Quality *in* Postgraduate Research:

Making Ends Meet

ADELAIDE 13–14 APRIL 2000

Quality in Postgraduate Research: Making Ends Meet

Proceedings of the 2000 Quality in Postgraduate Research Conference
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April 13-14

Edited by
Margaret Kiley and Gerry Mullins

Papers in this publication have been drawn from the conference on *Quality in Postgraduate Research: Making ends mee*t held in Adelaide 13-14 April 2000.

Part I of the proceedings consists of papers that were presented at the plenary sessions of the conference and edited by their authors.

Peer Review was conducted all of the papers in Part II of these proceedings. Each complete paper (that is not just the abstract) was sent to two independent referees either in Australia or overseas. All names and identifiers were removed from the papers prior to being sent.

Comments from the referees were forwarded to the respective authors and the editors checked the final manuscript to ensure that the referees' comments had been addressed.

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EDITORIAL: TYING OFF A FEW KNOTS

Gerry Mullins and Margaret Kiley
Advisory Centre for University Education
The University of Adelaide

This is the second time we have published refereed proceedings of the biennial Quality in Postgraduate Research Conference and our fourth term as organisers of the academic program of the Conference. There are several features of our experience that are worth comment.

We have noted that many of the papers and presentations offered for the conference are almost entirely descriptive. Certainly, institutions do learn from the experiences of others, and an important feature of these Conferences has been the opportunity to migrate good practice. However, appeals and/or advice on how to improve the postgraduate experience by, for example, insistence on frequent meetings with supervisors, specification of adequate resources, effective grievance procedures are not enough (not that many postgraduates wouldn't settle for these improvements in the meantime!). It is difficult to see how the postgraduate experience will be improved unless we develop a more sophisticated conceptual framework within which we can describe how this particular form of teaching and learning takes place. Such theoretical development has been carried out at the undergraduate level (Biggs, 1999; Prosser & Trigwell, 1999) and at the level of academic staff and managers (Ramsden, 1998). What might be the problem in developing theoretical constructs for postgraduate learning?

What still needs to be done is more research on what students and supervisors see themselves doing when they engage in research. That also requires a better understanding of the conditions (individual, institutional and systemic) under which their actions and interactions are fruitful for any or all parties and a greater appreciation of how these processes are influenced by factors such as culture, age, gender and discipline.

Why is it so difficult for supervisors to theorise their work? Is it because such theoretical concepts that are available come from the discipline of 'education' and are expressed in its particular jargon, while most of the supervision is done in some other discipline? Is it because many academics do not see the process of postgraduate research as problematic and in need of theorising—a variant of 'If it's not busted don't fix it'? We believe we made a start at this conference with the plenary panel of Grant, Lawson, Campbell and Wisker and with several paper presentations and workshops. Another approach is that represented by the work of Alison Lee (Lee & Green, 1995; Lee & Williams, 1999) and the subsequent discussion in Southern Review (1999).

Alison was listed as a plenary speaker in an early program of this Conference but had to withdraw due to ill health.

The notion of pedagogy was addressed in the opening session of the Conference when Bradley Smith raised the issue of terminology—are we talking about research training or research education? (pp. 28-29) The language used in framing policy clearly has significant pedagogical implications. This view was supported by questions and comments from the floor following the first plenary where there appeared to be strong support for the use of the term 'education' rather 'training'.

We have also noted the change in focus in the presentations made over the last few years. One noted change has been the number and type of presentations on, and by, international students. There were significantly fewer presentations at the 2000 conference (Adams; Luthfi et al; and Wisker) compared with previous years. Another change over time has been the number of papers on support for students with their writing. In the first two conferences (1994, 1996) there were several papers on assisting postgraduate students with their writing/research (both local and international). It was noticeable that for the 2000 conference there were only two such presentations, i.e. Cadman; and McGowan. A more subtle change was noted in papers with the use of such terms as 'partnerships,' 'negotiating' and 'participation' some of which (although by no means all) were presented by students, for example, Brown; Grant; Lamm and Lewis; and Zeegers and Barron.

However, there certainly were no fewer papers in 2000 than in previous years so what was the shift toward? The three changes noted above might be explained by the increase in the number of presentations on the student/supervisor relationship. These papers place the student's experience within a wider context than 'just' writing, or of being an international student, as evidenced by presentations from Campbell; Cargill; Grant; Lamm and Lewis; and Malfroy. There might also be a link between the decrease in the number of papers related specifically to international students and to papers on student writing support. However, one might ask: Where are the papers on the internationalisation of the postgraduate experience for all students?

The most obvious change, however, was the one related to women in postgraduate research (Birch; Clark; Gill; McCormack and Pamphilon; Trethewie; and Sim). There are several possible explanations for this emphasis. These include the increasing number of female postgraduate research students; the rise of Women's Studies departments, and the development and sophistication of research methodologies that more easily enable such work.

Despite the discussion leading up to the conference regarding evaluation, and in particular the Postgraduate Research Experience Questionnaire (PREQ), and the vigorous debate in the opening session there was surprisingly little in the way of

presentations related to evaluation other than Kapp; and Evans' Loose Ends session, compared with previous years. What would have been of interest was a greater sharing of evaluation strategies currently being developed and adopted in Australian and overseas universities. The 'Loose Ends' on Research Training Management Plans was potentially one opportunity for this to occur. However, it seems that universities are 'holding their

cards very close to their chests' with little desire for collaboration and sharing in this (now) highly competitive area.

One of the reasons for not programming a plenary session on evaluation, and in particular the PREQ, was that we considered that much of the discussion would have already occurred prior to the conference. How wrong we were! "PREQ row simmers" said the Campus Review (19-4-2000, pp. 1-2), and "Deans boycott data collection drive" said The Australian HES (3-5-2000, p. 35) reporting on the Conference. The press comment was in response to the statement in Jenni Gordon's plenary address that the report of the pilot study of the PREQ would be published shortly (p. 10), and reflected fears that DETYA would renege on an earlier commitment not to publish more than national, aggregated data. There was strong criticism, from both speakers and the floor, regarding the quality of the DETYA data on postgraduate completions. However, Gordon defended the integrity of DETYA's data gathering processes and the quality of the data itself, but she conceded that we need to know what happens to postgraduate students, not just two or three months after they have completed, but over a longer period of time.

So much for the millennium conference—where to in 2002?

Tom Clark, we believe, has already defined the theme of the 2002 conference with his juxtaposition of 'policy in Canberra' and 'praxis on campus' in the final plenary (p. 57). The intention of this year's Conference was to provide equal time to both policy and practice by focussing on them separately. However, they were in fact brought together in the opening session where the terminology used, that is 'training' or 'education', highlighted, the role of language in constructing the educational program. No doubt, by the next Conference, it will be time to bring policy and practice together, but we are not yet sure how to do this. At the moment their positioning is highly confrontational: there was much discussion at the Conference of the problems raised for the practice of postgraduate research by the policy framework within which that research is conducted. DETYA and the White Paper were seen as the villains in this scenario, but nobody pretends that current practice is perfect. Bringing policy and practice together in a constructive and harmonious way will be a challenge for a future Conference. Success, as Tom Clark indicates, will depend on a broader constituency seeking to drive policy.

Involvement of 'industry' will be another essential feature of the 2002 Conference. We are called upon to make postgraduate education responsive to the needs of industry.

But what does industry really want? And just what is meant by 'industry' was raised by delegates and plenary speakers at this year's Conference. Clearly we mean more than engineering plants and mines. We certainly mean hospitals, banks and computing firms. Do we also mean government departments and community organisations? Is the provision of welfare services an industry? Is an artist's studio an industrial site?

At the 2000 Conference we were talking *about* industry and its role (or otherwise) in university research and postgraduate education; in the 2002 Conference how can 'industry' be involved in putting their *own* views? The 2000 Conference was the first time

that we had invited DETYA policy makers as plenary speakers, and even though many people did not agree with the Gallagher/Gordon point of view, the 2000 Conference benefited from their significant contribution—the same significant, albeit contentious contribution might be expected if we involve industry in the 2002 Conference. If universities are to be appropriately responsive to the needs of industry, the 2002 Conference will need to spend some time engaging with these questions and with the people who represent the needs of industry/industries.

In the editorial of the 1998 proceedings we argued that the question 'What is a PhD?' lay beneath many of the currently debated issues of the day (Mullins & Kiley, 1998, p.10). Professor Chubb, in this publication, raises a similar issue in his comments on the White Paper:

> A PhD thesis is in fact a means by which we describe the outcome of a period of learning and is both a reflection of that learning and the underpinning skills. It demonstrates the intellectual depth that was reached and the originality. It should be, above all, seen to be a stage in the process of developing new knowledge in a particular field. Do we ask too much of our students these days and put them under unnecessary pressure to 'finish' some large body of work when they are in fact 'finishing' their learning?…
>
> But if a PhD is a period during which, amongst other things, a student learns the art and the science of research, the ethics of research, the intellectual rigour required of a researcher, how to frame research questions and to pursue them and mould them, and to complete a piece of original research—if it is all that, even in part, then why would it need a lot of time to do it and a huge thesis to describe it? (p. 19)

Is the answer to the question to be arrived at by simple arithmetic—by calculating how many years of research DETYA is prepared to fund—or is there still time for a discussion based on an educationally sound model of postgraduate education? This is another reason for a well developed pedagogical model.

A further consideration for the future is the tension that exists between designing a conference that is relevant and topical for local participants, and at the same time recognises the growing number of international delegates attending the conferences. It is important that we have a forum to address PREQs, RTMPs and DETYA policies,

but how can we do so in a way that is not parochial? How can the 2002 Conference provide participants with a truly international exchange of views?

And then there is the other dimension of postgraduate education—postgraduate coursework. Just as the distinction between the traditional PhD and other forms of postgraduate doctorates no longer excites hot debate, we suspect that the current sharp division between postgraduate research degree and coursework degrees will prove to be unsustainable. Much of that distinction is, after all a function of the arbitrary (DETYA

imposed) 66% rule which determines funding arrangements, and hence a user-pays basis for coursework. But both DETYA and many postgraduate managers are calling for more coursework in the traditional PhD. Should the 2002 Conference continue our focus on postgraduate research? In the evaluation at the end of the 2000 Conference the responses were ambivalent with approximately one half arguing for a continued focus on 'postgraduate research only' and the other arguing for the inclusion of 'coursework'. These Conferences have provided a valuable forum for the discussion of postgraduate research, particularly issues of quality assurance. Such a forum does not exist for the discussion of postgraduate coursework, and CAPA will be quick to point out that there are quality assurance issues aplenty for discussion. Watch this space!

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CONFERENCE OPENING

Professor Denise Bradley
Vice-Chancellor
University of South Australia

Distinguished guests, colleagues and friends.

