD student with some experience, 3 = an experienced PhD student, 4 = a particularly able PhD student.

(A) Research Skills and Techniques - to be able to demonstrate:	**Characteristic Descriptor of an experienced PhD Student (Level 3)**	**Initial Competence Level (Where Level 3 is an Experienced PhD Student)**	**Year 1 Competence Level (Where Level 3 is an Experienced PhD Student)**	**Example of Possible Evidence**	**Training Courses Supporting Development in this Area**
[...]		1 2 3 4	1 2 3 4		
2. original, independent and critical thinking, and the ability to develop theoretical concepts	Able to formulate hypotheses and/or research questions for the purposes of designing a personal research project. Able to provide new and innovative research ideas. Able to objectively and knowledgeably criticise published research.	1 2 3 4	1 2 3 4	Patent application.	Introductory Course *Critical Thinking Seminar*
3. a knowledge of recent advances within one's field and in related areas	Can communicate knowledgeably about their research topic with supervisor and peers, debating concepts. Familiar with recent relevant literature. Can write a literature review of publication standard on the topic.	1 2 3 4	1 2 3 4	Supervisor feedback on progress report. Lit. review	Introductory course *Academic Writing* Workshop Library training
[...]		1 2 3 4	1 2 3 4		

Appendix 4: Personal and Professional Management Skills (PPMS) at UCL

By way of further exemplification, around the UK there are certain generic skills taught programmes which are credit-bearing components of degrees, such as the MRes and EngD. Tutors may focus the programme around induction into generic skills for the research students, along with a framework for critical reflection on the nature and purpose of research and science.

The parts complementing LNA are usable for non-credit-bearing shorter courses too, even as an exercise just between supervisor and student. However, a class group exercise is a better means to introduce this, since the students can feed off each others' enthusiasm and ideas, getting peer feedback (which is also to enhance the objectivity of the self-reporting). The student will still take away their personal assessment after the class and use it as they wish.

If we work on the assumption that we are introducing skills as much for life and work within the Academy as beyond it, the skill areas would have to be more generic than the examples as written in the Research Councils' *Joint Skills Statement* (Appendix 2). Table PPMS contains an example in use.

Table PPMS: Initial Skills Self-Audit matrix

Relative rating:	**1**	**2**	**3**	**4**
Planning & Organisation				
Time Management				
Resource Management				
Adaptability/Managing change				
Self-Assessment				
Teamwork				
Leadership/Management				
Problem Solving				
Creativity/Innovation				
Personal Communication				
Presentation				
Learning from Experience				
Other				
Other				

The 'Relative Ratings' (1–4) functional part serves as an heuristic device for the learner to think how well they can perform comparatively, i.e. under one heading compared to the next (the student can block out the cells along the row for each heading, up to the number they intuitively find appropriate to describe them). It does not connote a finite and calibratable scale, if only because metaphysically there is no implication that the scale reaches any upper limit, but also practically to serve mainly as a prompt for the student to highlight their own learning wishes and needs (they may even create their own headings in the 'Other' slots). Arguably, this is preferable to trying to match the individual up to any given or presumed 'objective' measure of performance, since such measures tend to prove problematic. The next step (which also enhances the objectivity of the self-reporting) for the learner is to articulate evidence, using this proforma...

Skills Development Self-Audit

Rate your current skill level from 1 (complete novice) to 4 (expert) in each of the following areas and indicate what evidence can substantiate your claim(s) in each area. The definitions provided are not exhaustive or prescriptive, but simply offer guidance in reflecting.

Planning & Organisation current level: 1 2 3 4

Able to plan a complex task and organise resources for its accomplishment, using project management tools where appropriate.

Evidence for this rating:

Time Management current level: 1 2 3 4

Able to schedule multiple personal tasks within a designated work period and monitor progress

Evidence for this rating:

...and so on for each heading. The self-rating enables the student to identify areas to prioritise for improvement...

Skills Development Agenda

Choose any of your **less** developed skill areas, where you see an immediate need and/or an opportunity to develop, and consider the following:

First Skill Area _____

current level: 1 2 3 4 desired level: 1 2 3 4

How could this area be further developed?

... and you can repeat for other areas. The main practice of PDP follows, logging events and activities, and how they may improve your self-understanding and development under the skill area headings. Periodically, as learner you return to the Skills Development Self-Audit boxes (above) and judge for each heading if you have developed, whether you deserve a higher rating and based on what evidence.

The skills illustrated in Table PPMS form a set. It is important that the set is constituted flexibly, so the same concepts can be captured in alternatively worded lists, combined or analysed further, with room for additional headings. Such additional headings could more explicitly embody values rather than the typical collections of skills and knowledge. This is to suit the individual's purposes, since they are meant to own their own self-assessments and development, as opposed to imposing some externally pre-defined presumed universal framework of standards.

