The Development of an Institute-wide Graduate Personal Skills Training Programme that Integrates Centrally Provided Core Skills Training with the Requirements of Individual Academic Departments, Research Councils and Professional Bodies

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Abstract: The paper describes the development and introduction of a revised Graduate Personal Development Programme (GPDP) applicable to and useful for all research students at UMIST (University of Manchester Institute of Science and Technology). The GPDP provides support and guidance in the Key Skills areas integrated with students' own research activities, their individual departmental requirements and the facilities offered by the national Research Councils who fund much of this research. It similarly assists students to meet the educational and training requirements for Chartered Engineer status recently introduced in the UK.

Since the early nineties UMIST had provided a Graduate Support Programme for its range of Science, Engineering and Management postgraduate students (over 1400 in total) using centrally-provided, optional, large group lectures and individual support from a students own departmental supervisor. While this programme had shown a range of benefits, further advantages were possible by revising the course structure to use a small group format and by linking activities in all three years of a PhD student's study programme. Also the opportunity to redesign the course has allowed better integration of centrally provided course material with departmentally organised support activities.

Currently the revised programme is in its first full year of operation, under the guidance of a newly appointed full time course director. Results so far are very encouraging, both in terms of attendance statistics and feedback from staff and students collected formally through questionnaires and informally through wide ranging discussions. The elements of the course providing an introduction to the UMIST Research Student Log Book and Personal Development Record system have been particularly successful in helping students to plan, record and reflect upon their own work.

Keywords: personal skills training, professional development

1. Introduction

UMIST (the University of Manchester Institute of Science and Technology) is a relatively small, research led, independent, technological university, situated in the centre of Manchester. Until 1994UMIST was academically the Faculty of Technology of the Victoria University of Manchester, although it has always been financially separate. Consequently it comprises mainly Science and Engineering departments and a large School of Management.

UMIST has approximately 7000 students and 480 academics with an additional 300 academic related and 850 other support staff. All departments and the great majority of academic staff are research active and UMIST was ranked sixth nationally in the most recent Research Assessment exercise. One small department, Total Technology (TT), is responsible, UMIST wide, for cross disciplinary and industrially based research using the UK Research Councils' Total Technology and Engineering Doctorate (EngD) scholarship schemes.

In the late Seventies the Total Technology PhD programme introduced a series of supporting studies lectures and

tutorials for those research students with TT awards. In the early Nineties this programme was extended to provide optional access for all PhD students at UMIST (and in some cases the partner institutions in Manchester). This necessitated a shift to a "large lecture" model of course delivery. Subsequently, the model was also extended to provide similar lectures to MSc taught course students. At approximately the same time, the EPSRC funded Engineering Doctorate (EngD) programme was started at UMIST and a separate personal and professional skills programme was put in place for EngD research engineers. This had the dual benefits of relatively small groups of researchers in each year cohort and additional funding for course provision.

While the PhD/MSc lectures were of great benefit to those taking advantage of them, it became apparent that these courses needed major revisions if they were to meet the continuing needs of young researchers and the changing demands being placed on the Institute. Hence a proposal was produced for a structured review of personal skills training requirements at UMIST and funding was sought from the Enterprise Centre for Learning and Curriculum Innovation (University of Manchester and UMIST) and UMIST itself. The Enterprise Centre's mandate is to encourage and provide resources for the introduction of new initiatives into the curriculum with the aim of improving the quality of teaching and enhancing learning. Through these initiatives it is intended that the most effective methods and technologies are adopted to support students and provide them with the skills that they require in study, research and their future careers.

2. The Redesign of Graduate Support at UMIST

Enterprise and the UMIST funding provided an opportunity for two existing members of academic staff within Total Technology Department to undertake a project to investigate and design a replacement for the existing Graduate Support Programme (GRASP). [1]

The first quarter involved discussions with and data collection from professional institutions, research councils, a wide range of industrial contacts, other universities and our own research students to establish current best practice and predict likely trends. The trends that emerged indicated that while the requirement for personal and professional skills training was well established, the precise format of that training was still being discussed and formal decisions on the best methods of delivery were yet to be taken. The summary of the first quarterly project report included the statement - "There is considerable activity in the design, provision and assessment of postgraduate skills training but generally this activity is poorly focused and piecemeal. It can be stated with confidence that there is not already in existence elsewhere a model upon which future activity at UMIST should be based." The report presented a framework within which course structures could be developed and a short list of their essential components. [2]