On behalf of the Flinders University of South Australia, the University of Adelaide and the University of South Australia, I join David Liljegren in welcoming you all to Adelaide, and to the Fourth National Conference on Quality in Postgraduate Research - Making Ends Meet.

Since 1994, these Conferences have been important in supporting improvement in management of research and research training within universities. The theme of this Conference—Making Ends Meet—challenges all of us responsible for provision of postgraduate education to address the quality of the experience of our research students. The theme also allows us to look at the future of research training and address issues of funding and management.

While the initial focus of these Conferences was on the quality of supervision provided to our students, the focus has shifted to the critical need to create and maintain the right research environment for students. Inevitably that puts the spotlight on the provision of resources to enable universities to provide such environments.

The meaning of 'quality' is different for students, governments and providers of postgraduate research training—universities.

Students, who are now paying a greater proportion of the costs, and in some cases the full fee, for their courses, expect quality in the form of:

- access to the resources they need to carry out their research
- clarity in the establishment of expectations
- transparency of decision making processes
- prompt and comprehensive feedback from supervisors
- fulfilling professional interactions and relationships within the research environment.

Government, too, has expectations of what quality means. Government determines whether or not it has received a 'quality' outcome by assessing, first, costs in the context of completions, and, second, the relevance of the research undertaken to perceived national priority areas.

Traditionally, those of us in universities have measured the quality of this form of education by its impact on the field. Recently, however, we have begun to approach the assessment of quality from another angle – paying greater attention to students' needs and experiences. In so doing, we put our practices under scrutiny and open up questions about the adequacy of government support. While I have no doubt we all must continue to work hard to meet student expectations, we are hampered in doing this by government support for the infrastructure underpinning research and research training. In passing, I note research infrastructure funding in the US goes to universities at the rate of A55 cents in

the dollar won, is A44 cents and planned to increase to A60 cents per dollar in the UK, and is coming to Australian universities at A20 cents per dollar.

Nevertheless within this very difficult economic environment all of us in universities must continue to explore ways of improving our practice. One area that needs continual attention is the student experience. This is because the strength of traditional research degree training is also its greatest weakness. It tends to be individualised, idiosyncratic, private (indeed secret) and too often isolating for the student (less true in science areas but even in them life is hell if you don't have a quality supervisor). It is still possible, and indeed necessary, for us to draw students undertaking such training into the wider University community. Students evaluating their postgraduate experience indicate that the provision of a 'quality' experience involves well developed and supportive networks both within the University community and in the wider research community.

Research training is still more like a cottage industry than an industrial process. In my view some industrialisation is beneficial. I think we need:

- more processes which use data to monitor staff performance
- student charters
- structured programs
- attention to the development of generic skills.

We must accept that research training is no esoteric process. Rather, students are being educated and any educational event must be capable of articulation of its educational intentions and assessment of its outcomes.

Both universities and Government are responsible for building Australia's intellectual capital. Those of us in universities must do all we can to ensure that we've got the best possible (and most accountable) research and research training environment in place. But government must play its part. Internationally competitive Australian universities require much higher levels of support for research infrastructure. It's time this issue was addressed directly and positively by our Government.

I wish you all every success for the remainder of the Conference, and have pleasure in declaring it open.

THE CHALLENGES FACING HIGHER EDUCATION RESEARCH TRAINING

Presented by Jenni Gordon
On behalf of Mike Gallagher
First Assistant Secretary, Higher Education
DETYA

Firstly, I wish to apologise to you that Mr Michael Gallagher, who was to make this presentation, is unable to be here today. I will deliver the speech on his behalf.

I have been asked to talk briefly on the future of research training in the light of the White Paper, *Knowledge and Innovation,* which, as you know, seeks to address student and employer concerns that the quality and effectiveness of Australia's research training system is variable between and within institutions.

Let me start by making some observations about student perceptions with research training. Anecdotal evidence, reviews, such as that of the West Committee, as well as the pilot evaluation of the Postgraduate Research Evaluation Questionnaire, suggest that too many graduates find themselves frustrated and dissatisfied with the quality of their research training experience.

Student disillusionment with research training is reflected in high drop out rates, long completion times, and represents a significant waste of talent, and public and private investment. In some areas of research, with new knowledge being generated at an increasing rate, the concepts and technical skills acquired while working on a thesis may be outdated even before it is completed.

The Graduate Careers Council of Australia publication on postgraduate destinations notes that the average completion time for a PhD is six years while that for a Masters degree by research is four and a half years[1]. To some extent, this long time frame can be explained by the high proportion of research students whose study is predominantly part-time—almost 43 per cent on average compared with only 17 per cent for undergraduate students. However, average completion times for coursework masters students is a mere three and a half years, and almost three quarters of these students study on a part time basis.

An evaluation of the completion rates of postgraduate students who commenced their studies in 1992 demonstrated that fewer than 30 per cent of Masters and PhD students who were enrolled in law, business and economics, architecture and building, education and arts, humanities and social sciences, had finished their degrees within five years. While a number of anomalies with the data are likely to have caused the completion rate to be understated including, for example, difficulties with tracking students who defer or transfer, completion rates are clearly problematic.

Most of you will be aware that the new policy framework will encourage swifter completion times by limiting support for research students to a maximum of four years for equivalent full time doctoral studies and two years for masters degrees. A few

[1] Graduate Careers Council of Australia (1999) *Postgraduate Destinations* 1998

individuals have suggested that this period is too short in view of the current average duration of such degrees, but the view of most people who have commented upon this point has been overwhelmingly supportive.

Many of you will be aware that DETYA, the Graduate Careers Council of Australia, ACER and universities have been involved in developing a research instrument to acquire information about the experience of research degree graduates. The report of the pilot study of the Postgraduate Research Experience Questionnaire (PREQ) will be published shortly. Indicative findings suggest that more than 20 per cent of *successful* students are likely to have expressed dissatisfaction with the following aspects of their research training experience:

- guidance by supervisors in topic selection and refinement
- guidance by supervisors in their literature search
- integration into the department's community
- provision of opportunities to be involved in the broader research culture
- provision of a good seminar programme for research students
- provision of appropriate financial support for research activities, and
- timely examination of the thesis.

We might expect that a survey of students who failed to complete would be more damning.

Now let me make some comments about employer perceptions. Employers and their peak bodies commonly report that the research training experience is often too narrow in its specialisation and out of line with their needs and expectations. For example, Dr Rod Grant, the former General Manager, Technical Development, of CRA Research and Technology, commented at the 1996 BHERT conference, *Directions for R&D Management:*

> All too often [research] students are given little or no training in project management, and many have poorly developed work habits and discipline in matters such as report writing and good command of English.

Reports such as the Wills Review of Health and Medical Research identified the need to broaden graduate training to produce more diverse and well-rounded PhD graduates. The Wills Review notes that graduate training that integrates more coursework in areas such as patent law, finance, journalism, health management and communication would better prepare graduates for a range of career options.

As the number of research graduates has grown rapidly over the last decade, employment destinations now extend well beyond the traditional destinations of a career in academia or in research organisations. Employment in industry offers the basis for a type of research career very different from that in universities. With future employment growth for research graduates likely to be strongest outside of academia, it is essential for research training to reflect the needs of increasingly diverse employment opportunities.

Past concerns with research training

Concerns with the research training experience are not new, nor are they unique to Australia. Almost 40 years ago, the Martin *Review of Tertiary Education in Australia* commented that:

> It is considered desirable that *more formal coursework* be provided for candidates for higher degrees than is at present the case in many departments…

Fifteen years ago a number of OECD countries expressed concern that too many students were taking too long to complete their courses, and that many abandoned their studies before completing their higher degrees. While some argued that an individual's 'success' or otherwise should be measured against a deepening knowledge and accumulated skills rather than accreditation, others suggested that these are policy problems "not only because they are a drain on shrinking resources, but because they are symptomatic of inefficiencies within the system."[2]

Five years ago, a report of the OECD Group on the Science System noted that policy makers and university administrators were grappling with the following problems:

- making research training more relevant to a wider variety of careers than in the past, so that trainee researchers are familiar with how research is undertaken outside of the university
- coming to grips with the implications of a system in which the award of the research degree is the responsibility of the university but an increasing share of research training is offered within a non-university setting, and
- concern to ensure that the quality of research training focussed more broadly than on the thesis alone.

The concerns we have outlined are real—and, as we have note—have been acknowledged for a long time. We all know people who have spent years studying towards research degrees who have pulled out before they finished. Equally, many who complete find the experience frustrating and demoralising, particularly if at the end of their degree they have no immediate, attractive employment prospects. These individuals are among our nation's best and brightest. Yet despite devoting years of very demanding intellectual effort, and investing tens, or even hundreds of thousands of dollars of private and public funding, if opportunity costs are included, the experience leaves many individuals feeling that they have wasted their time.

It should not be like this.

Why have improvements been so long in coming?

In developing the White Paper, an important issue for us was why the problems we see today have persisted over such a long period. What is it about research training that makes the problems so intractable, despite the problems being identified, and the development of some high quality and innovative research training programmes, many of which you will be personally involved in?

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[2] DEET, 1988, Assistance for postgraduate students: Achieving better outcomes, Canberra AGPS

We concluded that even today, some researchers fall into a supervisory role with little training and tend to model their role as a supervisor upon their own experiences when they were students. This is a most conservative training model and clearly contributes to the problems we have identified.

This approach was supported by our current funding framework. It fails to adequately reward institutions, departments or individuals that embrace models of research training that respond to students' needs and see them succeed.

Universities have been funded for their research training places through the operating grant irrespective of student outcomes or other real performance or quality measures. Except in relation to allocating funds for postgraduate awards, there are few direct incentives to encourage universities to deliver high quality research training. And except at the margins, the funding framework for research training has itself been stable.

We wanted to set in place a funding framework that would influence the behaviour of individual supervisors and their students to focus on better models for research training in light of the outcomes we were seeking.

New approaches to research training

As we indicated in the White Paper, we believe Australia needs a framework for research training which will lead to the production of well rounded research graduates with the skills and knowledge to embark upon careers in diverse settings, including industry and academia.

We settled on a performance-based approach which will encourage universities to become much more responsive to meeting the needs and interests of individual students and their future employers. The approach recognises that universities are autonomous and must be allowed to determine the most appropriate strategies for themselves within the broad policy directions set by Government.

It is a framework that is both unashamedly student centred and committed to quality. At one level, the focus on students is achieved through the acknowledgement that a substantial proportion of the new Institutional Grants Scheme is intended to support research training functions through the inclusion of research load in the allocative formula.