The above is delivered by the Centre for the Advancement of Learning and Teaching at UCL, the module entitled 'Personal and Professional Management Skills' (PPMS), assessed by portfolio, as part of the credit-bearing component of MRes and EngD degrees 'Personal and Professional Skills in Research Practice' (accompanied by 'Issues in Methods of Research & Scientific Practice' (IMR) – see Appendix 6), and also for non-credit-bearing courses and workshops. Thanks for permission to use them as illustration are due to Dr Paul Walker, who adapted the template, used also by Martin Gough and others. The UCL Graduate School e-log, for research students generally but not itself assessed, is university network based, so is not readily illustrated here. The Skills Development Self-Audit pages are similar in design to the self-audit section illustrated above, but more closely follow the headings of the *Joint Skills Statement* and do not use the numerical scale for development.

Appendix 5: Alternative functionality for PDP logging

The template partially reproduced below, representing practice at e.g. Oxford University, is an alternative to the rating function used by UCL's PPMS (see Appendix 4) and the Manchester DNA template (see Appendix 3). Thanks for permission to use this illustration are due to Professor Graham Gibbs, who leads the CETL project 'Preparing for Academic Practice'. It has the advantage of a non-numerical but informative scale of attainment under each heading.

Academic practice	No experience	Observed others	Been observed + feedback	Experienced briefing/training	Undertaken as 'understudy'	Undertaken with support	Undertaken independently	Experienced
Research skills (disciplinary)								
Insert disciplinary research skills								
Scholarly work								
Presented an in-house seminar								
Presented poster at conference								
Written/presented conference paper								
Written/submitted journal article								
Written a book chapter								
Written a grant application								
Written research progress report								
Reviewed a journal article								
Reviewed a grant application								
Organised a seminar/symposium								
Planned a funded research project								
Managed a research project								
Contributed to a research team								
Written for public understanding								
Presented to non-specialist audience								

Academic practice	No experience	Observed others	Been observed + feedback	Experienced briefing/training	Undertaken as 'understudy'	Undertaken with support	Undertaken independently	Experienced
Teaching								
Tutorial/small group teaching								
Demonstrating/field work								
Lecturing								
Supervising an u/g student								
Supervising a p/g student								
Evaluating teaching/course								
Advising/guiding students								
Marking assignments/examinations								
Planning sequence of classes								
Setting assignments/examinations								
Using own research in teaching								
General								
Written/spoken to committee paper								
Chaired a committee or group								
Undertaken academic admin								
Undertaken admissions interview								
Supervised other staff								
Undertaken appraisal								
Career development								
Produced a research cv								
Produced a teaching portfolio								
Used PDPortfolio								
Undertaken career planning								
Written job application								
Been interviewed for job								

Appendix 6: Illustration of issues-based generic provision

IMR
Issues in Methods of Research & Scientific Practice

The module is delivered by the Centre for the Advancement of Learning and Teaching at UCL, as part of the credit-bearing component of MRes and EngD degrees 'Personal and Professional Skills in Research Practice' (accompanied by PPMS – see Appendix 4). It is adaptable also for non-credit-bearing courses and workshops, enabling reflective activity under the heading of learning about the research environment. This module is currently delivered by Martin Gough at UCL.

Module Outline

- In this module we shall explore issues surrounding the nature of research and its methods, and the practices of science in particular. We shall start with a consideration of assumptions about the fundamental nature and purpose of research, its value to you as individual workers and to society at large, as well as motivations underpinning research work and being a researcher. If these considerations may at first seem slightly peripheral to the central focus of your subject-based interests, you will find that they do inform your own approach to, and participation in, your major research project(s) undertaken for the award of your Masters or Doctoral degree.

- As a group we shall work together in order to research the world of research itself. Our enquiry will be informative, i.e. we shall be finding out about facts and about theories concerning the nature of research and of scientific practice more widely. We shall also be engaging ourselves in a process of discovering and evaluating **what it is like** to be engaging in research and scientific practice in its broad context. The module constitutes an exercise in critical reflexivity, at least at a second-order level, in the sense that you learn about your practice and role by investigating the environment of that practice. This will require apposite pause for reflection, to examine and comment on the process in which each and all of us are engaged and developing ourselves. In this way, IMR and PPMS are mutually complementary and you may refer in your work in one module to your experience in the other module.