The second quarter allowed time to analyse the results so far obtained and carry out structured interviews with all UMIST departments to establish both their requirements and their potential concerns. The discussions with Departments can be summarised in three main areas. Firstly there was a wide diversity in the practices and levels of activity within even the limited range of disciplines at UMIST. Some departments had very well structured, but differing, formal procedures whereas others relied very heavily on the efficiency of individual project supervisors. Secondly there was no wide spread support for credit rating of skills training but there was general agreement that it should be a required part of a PhD students time at university. Thirdly the discussions allowed the project staff to establish which areas of the existing GRASP programme had worked well and which were in particular need of attention together with which elements should be considered compulsory and which should be available only as 'optional' modules. [3]

Thus by the mid-point of the project it was possible to identify the key features of any future scheme of postgraduate training, namely the importance of small group working; the necessity to record achievements and reflect on learning; the need for a generic core of centrally provided course material; discipline specific elements and optional courses where appropriate to meet individual need. It was also possible to set approximate limits to the amount of time which each student should and could devote to personal and professional skills development within each department's own programme of research training.

The third quarter was dedicated to development of a workable course structure and then the design of each course element. [4] A major part of this was a student log book and record achievement folder [5] that would provide structure and guidance for students. It would also give them a record of progress, an opportunity to plan and reflect and eventually would be used to support student progression at transfer report and thesis submission stages.

The fourth quarter of the project was for the preparation of detailed course material and the initial stages of a programme to disseminate information about the course to all staff at UMIST. It was also necessary to recruit a new member of staff to act as course manager and tutor.

3. The Graduate Personal Development Programme - Core Design

The core of the GPDP is a generic course that is applicable to all disciplines, all study patterns and all types of research students. The core course is now delivered to small (less than 20 students) interdisciplinary groups that will progress together through all years of their research programmes. It is supported by a broad range of optional material, which is flexible in nature (much of it computer/Internet based) to accommodate the wide-ranging needs of individual students. Nearly all Departments at UMIST indicated some dissatisfaction with the I.T. skills of new students and of the level and quantity of the I.T. training provided centrally. However there was no consensus on whether the material provided was too basic or too advanced, too detailed or too general or even any agreement as to the minimum levels of I.T. ability required for each discipline. Specific I.T. training has therefore been taken out of the core skills programme except for a practical introduction to the range of self study, distance learning packages that are provided via the campus intranet. By setting up site licensing agreements it has been possible to provide packages to suit all levels of previous experience, from novice to expert, and allow all students to assess their own level of expertise and choose appropriate material to use at their own pace to suit their own and their departments requirements. All relevant information on how to access the required and optional elements of the programme is available in the log book.

The course structure spans all three years of a standard PhD but elements can be combined to suit other patterns of study such as a two year MPhil, as appropriate. In the first year, the first short course is a general introduction to the university and its facilities, an opportunity to discuss the initial project objectives and then advice on managing one's time, the project and probably most importantly how to "manage one's supervisor". The second element of the first year programme is a one-day course on academic writing and the third is a similar one-day course on effective presentation skills. In all these courses active participation is encouraged and learning is based on students own experiences, with staff acting as facilitators rather than in their more accustomed role as lecturers.

The second year of programme makes use of one of the Research Councils Graduate Summer Schools programmes in either its full or local format. These courses are normally four day/one week residential sessions that use active learning to provide team-working and communication skills and enhance career development for PhD students who hold Research Council scholarships. They are organised as part of a national programme that has been successfully operating for the past thirty years. There is also a one-day course towards the end of the year on preparation for the final year, in particular, how to plan and structure the preparation of a thesis.

In the third year the emphasis is on careers support and guidance, both in terms of general career planning and specific advice on applications and interview techniques.

The log book will be issued to all new students on registration and will contain pre-booked course dates for the generic parts of each students skills training and discipline and profession specific material (e.g. safety procedures, professional qualifications and experience requirements) provided by that students own department. It contains pages to record key meetings with both supervisor and mentor and also space to plan and reflect on the decisions that came from those meetings. It has appendices containing useful names and addresses including a list and contact details of all relevant Professional Institutions, a guide to Manchester, advice on thesis and report writing and completing the necessary end of year reports plus various "self-help" guides to allow students to monitor, plan and record their progress and confidentially reflect upon it. It concludes with a formal statement of the University procedures and regulations relevant to research students and their supervisors.

4. Progress to date

The Enterprise project was completed in September 1999 having produced a course and log book design, recruited a new course tutor and put in place the necessary administrative and financial structures to allow the course to function on an ongoing basis. Unfortunately, the course tutor started his employment at the same time as the majority of new researchers registered so some elements of the course were delayed and the introductory session had to be cut down from two to one day of training and discussion activity. The second year activity was able to make use of existing Research Council Summer Schools and in particular a Manchester based non-residential course, "Developing the Graduate Manager".

The third year careers activities are provided by the careers service which is a joint UMIST/Manchester University organisation. These were structured to allow differing emphases to address the needs of postgraduates from a range of backgrounds namely home and overseas, full and part-time, industrially sponsored and those without industrial or commercial experience.