More importantly, however, will be the impact of the 50 per cent weighting for research degree completions within the allocative formula for the research training scheme. This will reward those universities that adopt strategies that result in the success of their students and that satisfy the personal and professional goals of students who choose to study at the higher degree level. It will also require institutions to focus clearly on their approaches to selecting and preparing students, in supporting and preparing supervisors, and in ensuring that students' interests and needs are met appropriately.

A focus on research quality under the new framework will also be achieved through the inclusion of a modified publications measure in the allocative formulae for both research training and the Institutional Grants Scheme.

However these are not the only mechanisms in the White Paper that will encourage universities to improve their commitment to research training. The introduction of research and research training management plans will enhance institutional planning and should result in a more explicit link between institutional research strengths and the provision of research training.

These plans will be publicly available and will include information about each institution's:

- areas of research strength
- plans for managing future research and research training activities, and
- results of recent past performance against self identified indicators and relevant benchmarking activities.

Universities will also be required to identify their research active staff by field of research, and outline their recent achievements. This last requirement will be of particular interest to prospective research students attempting to identify with whom and where they would be best placed. It will require institutions to give serious consideration to the extent to which their staffing profiles align with their areas of research strength.

In conclusion, by focussing on student outcomes, we expect the new framework will drive a major cultural shift in universities that will encourage them to place greater value on their research students. Universities will be encouraged to better cater for student needs: to offer research training in increasingly diverse settings, with improved supervisory arrangements; to adopt a more systematic approach to ensuring that supervisors are adequately prepared for their roles; and ensure more timely degree completions. Many of you here today are engaged in the development and delivery of programmes to assist prospective supervisors, and I expect that the new framework will have a direct impact on the scale and importance of the work you perform.

In DETYA, we are currently working on implementation issues for the new framework. We have a small reference group drawn from a range of universities to help us put it in place from the beginning of next year. It is our opinion that the changes announced in the White Paper affecting research training are at least as significant and far-reaching in their likely impact as those affecting research. Our long term success or failure in our joint endeavours may be measured in five to ten years by the extent to which indicators such as drop out rates and completion times, and student and employer perceptions of the outcomes of the research training experience, have ceased to be issues of concern.

THE IMPACT OF THE WHITE PAPER ON UNIVERSITIES: SOME POSSIBILITIES

I.W. Chubb
President
Australian Vice-Chancellors' Committee

The White Paper on research lacks detail. Some of what I say is therefore necessarily speculative. Until we know what is intended by some of the changes that will be made, it's hard to assess what the impact will be on the university sector as a whole - or on any individual university.

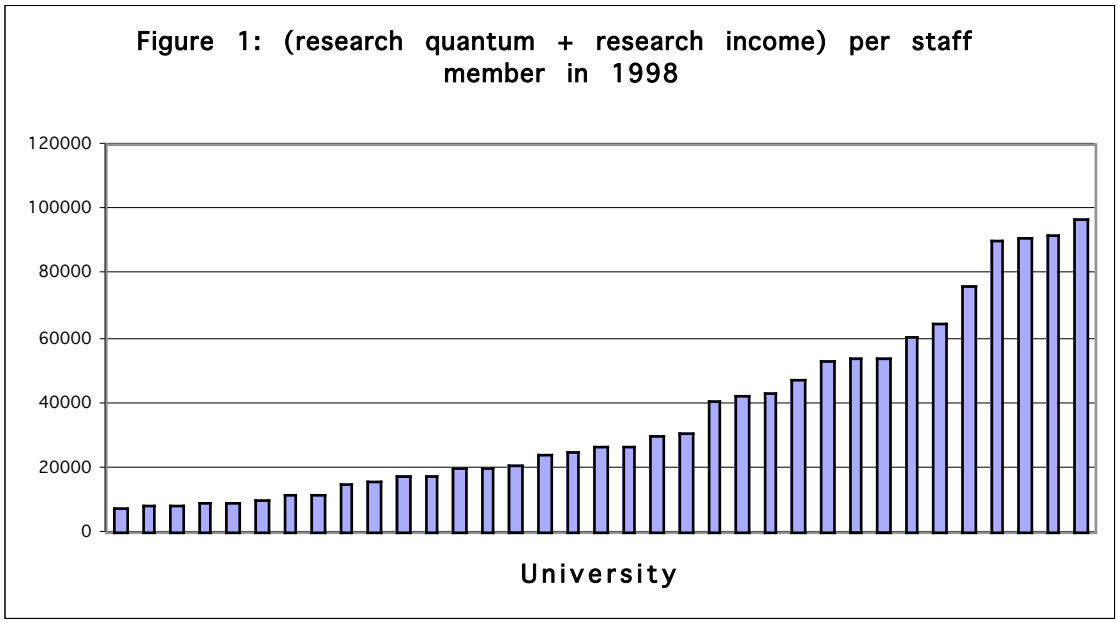
Overall, I think that what has been proposed is heading in the right direction - if the direction proposed is about ensuring that the learning experience for higher degree research students is appropriately top quality and matched with institutional capacity. Therefore, some link to performance is broadly acceptable. In principle, I think that the White Paper is something that the sector has to get behind and try to make work, but of course how vigorously we do that will depend on the detail which is only now beginning to emerge. While the lack of detail is disappointing, I should add that its absence allows us an opportunity to add the detail in a form that might make it all work.

Now, I have been asked to speak from the perspective of taking the discussion beyond the issues raised in the White Paper, and indicate how I expect to see universities implement these policies over the next few years. All in 20 minutes and not a week!

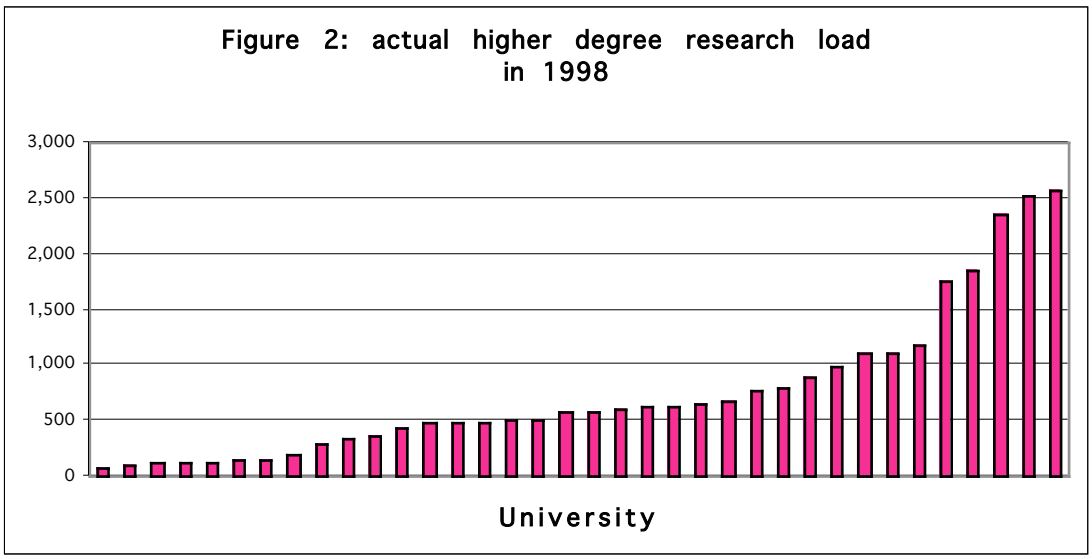
At one level, it is a fairly straightforward task. There are some obvious things that will be done. However, the diversity, indeed the complexity, of our system makes it more difficult than it might appear because it makes it necessary to be very general. Generalisations are, of course, both open to criticism, often of the defensive sort, and are of limited use in a complex system like ours; the reality is that the responses of universities to the White Paper, and the impact that these changes will have on them, is unpredictable and just as variable as the system as a whole.

To illustrate the diversity in the system, I have three overheads that show different levels of research performance – at least by one measure – in our universities. While I stress that it is one measure and one only, I am sure that other measures would show a similar range even if the order turned out to be different.

This first graph shows (research income + research quantum) per academic staff member[1].



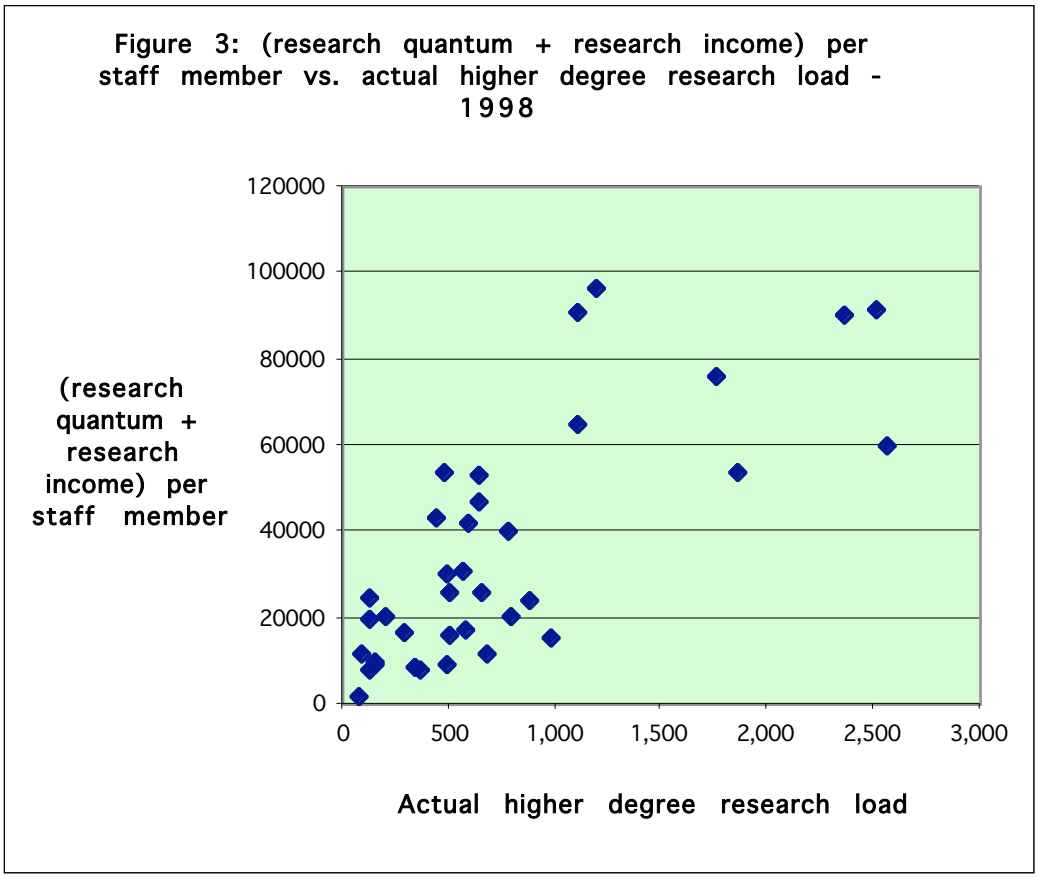
I use this as a rough indication of research capacity at an institutional level. I note that the White Paper uses just research income. I suggest that research income is not an indicator of research capacity in an institution – it is just an indicator of research income. The second shows the total higher degree research load as actual enrolments[2], and their spread.