- Questions and issues about research and scientific practice for consideration and discussion come under a number of overlapping and non-exhaustive themes:
  - epistemology
  - history
  - soundness of practice
  - ethics
  - relation to society
  - communication and public understanding
  - health & safety

- The major assignments for this module require you to articulate a view upon what makes for good research or good science, either in general or in specific issue contexts, under one or more of these themes. Assignment 2 requires you to form small teams and conduct a project investigating an issue under the heading of what is good research or good science. So, from now you may start to network with others on the course to determine whether you think you would be interested in forming a team with them. Everyone will make a face-to-face presentation of the work in their team project at a course conference session in February, at which the team will submit a report. Assignment 3 follows on immediately and requires you individually to write an essay linked to the topic of your team project, discussing how you conducted it and issues about methodology. To inform your assignment work I recommend you to follow current topical debates about research in the media and to read around the literature. There is no set text, nor is there a strict syllabus, since the content of the course is to a large extent under your direction, to suit your interests and needs, within the framework described above.

Glossary

LNA – Learning Needs Analysis.
If you come across the term 'Training Needs Analysis' (TNA) in the context of the skills agenda for novice researchers, please treat it as equivalent to Learning Needs Analysis. Other usages you may come across are 'Development Needs Analysis' (DNA) and 'Performance Needs Analysis' (PNA). We use the term LNA as we see the value of making the term more consonant with a culture of education that recognises that learning and development have a complex structure of cognitive and affective components, as well as the practical work components which are the more mechanical, performance dimension often understood as implied when the word 'training' is used. Nevertheless, the basic principles are the same.

PDP – personal development profiling / profiles / portfolios / planning – see Box 1.2 on page 4 for explanation.

Supervisor – used here as a generic term to include the supervisor of research students or of research staff, or the manager of research programmes, whether as a tutor for higher degree study across your department or as principal investigator on a research project.

Novice researcher – a postgraduate research student or junior, e.g. contract, researcher.
We adopt the term 'novice researcher' from Rowenna Murray & Andy Lowe, 'Writing and Dialogue for the PhD' *Journal of Graduate Education* (vol.1, no.4 spring 1995, pp.103–109). Those authors seem to use it to refer exclusively to new research students but the term has the advantage of being more generic. This allows us to use it to encompass both junior and also many postdoctoral research staff during the early years of their careers. Here we follow the lead of the authors of chapter 7 of *Guide#3* in the SRHE series, who we can perhaps credit with pre-empting the Roberts Review by recognising that both contract research staff and postgraduate researchers in the same departments may share common training needs: Margaret Orchard, Tony May, Penny Hatton & Jackie Findlay, 'Reviewing the training and support available across an institution'.

We prefer 'novice researcher' to alternative umbrella terms for the following reasons.

- 'Early-career researcher' is less appropriate since many research students are far from early career, they may even be retired. 'Young researcher' as a term would suffer from an equivalent problem.
- 'Early-stage researcher' is less appropriate due to its more specific contextual connotations of young researcher career tracks in certain European countries *(l'étagier)*.
- 'Newer researcher' is more appropriate, but the term 'novice' has the advantage, drawing as it does on the theoretical work on professional development articulated in Hubert L. Dreyfus and Stuart E. Dreyfus (with Tom Athanasiou), *Mind over machine: the power of human intuition and expertise in the era of the computer* (Oxford: Basil Blackwell, 1986). See especially chapter 1, 'Five Steps from Novice to Expert' (the three intermediate steps being Advanced Beginner, Competence and Proficiency).

Titles in the current series

1 Research Supervisors and the Skills Agenda:
Learning Needs Analysis and Personal Development Profiling

2 A Guide for Internal and External Doctoral Examiners

3 Supervising Disabled Research Students

4 Supervising International Research Students

Titles in preparation

- Meeting the Needs of Part-time Research Students
- The Bologna Process and Beyond: Implications for Postgraduate Education
- Ethical Issues in Postgraduate Education
- Work Based Learning in Postgraduate Education

The series editors would be glad to hear from anyone who would like to write a Guide for the series. Please contact SRHE on srheoffice@srhe.ac.uk

The Series

The Guides in this series are designed for supervisors, postgraduate tutors, heads of department, deans, members of committees on postgraduate and research matters, students' union officers, technical and academically related staff – in fact anyone who in any way contributes to or is responsible for the support of postgraduate students. The Guides will also be useful for anyone involved in supervising projects at undergraduate level.

Each Guide is based on research and/or reflective practice as outlined in its Preface, but the Guides are not presented as research articles. They are short and practical handbooks which are designed to be helpful and easy to dip into. A range of alternative courses of action are presented, and readers are left to make up their own minds about what is best for them in light of the norms and requirements of their disciplines, departments and institutions, the needs of their students and their own personal predilections. In this way the Guides go far beyond basic codes of practice.

Considerable effort has gone into ensuring that the Guides are as useful and relevant as possible. To this end, each one is peer reviewed to maintain standards; it presents a list of suggested further reading and it requests that readers be kind enough to let the authors have suggestions for improvement in the next edition. The Guides are thus consultative.

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Society for Research into Higher Education

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