The overall student response has been very good. Attendance has been considerably greater than for the previous

GRASP (graduate support) programme. For the introductory course 85% of those students that we were able to contact attended and the academic writing course had 84% attendance of those making use of the GPDP programme. The local "Summer School" was oversubscribed and some provision was able to be made for non Research Council funded students. Careers course attendance for final year researchers was better than in previous years. The response from questionnaires following each session was consistently good (average scores around 4 on a 1(poor) - 5 (excellent) scale).

While the majority (approx. 70%) of the 300 research students who start courses at UMIST each year register in September, a significant number also start in January and April and it is necessary to provide introductory, technical writing and presentation skills training on several occasions in the year so that it occurs at a time appropriate to individual students' development. This is possible with the small group inter-disciplinary nature of the courses, but does consume a considerable amount of staff time and effort both in delivering the courses and in contacting students, confirming their attendance and in managing the practicalities.

During 1999/2000 the previous style of optional large lectures was used for skills training for MSc by Examination and Dissertation (MSc E&D) students. It is planned to continue these next year but on Wednesday rather than Tuesday afternoons, for time-tabling reasons, in an attempt to improve attendance. However we have also introduced a short module of generic skills training that can be taken by small groups of MSc E&D students in departments operating MSc courses based on the Packages of Training initiative, a new course structure based on a series of one week, intensive modules and industrial short courses. This module will be available either as a package fully provided by GPDP staff or as a teaching resource pack (OHPs, teachers' notes, handout materials etc.) to allow a department's staff to meet the needs of their own students.

5. Discussion

Experience at UMIST had shown that while optional large group lectures were efficient in staff terms when attempting to provide skills training for large numbers of postgraduates they were not effective in meeting the needs of the students. Hence it was necessary to return to the small group methods used originally with the TT programme and currently with the EngD research engineers (REs).

The GPDP has an annual four-day core course with discipline specific additions provided by departments. This training supports and is supported by departmental activities such as research seminars and conferences. The consensus of opinion was that a maximum five days per year outside the department would be acceptable for generic skills training.

The structure of the course allows individual departments and the Institute as a whole to develop what are known as 'matching sections' of training to meet Professional Engineering Institution qualification requirements. Elements of the GPDP programme can be used to provide specific training and evidence of skills to enhance earlier qualifications (such as a BEng Honours degree) which may not fully meet a particular Institution's specified needs under SARTOR III.

For several years now the MPhil/PhD transfer report and end of first-year PhD report forms have included questions for the examiners to assess whether students display the skills being provided through GRASP and subsequently GPDP training. Thus student progression to the next stage of a research degree is conditional upon successfully meeting the transfer report requirements. It is planned to continue this practice and extend it to the end of second year report, where appropriate, and ultimately make the completion of a programme of personal and professional skills training (or formal, written exemption from it) a requirement for thesis submission.

The structured interviews with all UMIST departments produced some surprising results. Some members of staff actively encouraged and were keen to promote personal and professional skills training for their researchers and welcomed a centrally providing core course. However the numbers of staff actively opposed to such training was considerably larger than expected (the project team had expected that apathy would be the main response). On further investigation it emerged that a considerable proportion of the opposition was not due to indifference or a feeling that skills training was not relevant but came from staff who provided excellent personal skills training to their own students and felt that a centrally provided programme denigrated their efforts. This understanding highlights the first of two areas of staff training that will be essential if programmes such as GPDP are to continue to grow in the future. The second area of training that will be required by staff is in the skills necessary for the recording of reflection on learning. As members of a technological University, the staff at UMIST have extensive technical training, but almost without exception, their research and reporting training, which concentrated on discussing achievement, was received before the current emphasis on written reflection on learning. In co-operation with the Staff Development Unit, the GPDP project team have included a session on the GPDP and in particular on

the use of the Student Log Book and Record of Achievement in the training programme for all new academic staff. Similarly a programme of seminars and presentations to Departmental Academic Board meetings is ongoing to disseminate information on GPDP to established members of staff.

6. Conclusion

Enterprise and UMIST funding has enabled staff at UMIST to plan, record and analyse the current rapidly changing requirements for personal and professional skills training for researchers in HE. A student centred programme of core skills, supplemented by discipline specific activities, log book driven and delivered to small, multi-disciplinary groups has been designed and implemented for all postgraduate researchers at UMIST. Notwithstanding minor delays and resource limitations the programme is successful and has been well received by all those participating in it. The small group structure and the relatively short but intense core training programme each year means that the material is suitable, appropriately timed and accessible for all student groups, full and part time, home and overseas, fully funded or privately financed and the link with department specific training means that all students have opportunity to practice what they have learned through their period of research activity.

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