[1] Research Quantum: *Higher Education Funding Report for the 1998 – 2000 Triennium*, Department of Employment, Education, Training and Youth Affairs, 1997, Research Income: Advice from DETYA on FPRD Collection performed by DETYA, Staff: *Selected Higher Education Staff Statistics 1998*, Department of Education, Training and Youth Affairs, January 1999.

[2] *Selected Higher Education Student Statistics 1998*, Department of Education, Training and Youth Affairs, January 1999.

The third shows the two together.



I use these data to make three points:

1. The first is to confirm that there will be no simple or single response to the White Paper. We will all do what is necessary for our own institution, and what we do will differ depending on where we are on the scale I showed or where we are in the country by region, or the state of our present range of policies, their scope – and so on.
2. The second is that there is identifiable research activity in every university – it is just that some have more capacity than others. I think that this is an important point sometimes lost in the current debate. Now, we all know that research performance is patchy in universities, and that there are some disciplines that are more "research oriented" than others that tend towards teaching. These facts are of course hidden beneath the crude numbers I have just used, but the data leave no doubt that there is at least some research activity in every university – and I would argue that we cannot as a nation afford to squander good research and research capacity wherever and in whichever university it is found.
3. My third point is that these data show why a government, any government, might look to get a better match between higher degree research load and research performance and/or research capacity. But I repeat, the crude numbers must be interpreted with caution and used with care.

I happen to think that we must provide the best possible research environment for the higher degree research students we enrol. We must do it so that the students can reach their full potential unrestrained or barely restrained by the resources we offer.

The old apprenticeship model, which I and many of my contemporaries benefited from, is a reflection of a less costly, less complex, less competitive and better resourced time. Providing what we need to provide nowadays is certainly costly – whatever the field – and there are skills that are required of today's graduates that are different from ours and are skills that will be best developed in an environment that is more structured and more coherent than the one we saw – i.e. one that goes beyond the osmotic process that I recall to have been a feature of higher degree research activities in many fields in times gone by.

I say this, of course, recognising that there has to be a balance. A research student (as do staff) needs space and time: time to imagine, time to dream, time to acquire the skills necessary to prosper in their field and to develop and to refine the skills necessary to operate as a top level independent researcher. Any structured approach cannot, indeed must not, be too constraining. It must not overly reduce the scope for imagination, or erode even further the time for dreams. I say "overly", incidentally, because there will be a constraint - the four year limit with penalties to the institution if that period is exceeded requires real attention from us all.

I say this, too, recognising that some of the universities down the scale of research income might well have their research concentrated into particular areas, and their higher degree research students might well be enrolled in these areas of concentration and not spread across the institution. So what might appear at first sight to be thin activity or slight capacity might, in the chosen areas, be a real concentration of quality effort. A demonstration of the need to understand data and its interpretation.

But let me turn now to the task given to me and look at some particular points that will need to be considered by some or all of us in one form or another. Notwithstanding my concern at being drawn into generalisation: I must say that some changes consequential on the White Paper will, in my experience, cause many of us to do what should have been done much earlier, or done more comprehensively – i.e. ensure in a formal way that higher degree research students enrol in a suitable environment and that our policies related to them are refreshed and implemented seriously.

THE FIRST of my particular points arises because of the strict time limit for scholarships – the 4.0 years that is the centre of much attention. Assuming that the government will not move from this position, and there are no signs that it will, I have been thinking about what it might mean. This leads me to ask: exactly what is the purpose of a higher degree by research? Is what we have done, or let evolve, the right thing to do: right for our students; right for employers? Why does a candidature now, so often, appear to take so long? (I know that there is dispute about how long it really takes – but my task does not really allow me to debate this issue.)

I ask these questions because I believe that we have changed, by small increments over a fair period of time, what we expect of our research students. There is a simple test; a glance at the library shelves. PhD theses in earlier times were smallish – the work was original, rigorous, externally examined and so on, but not on a huge scale quantitatively; then theses got progressively thicker and now they are often gigantic. Why? Are they

more intellectually rigorous? Probably not. They can't be more original! So are they simply a reflection of an urge to draw a corpus of research as close to closure as possible? I don't know. But if a PhD is a period during which, amongst other things, a student learns the art and the science of research, the ethics of research, the intellectual rigour required of a researcher, how to frame research questions and to pursue them and mould them, and to complete a piece of original research - if it is all that, even in part, then why would it need a lot of time to do it and a huge thesis to describe it?

A PhD thesis is in fact a means by which we describe the outcome of a period of learning and is both a reflection of that learning and the underpinning skills. It demonstrates the intellectual depth that was reached and the originality. It should be, above all, seen to be a stage in the process of developing new knowledge in a particular field. Do we ask too much of our students these days and put them under unnecessary pressure to 'finish' some large body of work when they are in fact 'finishing' their learning?

I don't know the answers. But maybe we should begin to seek them out. The issue of what constitutes a PhD or other higher degree by research is something that perhaps should be discussed system-wide. No university could shift from present expectations on its own - given that our staff examine each other's students – without potentially disadvantaging our students. If something were to be done, if expectations about the quantum of work were to be modified, it would need to be done by most of our universities. Now, I am not suggesting that the requirement for originality, intellectual rigour and so on would change, or that the body of work should be other than substantial – and obviously I am not proposing to change the requirement for external examination of PhD theses. I am talking about how much a student needs to do to prepare them for their role as the next generation of researcher. I suspect that close examination could reveal that the expectations are now too high.

THE SECOND point that I make concerns supervisors. If we are to see candidates with serious time limits on student support then the obligations on supervisors will change.

Supervisors will need to accept that a time limit on the student means a time limit on them. Supervisors will need to understand what it means to be a supervisor in a different environment from the familiar – i.e. the current. It will require them to ensure that the student knows and understands what is expected of them. It will probably require a different approach to contact with their students and to the guidance that should come from that contact – especially in the early days. I would not expect to see reports of rare and random contact between supervisor and student as I have now seen in three Australian universities over the years; I would not expect to see supervisors with little direct interest or involvement in the field of research of the student. In other words, I expect a supervisor will routinely be a more active participant in the whole process than has sometimes been the case in the past.

It will be important that this supervisor/student relationship is clear, unambiguous and professional. The cost to the university of unhappy students transferring their candidature, and thus their place and their higher degree completion to another university could be great and not just financial – let alone the negative impact on the student concerned. Students might have perfectly legitimate reasons for leaving to go to another place, but inadequate support is one reason that should not be common. I am sure that we will all be

taking a close look at where our students enrol, with whom as supervisors and the available support.

THE THIRD point flows from the second - the provision of infrastructure and other resources.

It is largely a responsibility of the academic area in which the student will be located to be sure that there are adequate resources to support the work that the student will do – before the student is formally enrolled. I think that it is important that this is done in advance and that projects proceed where all the necessary human, physical and financial support can be provided.

This will lead us to a number of changes. (1) It will certainly mean that universities will have to be overtly strategic in their allocation of higher degree research load. The qualifications and levels attained by potential students will continue to be important in selection processes, but we can expect that the capacity to deliver the right environment and resources to the student will become a larger factor in determining whom to enrol and where. (2) It will mean that there will be fewer staff agreeing to be supervisors of well qualified students whose interests are only peripherally related to their own.

Then there is the issue of financial support for research in the universities - including that conducted by higher degree research students. We must be sure that all research is backed by appropriate financial support **and** that whatever the origins of research support, it permits research that is truly **independent**.

It is important that the Government of the day commits unreservedly to funding fundamental research in universities. When it does, the work of many higher degree research students will be clearly 'independent'. But Government funds are not increasing at a rate that will support the quantum of quality research done in universities. Therefore, and it is an explicit part of the White Paper, funds from other sources must be sought.

This brings me to **THE FOURTH** point – the ethics of research support and accepting it.

We are moving rapidly from an environment that was characterised by the availability of funding for research that **we** wanted to do to one where the balance will tilt towards the availability of funding for research that **somebody** wants done.

It could be argued that funding for research is just that, and can be welcomed from whatever source. But this is really too simplistic. It is important for universities and their students that our reputation for conducting independent research is unblemished. It has been our hallmark. But we all know the stories about paying the piper and calling the tune – and clearly this is a danger when we depend on **interested** rather than **disinterested** parties to fund particular research programs or projects. So, as the pressure to secure funds from external (or interested) sources increases we must be alert to some of the problems that could arise, and develop ways to handle them as they arise.

Now, I am not suggesting that this is a major problem at present, or that it is somehow wrong to work on commissioned projects. But our independence is one of the tradeable currencies that we in universities have to work with. It allows us to provide answers to

problems on the basis of data and determination – not answers that the supporters of the research expect to get – together with the precious stamp of 'university tested'.

It will therefore be a responsibility of the supervisor and staff in the university to ensure that both the researcher and the research are independent and that other requirements do not hinder the progress of the student or the acquisition of the higher degree. This will need special provisions in some cases to protect IP, the students' interest in IP and the right to publish their work at a suitable time. Much of this is best done predictively and in line with predetermined policies rather then after the event. We will need to ensure that our policies have current relevance.

A further issue relates to the temptation to engage in research that has ready funding sources. There is no doubt that the tendency towards research that can readily attract funding puts at risk public interest research in any or all fields. It is hard to imagine that the pure market will care to fund public interest research on any sensible scale (or, indeed, research that is fundamental to the next "set" of applications). But it is hard to imagine that a society could be culturally and socially rich as well as economically sound without public interest research, and fundamental research, in all fields. We as universities, and as staff and students, have an obligation to ensure that research in all fields is conducted in Australia – and that it is seen as an essential part of the development of this society and its knowledge base.

I would hate future scholars to reflect on this era, to paraphrase, as the one where we knew the price of everything and the value of nothing.

'Freedom to decide' or words with a similar meaning recur in the White Paper. But is it really meant? And, if so, is real freedom in the national interest? I believe that it is not meant. No responsible government would introduce a system that could lead to there being no research done in physics, or physiology, or philology, or philosophy, or pharmacology in ten years time just because we exercised individually our 'freedom to choose'. But who will pilot the helicopter that gives the overview – and how many forms will we have to fill in to provide the pilot with the map?

The **FIFTH** point is the implications for budget that will flow from this Paper.

We must not forget that some of what is now a discretionary, if variable, part of the operating grant will be removed, taken off the top, put up for competition and then some of it, all of it or more of it will be returned to the university (annually?). Given that this will be linked to the research management plans, it will come back with less discretion. If you doubt this, then look at the 'non-prescriptive' process that leads to the list of 'core elements' that will 'be expected' in our research plans. If it happens, when it happens, we will have to manage a shift in the student profile with some academic units focussing on undergraduate numbers and some with larger postgraduate numbers.

All institutions will be put under pressure to improve quality in their higher degree research activities and in the quantity of higher degree research enrolments and completions – but not all will be able to survive that pressure due to a range of factors not necessarily based on the quality of their research and performance.

For example, higher degree load in a university could drop because it has performed very well for its size historically but does not have the capacity to improve its performance quantitatively at quite the same rate as some others. Its performance might remain very good qualitatively – for a while. The AV-CC argued that there had to be a qualitative measure, not just the pure quantitative one that was proposed in the Green Paper. The Minister has put a publication measure back into the formulae as an admittedly imperfect indicator of the quality of research performed in an institution. I think that change was important.

The **SIXTH** point I wish to make is the impact that this will all have on staff, a key asset of the university – beyond those already mentioned.

As the White Payer clearly states, each institution will "*need to develop a distinctive research identity and focus*[3]*"* in order to survive, and this will have clear and uncompromising implications for staff as supervisors, staff as researchers, staff as strategists, staff as entrepreneurs.

But for universities as employers there are also implications. Until now, it was expected (if not always fully achieved) that all academic staff would be engaged in research. However, after the White Paper is fully implemented, the ground will shift, because we will have to nominate a group of people, literally by name, who are researchers in the institution and provide the evidence that we use to claim that they are. It follows that the areas they come from are those that will be expected to get the higher degree research places that come into the institution. There may therefore be a group of people, who for whatever reason, are not 'research active', or less so, but who are still critical to the function of the institution. We will have to find a way to support them.

Scholarship in teaching is, and always will be, an essential aspect of successful and progressive education, irrespective of the sector concerned. Staff who are dedicated to the education of students and their learning, and the way those staff go about their task in a very practical as well as conceptual sense will be very important; and the importance will increase in many ways.

The role of an academic will become more clearly divided into groups of primary activity: staff dedicated to research, staff dedicated to teaching, staff who do both. I think that the scope for that trend is increased by the White Paper.

I suspect that what will develop, more obviously and more uniformly than at present, over time, is a couple of parallel strands in academic careers. It's up to us to ensure that it's self evident that each is equally valuable. It will be up to us as universities to accommodate staff crossing from one to the other.

Consequently, we can predict a substantial and comprehensive shift in academic career paths and options. We have a responsibility to our staff to ensure that they know what the changes to research and to higher degree research mean for them, for the students they supervise and for the university as a whole. If they are less active in research, it will be important that they know about personal career planning and development that will take a

[3] *2000 Educational Profiles Discussions, Documentation and Data Collection Requirements*, Attachment B, Research and Research Training Management Plans for 2001, March 2000.

different form from what was once more common. And if they are supervising graduate students, it will be important that they understand the quite different weight that responsibility will carry when compared with what used to be.

Another comment on the impact on students

In setting the strategic focus of research within an institution, the drivers will be towards areas where we can be certain that the students can be supervised and where there are enough resources to permit the student to complete within the time limit set by the government.

From this perspective, students are in a position to benefit from the White Paper. The quality and support of research training should improve across the sector as strategic focussing provides concentrated centres of excellence/scholarship in which the research will take place.

However, in the process of improving the quality of research, it will invariably mean that some areas of research in some universities will no longer be viable – if ever they were. Economic constraints will force some areas of intellectual pursuit out of the institution, and possibly out of the State or the region. The implications of this for students are negative and substantial. While it may well be negative for all students, it will have a particular impact on many mature age students who, on the whole, are less mobile and with more commitments than younger students.

The issue of research concentration in the new world may come at the expense of equity. And why should we accept that?

To finish

- These reforms will not be easy to implement – and that much is obvious even without the detail.
- These are not cosmetic changes, they are profound and far-reaching. What we are in fact talking about is a differently structured, differently organised and differently managed university system. It will not be one that looks much like the present one.
- It will require hard work to make the changes work in the interests of all concerned – and hard work to get the details right – but we must.
- Because there will be no going back. The government will not withdraw the White Paper. So we have to make it work, and by 'making it work' I mean producing an outcome that maximises the benefits and minimises the damage that some of these profound changes could introduce if handled carelessly.

CROSS-CULTURAL RESEARCH SUPERVISION, AND RESEARCH AT A DISTANCE: ISSUES FOR POSTGRADUATE STUDENTS AND SUPERVISORS

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Postgraduate research - cross cultural issues

We live in an increasingly multicultural society and a world where travel and communication have enabled us to move, mix, communicate with each other and even live and work in each others' countries with what sometimes seems offered as an effortless ease. However, this ease of travel and technology sometimes mask the continuing difficulties we experience when learning to live and work and study within a cultural context which differs from our own. If international students are really to benefit from studying in cultural contexts other than their own, and if the universities which host and work with them are to benefit themselves from the presence of international postgraduates and genuinely enable them to be successful in their research enterprise, we need to share good practice to facilitate real life interaction and beneficial exchange as opposed to the travel and technology hype. It is also crucial that European/Australian academic contexts do enable students to achieve and negotiate carefully the cultural minefields of potential academic imperialism. This often accidental imperialism, where it exists, is reflected at one extreme in a cultural arrogance, an assumption of both cultural and academic superiority, the superiority of ways of going about research, of who holds the knowledge and how one might access and work with it, discourses of power in the supervisor/university/student relationship affected by cultural differences, At the other end of the continuum there is a blindness to the often basic needs of international students—money, family, food, warmth, housing, access to communication, access to computers and libraries to work—of which could get in the way of their concentration on, and access to, study.

Language, power and provision

Issues of literacy at the postgraduate level are complex and fraught with potential cultural preconceptions. It is important that postgraduate students be enabled to write and articulate their ideas at the level at which they are working and thinking, and working in anther language clearly hinders this.

Students studying in another country also need to consider issues of their cultural involvement, entrance into values, the study culture and the discourses of study in their discipline. For some students, the level of language ability is a crucial issue. At Anglia Polytechnic University undergraduates and postgraduates alike students have remarked in on the necessity to translate what they hear and read. They need first to translate then slowly to analyse, think complexly and approach problems, move towards understanding, and then translate back into English. Several of our Israeli students use an image scanning simultaneous translation, but this works at the level of the word or phrase rather than holistically and slows down comprehension. It is certainly the case that this affects their thinking and their articulation and might also damage the complexity of the thought processes, which would be particularly problematic at PhD level. It can also create an

uneasy relationships between supervisor and student when the level of supervisory discussions does not match the level of the thought processes of either party.

The accessibility of the language, the research matter and the supervisory and training discourses with which students must become familiar comprise another power inflected issue. Much is said about the high expectations and dependency of international research students, and in this context we need to consider power relations between supervisors and students in particular. These spring necessarily from the authority position of the supervisor in relation to the student, exacerbated in the case of international students by the issue of these students working in another language when English is not their first language.

Research and practice (Zuber-Skerrit and Ryan, 1996; Conrad, 1998) suggest generally that postgraduate students are supervised successfully in their study when several factors are in place

- a research culture which encourages research support and provides opportunities for the exchange of ideas, debates and progress checks
- when the university is in support of students' work and so has systems and strategies which enable study, the acquisition of information, experimentation where necessary, the gathering of data, and can provide expert support as appropriate at each stage
- when supervisors are trained and aware of the stages of research projects and tried and tested strategies for enabling students to work well on their research
- when students are able to recognise the need to embark on a well designed project, and are encouraged in their development of a sound project which they can then develop and carry through to successful completion
- when they are supported to deliver a quality thesis, prepare well for a successful viva, and work towards conference presentation and publication.

There needs to be a culturally aware inflection to this development and support and to the supervisory and student training in order to avoid unintentional cultural discrimination or disadvantaging when international students are involved.

Supervising international postgraduate students

When students are on site studying full-time for a three year PhD or MPhil in reasonable numbers universities and their staff have either had such mechanisms and enabling practices in place or have become aware of them and developed them as their student body increased. It has not always been easy being the first in a small cohort studying for a research degree at a university where the university and staff are less practised in supervising and establishing a research culture. Universities have developed their supportive strategies and worked on training staff rapidly in response to the growing demand for research degrees. However, what is more complicated and potentially much more fraught with problems are their responses to students from overseas studying in the UK and students studying for UK higher degrees, but actually based overseas, especially when they are also studying part-time and working full-time. There are a number of factors here to be considered. For example, part time study is a complication which makes supervision quite vexing, even with students who live round the corner from you, and is

exacerbated by distance. It is also exacerbated by cultural differences in approaches to research and learning.

There are widely held assumptions that many international students rely on reproducing information and deference to, rather than argument with authorities. At postgraduate level this would clearly pose a problem as engagement with research arguments and debates is an essential part of the level of this work. Looking at international postgraduate students, \ Todd (1996) considers cultural differences, with regards to approaches to study and expectations by students, of what their work might comprise. She notes that:

> Students often come from an environment where they are not allowed to criticise teachers, raise questions that could embarrass the or even to correct them if they make a mistake. It is therefore not surprising that they find it hard to put forward their own ideas. However, in the UK postgraduate students are required to demonstrate that they appreciate that other findings are not to be simply accepted and reproduced, and to show that they understand how knowledge in a certain discipline is constructed. (Todd, 1996)

At Anglia Polytechnic University in common with many other UK and Australian universities, we have in increase in the numbers of international students studying with us on site, and increasingly at a distance for at least part of their time. The existence of these students has prompted us to develop some research into their learning and into ways in which developmental programmes and supervisory relationships can empower them and enable their learning.

Context and shape of the research into international postgraduate learning

Action research has been carried out with both UK-based postgraduate students who were undertaking PhDs and MScs or MAs at Anglia Polytechnic University, (34 students of which 30 at PhD level, 2 at MSc level and 2 at MA level) and three cohorts of Israeli PhD students (31, 50, 14 respectively) working at a distance from Anglia on Anglia PhDs. The research has revealed certain discrepancies in the expectations of the students and the ability of the institution to provide for their needs, and other discrepancies or distances between their learning and research approaches and the expectations of the UK post graduate degree as deigned by the university's research degree committee. Chinese students, one on an MSc and another studying for an MPhil, both reported being 'thrown in at the deep end', with little or no support in terms of accustoming them to the computers and packages available to them in their work, and little time allotted for one-to-one supervision of projects.

The students in our Israeli cohorts, themselves a culturally diverse group, have the experience of studying within a different context and learning paradigm to the UK-based students, However, all are required to fulfill the requirements of the European research paradigms within which Anglia students study. Cultural inflections to the students' study and to our research need to be fully identified and taken into account. Comments on international undergraduates are equally true of postgraduates. (See Meyer & Kiley, 1998, Biggs, 1987; Samuelowicz, 1987; and Hughes & Wisker, 1998).

Our work with international postgraduates indicates a need to recognise and develop supportive supervisory practices in relation to (culturally inflected) learning styles and expectations without undermining their aims and outcomes, or adopting an unintentionally culturally imperialist stance with regards to relating to their work. We need to ensure that

suggestions of development are not merely products of a different cultural context (the facilitators'/supervisors) rather than necessary to effective research.

Cultural issues and power relations

The relationship between supervisor and postgraduate student is always one that necessarily engages with and is affected by discourses of power and authority. Whether the supervisor is part of a facilitative team (as we are with the Israeli students) or the student's own supervisor, the distance between one seeking acceptance for their voice and their work, and one who is directing and advising, however supportively, is necessarily great, even if hidden. Certainly, many supervisors might find this surprising when they endeavour to recognise the individual voice and the originality and strength of the developing research work of their students, and certainly also when this is within a relationship where the supervisor might be younger than a mature student seeking a PhD or of a lesser status within their home university than a professional seeking a PhD.

Foucauldian discourse recognises that relationships of power govern exchanges between people. Applied to the context of postgraduate supervisor exchanges in a culturally mixed context, these discourses of power involve not only:

- the supervisor's position of authority within the university context—one who can support and agree and guide or prevent (to some extent) the students' acceptance and development
- the supervisor's position as one who 'won' the discourse of postgraduate study by being part of the system and having already entered into and mastered the language related to the system of postgraduate study—everything from university regulations to the stages of research projects, to accepted norms about final degree quality
- in the case of international students, the supervisor's mastery of the discourse of the cultural context in which the research degree is being taken.

This last item is one affected by the kind and quality of the student's own command of English, and the supervisor's ability and sensitivity to engage in dialogues which enable entrance into this discourse rather than exclude the student from it e.g. by not using too many words which obfuscate, are jargon ridden, are idiomatic etc.

Study and support at a distance

Increasingly, international students, both undergraduate and postgraduates, are seeking to study with us at a distance. Research students based abroad need systems to contact the UK-based supervisor—by fax, phone, letter, e-mail and if they are available, by video conferencing links between individuals or the groups of students and the university supervisors. Video conferencing is an excellent opportunity for supervisory discussions of a general kind, or work in progress joint tutorials to take place at regularly identified and organised intervals. At Anglia, postgraduates on different sites including remote sites meet regularly to share their work in progress and support each other, The tutor /manager of the supervisory group visits these Friday morning videoconferences to answer questions and stimulate debates developed among the group.

Videoconferencing is an interactive (if sometimes a little stilted) medium. It is not open to all students who would like to keep in contact and be supervised at a distance, however. Email is by far the most successful contact between supervisor and student at a distance

because students can type in queries at any time which suits them, time zones are no problem, and they can be quickly answered at regular time slots whenever the supervisor comes into their office. For particularly relevant questions, discussions between a group of students working on a research area can be established so that they can share their questions, discoveries and strategies with each other and invite the supervisor to join in and comment, add, query etc. as they dip in and out of the discussion group. Those of us who have depended on e-mail discussion groups with colleagues all round the world will know that this gives a very swift sense of staying in touch with lively developments among peers. A colleague working on a distance MSc e-mails her students and receives e-mails from them regularly (they are widely dispersed in Hong Kong and parts of South East Asia). Others phone her up at (sometimes) convenient times at home.

With e-mail use, some attention will need to be paid to conventions of address and tone especially if cultural differences are great (e-mail can be rather hasty—sometimes the tone is inappropriate—'flame mails' are unlikely to aid good supervisory practice). There are also issues in terms of the accessibility of the learning materials if delivered by distance—content and methods training materials if it is a taught course, and materials relating to research methods if it is largely by research. Another issue is ongoing communications between supervisor and student. In a best case scenario the student would be well equipped with internet and email access, and the course, both for taught masters or research training would be written with a full recognition of the pedagogical implications of distance and internet based learning. Staff, then, will need these skills, of writing internet based learning materials and activities, in addition to skills in putting materials in an accessible place i.e. the web, or CD ROM. Built into masters work at a distance should be both the opportunity to carry out email-based tutorials and the opportunity for students to discuss their own work with each other at a distance, through discussion groups either separate from or with the tutor.

Enabling international research students-some suggestions

Many of these questions we need to ask of overseas students registering with us for research degrees have, for me, arisen out of our experiences with a variety of students, some successful, others less so. There are now some very useful practices in place. Issues include:

- the importance of establishing appropriate contact
- the importance of several meetings taking place before registration to enable the kind of cultural misunderstandings which could take place to be ironed out (paying for a service ensuring results, amount of help available, real existence of materials and access to information for the student, research culture and so on).

Potential research students need guidance and educational development-based induction into the scope of projects, demands, problems, strategies etc. This can be provided in several ways:

- they can be asked to read papers or specific books and asked to consider specific questions prior to defining their area and title

- they can attend a systematic and well organised research programme held in their own country if there is a cohort of students or funds permit, and/or during the summer period in the UK when potential students from different parts of the world come together
- the library and other information sources must be readily available to them in their own country
- they must be committed to the appropriately defined and agreed frequency of contact with their UK based research supervisor(s) and, additionally, they need a home country based supervisor who can see to daily needs and difficulties (preferably someone with subject expertise but also some pastoral responsibilities and abilities)
- they need to go very systematically (as with home based students) through the processes of definition of title, and of methodology, outline of the project and time scale descriptions, awareness of stages of the project, commitment of time and space and resources, setting up of a scheme of work and a scheme of supervisions, establishing contact with others who can inform, help, support and share ideas; and development of the project with their support groups. This can be done both with their home based supervisor, and with the UK based advisers and supervisors
- they need contacts with a research culture, both at home and in the UK. While we can certainly provide a version of one at a distance over time, condensed and organised when they are in the UK, students studying abroad need to develop student support groups to help progress
- they need a structure of reports, meetings, progress checks and responses to written work which is firmly in place. With distance, this cannot be casually left to chance and change.

Coping with cultural difference

Some suggestions for coping with cultural difference include:

- set up research training support programmes which students must attend which involve induction into the culture and learning paradigms, inception and development of research questions, development of methods and training in their use in order to shift paradigms from the largely positivistic and accumulative learning modes to the more speculative creative original
- provide individual supervisory meetings which enable a gradual engagement with the underlying questions and issues of the thesis/ dissertation/ project and the natural development from this into appropriate research methods and plans
- Develop methods training in staged programmes should be developed and available in on site and distance learning modes to both help students establish their work, then discuss work in progress possibly for PhD and MPhil students at a transitional stage, finally to help them to write and present their thesis and undertake then viva, which is a matter of clarifying and making the work more cohesive and articulable to others
- avoid the cultural imperialism of assuming knowledge from one culture is absolute, enter into debate and open minded discussion and exploration about this
- set up student support groups/encourage them to be set up

- enable distance contact to be supportive in a variety of developmental ways—chat rooms, email discussions, email tutoring, videoconferencing, distance learning materials;
- enable students and staff to be trained in research methods, in the use of distance learning contacts, in supervisory interactions.

Many of these ideas are good practice *per se,* others specifically more useful when working with international postgraduates in their own context, in your own home context or at a distance. With such developmental programmes, institutionally supportive practices and sensitive supportive supervisory arrangement sin place international postgraduates are more likely to feel able to get on with their research, and be successful in it.

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WEAVING THE THREADS

Tom Clark
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Thank you, David, for the kind introduction. I must say it's been a pleasure working with David ever since the last conference here. David and I had quite a bit to do with each other when he reviewed research management at the University of Sydney. SUPRA (the Sydney University Postgraduate Representative Association) got a good hearing from him then, from the review committee there. Obviously we had a lot of collaboration on the research Green Paper in the course of last year. I think it's fair to say that the collaboration between DoGS and CAPA continues to develop and to grow. I hope, David, that we were at least slightly instrumental in sending things in that direction. I'm certainly glad to see it continue.

Having thanked you personally David, I want to thank the organisers of the Conference. I think we've all enjoyed ourselves and enriched our understanding of the area we work in—if anything, more than we expected to. I certainly feel that way. This Conference has obviously been bigger, and I think it's been more diverse in its concerns and perhaps more thorough-going, even, in its discourses, than the last such Conference. Not that the last such Conference was a failure, by any means. The Conference is continuing to grow, as we are.

It would be also appropriate, while we are all still here, to acknowledge the local custodians of the land—the Kaurna over the road sitting in the park watching the land and watching all of us doing our business on the land. If we're doing our jobs properly, then we'll be having more intimate contact with them in forums like this in future years.

It's no small privilege, but it's no small brief either, to give this address. Weaving the threads is a bit like making ends meet, so there's a temptation simply to reiterate everything anyone's said in the conference, in case anyone's missed anything.

Actually, Simon Marginson, when he gave this address last time, outlined a very sound method and I just want to quote from it. I read over it on the plane on the way here. He said—he was cunning:

> Before preparing this speech, I took a look at the conference evaluation sheet. I noticed that the test in relation to my presentation is two-fold, with a five point scale from "strongly agree" to "strongly disagree".
>
> Dr Marginson, Friday, Three O'clock: The first test is "summarised major themes of conference", and the second test is "effectively identified issues needing further discussion".

> In relation to what to talk about, I thought I'd pick two things: I thought I would summarise the major themes of the conference, and I'd identify issues needing further discussion. (Kiley & Mullins, 1998, p. 57)

The true scholar is always explicit in methodology.

I note that the wording of this year's Conference evaluation sheet has changed subtly. The 'effectively' has moved to the first point, and I wonder whether this was a subtle attempt to trip me up. But I won't be tripped up. I'll only ever trip myself up.

It's certainly been a lively conference, hasn't it? As I was saying, the academic staff and other staff involved with teaching the staff of universities who are (we could crassly put it) 'para-academic'—many of the support staff, the administrative staff involved with postgraduate research, others who are not staff of universities such as the public servants, and, dare I say, the students themselves—ourselves—have had a very lively exchange of views, of perspectives. It's been a remarkably diverse set of offerings that we've experienced in the past couple of days.

One element that can't be underestimated is what an international Conference it has been. There were a few international visitors at the 1998 Conference, but this one really has been genuinely international. We've had international panelists this morning, and I think that the internationalisation will only become more evident with passing time. I imagine next such conference will be more international, and the one after that is likely to be more international again.

One key issue for further discussion in Conferences such as these, and indeed during the two years before we next have one, is internationalisation itself. I used the word rather easily then, but I'm not sure that I have a complete sense of what I mean when I say it. Very significant in the next two years and beyond is going to be the internationalisation of education, and particularly postgraduate research education—in Australia, but also obviously beyond. There are two manifestations of this that stand out saliently for me. The first is, we are going to see transnational education growing. Bodies like 'Universitas 21' are really significant. Their ability to blow open the state legislation based accreditation framework that we in Australian universities rely on cannot be underestimated. We have to get across that, if we are going to have any confidence that we can defend the quality of postgraduate research education. I'm not confident that we're across it now because we're not really talking about it properly yet.

I also think—just from my observations in regard to exchange with New Zealand (and obviously we're seeing more New Zealanders at this conference), but also Australia's involvement in the reconstruction of East Timor's education system, which has started and will continue intensively over the next few years—we really need to become aware of the extent to which there is a developing Australasian higher education framework. It's

probably inevitable. It is so compatible with the trans-nationalisation which is being driven by huge capital, or should I say by those huge capitalist agendas: there's just no incompatibility there at all. At the same time, irrespective of where you stand on the 'Universitas 21' model, we are reaching out to our region and trying to engage with their education programmes. There is a developing English language higher education culture of the South Pacific, so we're seeing advertisements for New Zealand, South Pacific, and PNG academic placements, and we will see them for East Timorese academic placements soon, as well. That is obviously going to impact on the quality assurance of Australian postgraduate research.

Instead of talking about what we haven't discussed, I want to devote most of my attention to what we have discussed. This obviously is 'broad brush stroke' stuff—it's where I do injustice to everything that was said. Actually, it's not that bad. I can't do injustice to everything that was said; I can't cover everything that was said.

I was very interested in Denise Bradley's opening remarks. Opening remarks are often programmatic remarks and I actually think that is the way it developed here. She made three points that I thought were particularly memorable. In reverse order they were, first, her argument that internationally competitive Australian universities require adequate government support for research infrastructure. Second, that not getting adequate support from government is not an excuse for universities' failure to provide adequately for their students, which is the 'making ends meet' line. And third, that the focus on institutional efforts in research quality has shifted from supervision to what she called 'the quality of the research environment'.

All three points ran through the Conference like threads for the weaving. One of them fared more steadily than the others, and that was the first point. The debate around policy, as disastrous as the policy situation appears, was the least problematic. It was the debate where we were clearest in what we are on about, and where we were making most coherent sense, reliant on greatest definition.

It was the middle point, the 'making ends meet' point, which obviously is the theme of the conference, and so perhaps not surprisingly was most politically, ethically, and pedagogically volatile or problematic—the argument that, in Chubb's words, 'We've got the policy framework now, so we've just got to go ahead and implement it because there's no turning back'. Now, I've oversimplified his line, but I think that *is* the essence of the argument—that we should focus on making ends meet—and it is ethically problematic.

Let's look, as quickly as I can, at how the Conference bore out—how the Conference manifested—these opening programmatic utterances, and especially the plenary sessions, I guess, because we were all at those so that's where we've got the greatest points of common reference.

The first session I can only describe as a cracker. Sparks flew. It was a high-powered debate. It was designed to be a high-powered debate, and it really was one. So many of them are let-downs; this wasn't. Not only were the three panelists ripping into it with gusto, but the input from the floor—the comments and the questions—was of a noticeably high standard; it had a really noticeable bearing on the course of the debate. That session tended to address the first of the points Denise made: the one about internationally competitive Australian universities requiring adequate government support for research infrastructure, and indeed for research more generally.

The first speaker was Jenni Gordon and she outlined the rationale and the objectives for the 'new research framework', as she called it. Primary rationales were two: that there was student disillusionment; and that there was employer, or industry, disillusionment.

'The student disillusionment', she said, 'is reflected in high dropout rates and long completion times'. She went into all the usual spurious DETYA data about completions, comparing research and coursework figures (a bit like chalk and red curry), and as Bradley pointed out, they still don't know what completions are. I really find that remarkable—to purport to measure something for which you have no definition whatsoever.

The employer complaints are characteristically a complaint about 'lack of broad skills'. In the debate that was held, organised by Adelaide PGSA on the Wednesday night, we had an interesting take on that when the employer said that he wants 'people who can think and people who have an integrity to their thinking'. That, I guess, was the line that Jenni was running with, and notwithstanding Alan Lawson's interjection that 'DETYA don't know who industry are, either'—they haven't defined the field there, either.

At the debate John Byron asked, 'Industry wants these things—generality ('generic skills'), breadth—but what does industry sponsor?' The classic case is, I guess, the Cooperative Research Centres (CRCs). That's the great success story in industry sponsorship in universities. How generic, how broad, how intellectually diverse is the work conducted in those? I'm not criticising it, but industry sponsors applied research, and very little more than that. They're asking for something they're not prepared to pay for. Yet, the government policy is using industry funding to determine what is good and bad in universities—so actually propping up those areas of the universities which are least able to deliver what DETYA say industry say they want. That paradox obviously has been explored by us, but has not been acknowledged by DETYA.

There was the other *really* remarkable paradox, which Jenni tried to explain away: How do you build more courses into shorter degrees? How do you put coursework into degrees at the same time as you shorten them? Well, presumably you must reduce the research component. She denied that this was necessary. She denied that there was any need to reduce the quality, and she skirted the issue of whether there was any need to reduce the

content of research education. But obviously, you've got to do one and/or the other, and it's most likely you're going to do both.

Now, credit where credit's due. Jenni is challenging us, the higher education community, the postgraduate research community, on behalf of the government. That's fair enough. We're part of public institutions. Anyone's free to challenge public institutions in a properly functioning democracy. But what of the challengeability of the government? What of the fact that universities (or anyone, for that matter), in order to find out what the research Green Paper or White Paper might mean for them, have to spend thousands of dollars on a recently cashiered former head of DETYA Higher Education Division as a consultant to crunch the numbers for them? I'm talking about David Phillips. CAPA certainly was aware that a number of organisations were making use of his services last year.

So, what of the challengeability of government? Yet at the same time, I think we're grateful to Jenni for coming and mixing it with us. I mean, it can't be a lot of fun up here. It can't be as bad as Senate Estimates Committee, but it can't be a lot of fun up here taking the heat, and she really did take the heat.

The way that DETYA seem to face all this, or the way that Jenni faced all of this, was to skip from idea to idea, which involved conflating ideas and ideas. She talked of an 'institution-driven model, one which is student-centred', and then she equated this to the 'two dimensions of the new framework, which are student-centredness and quality'. I thought student-centredness was driving quality. But no, we have student-centredness, obviously a translation of student-centred, and we have quality, which appears to be a translation of institution-driven. So quality isn't driven by student-centredness. Is that any surprise from a government that tried to introduce so-called 'voluntary student unionism'? It sounds so simple, but obviously it has so many ramifications.

Ian Chubb (whom I'm about to get to) raised the obvious one, which is the industrial ramifications of simply chopping and changing your university research effort to suit the new framework—this joint endeavour in which we are asked to participate.

Ian Chubb made a number of points which I don't intend to go into too lengthily here. He pointed out that the government is not committed to funding research quality, which I think, since he's at the head of the AVCC, is an important thing for him to say on public record. He said:

> Funding is not the robust measure of productivity that government claims it is; and that, indeed, inputs measures are less satisfactory to us than outputs measures, at least until somebody develops a much more sophisticated set of inputs measures than simply measuring money and money load and completions.

He brought us to a kind of definition on one of the key terms of the whole Conference, which wasn't remarked on much later but actually seemed to be a consensus for the conference. He said (and he's talking about the PhD):

> A PhD thesis is, in fact, a means by which we describe the outcome of a period of learning, and is both a reflection of that learning and of the underpinning skills. It demonstrates the intellectual depth that was reached and the originality. It should be, above all, seen to be a stage in the process of developing new knowledge in a particular field.

We need to acknowledge that Ian Chubb is one of the most articulate members of our highly eloquent sector. We're well-served by having an advocate like him. Yet there was something that he argued for which I really didn't like. This is that ethical problematic I referred to before—the idea that 'We've got the framework now. I'm prepared, Jenny Gordon, to tell you how much grief the framework causes me. I'm prepared to tell you how internally contradictory it is. We know from the session on research and research training management plans that it's utterly paradoxical, riven with irreconcilable internal contradictions. But at the same time, I'm turning around to the academic and other staff I manage, and to the students of whose teaching I am principal, and saying we've got to get on with it. We've got to make the ends meet.'

I think that's a gloss. It's a gloss partly for reasons that Bradley Smith came to. First, it's a gloss because of the dishonesty that underpins it. The research Green Paper, the research White Paper, and indeed the West Review, which we were discussing last time we were here, set out to manufacture a crisis of wastage in research training (so-called). I understand that DETYA, *sotto voce*, conceded that they won't be using the term 'research training' any more, after a rather thorough drubbing.

Bradley also did the debate the service of publicly uttering what I think many if not all of us have felt, that there is 'an unhealthy, widespread mistrust, indeed contempt, in which DETYA and the Minister are held across the sector'. Now that's not to say that we *should* feel that, and I don't think we should be proud of any contempt that we might feel; we've got to overcome that. But it has to be acknowledged: there is that state of feeling within the sector. If government wants us to join them in any ventures, they'd really better overcome it too.

Bradley's key point, I think, was that the completions emphasis, combined with reduced time funded for students, will likely produce what he called 'dangerous distortions in the research effort'. The first of these is an inequitable re-engineering of research higher degree student demography. Mark Frankland went on in his paper to describe this as 'demographic cleansing of the student cohort'. A vivid phrase, but it's not pointed in the wrong direction.

The second distortion is 'disciplinary distortions'. Disciplines were a theme that ran through the whole conference, but I don't think anybody really talked about what they are, or certainly not in the plenaries. That's another key issue we need to come back to: What are the disciplines? Why are we all so fond of them? Why do we keep referring to them, and to their demise, as something we are greatly concerned about?

The third key point that Bradley made was that projects will tend to move away from risk and intricacy—from, I guess, intellectual ambition. That goes to the heart of the ethical problematic. I don't think we have any particular problem with Denise's third point: that the focus on institutional efforts has shifted (I think she means 'needs to shift') from supervision to the quality of the research environment. It's this reconciliation of the two in between—the idea that 'we've got a policy framework we don't like; we're gonna cop it, so let's just get on with the job.'

The best spin you can put on that is it is a kind of critical acceptance. Critical acceptance has its place. You need to have a high measure of irony, or none whatsoever, just to exist in our sector at the moment. And I know that; I'm a trainee ironical analyst.

Gerry Mullins, in this morning's panel session, suggested that we need to move away temporarily from 'the storm and fury' associated with the Green and White Papers (and, of course, the West Review before that), to talk about the practical ways of doing things. That has been one of the strengths of the conference, in the sense that there has been a great deal of talk about praxis. I use 'praxis' as a term advisedly, because it has been a very theoretically informed conference.

I don't think you could have seen this morning's panel session without noticing that all of the speakers were engaging in quite a high-powered theoretical discussion. Barbara Grant spoke of Terry Threadgold's critique of the commodification of postgraduate pedagogy. At the same time, as we saw with, let's say, Jim Campbell's paper, there was no compromising of the focus on what is to be done; on how we are to approach students; on how we are to treat them. All the panelists merged those two concerns.

Throughout the Conference, there were a number of papers on this 'What is to be done?' aspect. They, too, were full of the theoretical consciousness, so praxis was a strong element of this conference. But where I think we have a lot of work still to be done is bridging this gap between praxis on campus (which is an oversimplification of what everyone's been talking about), and policy in Canberra (which is an oversimplification of what everybody's been talking about). To say that we critically accept the policy in Canberra by getting on with the job despite it—you know, grumbling and all that; maybe having reading groups on campus to talk about how much we dislike it—just isn't good enough.

On the other hand, why are we all here? We're here because we love the work. For us to put down tools and protest for the next two years would be not merely cutting off our

noses to spite our faces, but actually denying the reasons we turn up to work everyday in the first place. There has to be a reconciliation of those two themes. Yet, I think it needs to be more robust than saying, 'Oh well, let's grumble and get on with it'.

The vice-chancellors, as history teaches us, have frequently resorted to that line: 'Come on chaps, put your boots on—back to the coalface', or 'Back to the trenches', or whatever other metaphor it's going to be today. The vice-chancellors need to have impressed on them by us that we *are* going to get on with working, with researching, with administering research, with learning, but this framework is really, really bad. It is really unworkable, and whatever research is happening is going to happen almost without necessary relation to the framework that is being imposed upon us, because it can only be made to work to the extent that we pretend that it's not what it is. We have to ignore the specifications for the research and research training management plans, and just sort of 'spin doctor' those so that we can actually write something useful in fifteen pages.

We have to ignore the pressures to close down disciplines so that we can keep anything like a university offering—anything like our understanding of that term—going and viable. There are so many other ways that we just have to creatively reinterpret the research White Paper, the new framework. The vice-chancellors are really going to have to come to the party on this one.

We can persuade them. They've come to the party on some things, but they haven't come to the party on everything, so the onus is on us to persuade them.

Thank you all. That is not doing justice to the breadth of issues that was discussed here, but we need something to go away and think about for the next two years. Above all, we need not to just wait for two years. How far have we come between the West Review and where we are today? If we're making progress on practice, we're clearly in policy drift. Nobody else seems to be driving the policy, so maybe it's about time *we* drove the policy. We need to find ways to do that.

Thank you.

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THE CHALLENGE OF MAKING ENDS MEET IN POSTGRADUATE RESEARCH TRAINING

Bradley Smith
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I would like to thank the organizing committee for the invitation to participate in this morning's session. The quality conferences have a fine tradition of welcoming the real voices of students. This refreshingly rational recognition of the necessity of embedding student perspectives in the development of postgraduate research, stands in stark contrast to the hubris of those who claim to speak in the name of students.

By way of introduction I would like to make a few brief comments on who postgraduate research students are.

In 1999 66% of doctoral candidates are 30 or over; 34% are 40 or over; the average age of research students is about 36. 14.5% are International students. Unlike undergraduates we are more likely to be male; in 1999 47.6% of research students were female although this is up from the 41% in 1996. Indigenous and rural and isolated students are particularly under-represented.

There are significantly more of us than a decade ago although growth is not quite as rampant as is often suggested. In 1999 research students were 5.2% of the total student body, however given the time frames of research degrees it is worth considering commencement rates. In 1989 research students were 2.6% of commencing students, this rose to 4.64% in 1993 and has declined since then fluctuating between 3.8% and 3.9% since 1996.

The largest numbers are in biological sciences, education studies, medical sciences, behavioural sciences, chemical sciences and management.

In 1999, 28% of students were enrolled in the professional fields of accounting, architecture, business, economics, education, engineering, law and management. Up from 21% in 1996. Many of these are studying *in situ* in their employment, as indeed are many other students from other disciplines primarily located away from campus in industry, hospitals, CRCs and non-university research centres. A considerable number, of course, largely work from home juggling work and family commitments.

There has been a growing trend toward more open and flexible graduate research. This reflects the more diversified backgrounds, aspirations, disciplinary interests and research spaces of the cohort but at a deeper level it reflects the increasing complexity of differentiated modes of knowledge and knowledge production.

I appreciate that this is familiar to many of you today and there is no doubt that universities are increasingly acknowledging the more complex dynamics of postgraduate research albeit this recognition is distributed unevenly through faculties and disciplines.

The reality of postgraduate research is rather different to the image presupposed in the White and Green Paper of young, full time, on-campus students moving directly from

their 1st degree. Even if there is rather less of the 'bright young things' rhetoric in the White Paper, the construction remains.

The White and Green Paper set out to manufacture a crisis of wastage in postgraduate research. They both argued that attrition and completion rates are poor, research programs too narrow and graduates poorly prepared for employment. The data, and lack of evidence one way or another has been heavily challenged by CAPA and other peak bodies. I didn't intend to reiterate those arguments here but as the same bogus arguments and data have been trotted out by Michael Gallagher's step in (I don't want to personalize it Jenny) I feel compelled to make a few comments.

Reference was made to graduates not having requisite skills useful for employers. The 'evidence' for this includes a submission to the West Inquiry. But this submission did not even make it into the final report, presumably that tells us something of the quality of the arguments used. *Research Training for the 21st Century* is also cited. While this report argued that there was a culture gap between researchers and industry what it actually said about postgraduate research was that there was insufficient evidence and recommended a survey to address this issue.

Reference was made to a GCCA study of the 1992 cohort which apparently shows that after 6 years only 38% of students had completed. This survey does not take into account part time study or when students suspend studies and even GCCA readily acknowledge that their data cannot be used to draw this conclusion. Various groups including the DDOGS have looked at completions finding averages between 3.7 and 4.4 years, EFT equivalent.

So much of DETYA's evidence and data is crap.

I don't want to be ambiguous about this. The repetative and mischievous misuse of data and lack of evidence is precisely the sort of response that has led to widespread mistrust, indeed contempt, of DETYA throughout the sector. I think that this is sad and creates a most unhealthy policy environment for Higher Education.

To address the so-called "unacceptable wastage" in postgraduate research, the White Paper seeks to make universities more responsive to students. The two relevant competitive funding mechanisms will be the Institutional Grants Scheme (IGS) and the Australian Postgraduate Research Scholarship Scheme (APRSS).

The IGS combines the old Research Quantum ($223 M) and the ARC small grants ($31 M). HDR load comprises 30% of the funding formula thus 30% 0f the $254 million - $76.2 M - will be allocated on a discipline weighted basis for HECS exempt domestic student load.

(As you know, postgraduate research students are weighted at either 2.0 or 4.7 in the Relative Funding Model - .the former includes Education, Maths, Humanities and computing - the latter includes sciences, medicine, behavioural sciences and agriculture)

Using 1999 figures, the research student load component of the IGS will translate to each student being worth $2011pa in the low band and $4726pa for those in the high.

The APRSS scheme is worth $486 M and completions, including International students, will be constitute 50% of this figure. Using 1998 completions data and assuming that PhDs are weighted at 2:1, a masters completion will be worth $28,733 and a PhD $57 466. The average per student taking into account weightings is $17 515 per annum.

With a 2 year Masters and 4 year Doctorate, students are worth the following;

Table 1: Student worth (Doctorate x 4 years and Masters x 2 years)

	IGS (load)	APRSS (completions	Total	pa	Completions as % of total
Masters (2.0)	4022	28 733	32 755	16 377.50	88%
Masters (4.7)	9452	28 733	38 185	19 092.50	75%
PhD (2.0)	8044	57 446	65 510	16 377.50	88%
PhD (4.7)	18904	57 466	76 370	19 092.50	75%

The important thing to note is that completions will be the driver in this model, not HDR load.

So will this scheme make universities more responsive to students? Will it enhance "student choice"?

There is no doubt that the emphasis on completions will focus attention on what services and support will be made available that enhance completions; this will provide some benefits for some students. I suspect it may have significant bearing on how the role of supervisor is considered as other staff take over some of the functions to provide specialist advice on IP, ethics, thesis writing and so forth. This will generate more of a team model for supervision leaving the co-ordinating supervisor to focus on the task of pushing students through more structured programs. (A trend that is already underway.)

No funding regime is neutral and it is hard to defend the lack of transparency in the current system of profiles visit but the consequences of reducing funded load from 5 to 4 years for doctorates and 3 to 2 years for Masters and the extreme emphasis of completions in the funding model, particularly in a zero-sum environment, are likely to cause a number of dangerous distortions that we should consider with great care.

1. Students from groups with a history of slower completions, such as Indigenous Students or some women are likely to be considered even more of an unacceptable risk by universities, thus in the continuing absence of an adequate equity framework there is an element of social engineering about the proposals.
2. As the value of a completion is the same across disciplines and there is only about $11,000 difference over a four year period between the high and low weighted bands for a doctorate there would seem to be an incentive for universities to shift load between disciplines for financial-strategic rather than research-strategic reasons. (This distortion may be accentuated or diminished depending on what eventually emerges from the re-assessment of the Relative Funding Model.)
3. Perhap of more consequence are the shifts likely to occur within disciplines due to reduction of scope of projects and constraints on modes of research. Faculties and

departments are more likely to support easily defined, highly focussed postgraduate research projects than those requiring extensive field work, intricate time consuming laboratory experiments or those tackling somewhat intractable theoretical problems. That is, the logic of the emphasis on completions is to reward less risky, perhaps more trivial projects. It is a logic that does not sit well with the current emphasis on nurturing and developing innovation and a culture that underpins innovation. Moreover, if taking risks and encouraging people to push boundaries is to be discouraged in postgraduate research, it raises the question of precisely when and where risk taking will be encouraged?

4. Finally, a dynamic research and innovation system feeds on highly differentiated inputs within and across disciplines, modes, spaces and times. The desire to discipline students and universities by attaching significant financial rewards to shorter completions undermines differentiation.

It is not clear how these distortions will play out. Individual supervisors, departments or faculties - not to mention the will and aspiration of students themselves - may be sufficiently robust to defend risk and different modes of research. If so they will be being responsive to those students in spite of, not because of, government funding policy.

In my view, the current obsession with completions, (or to be more precise, the obsession with things that are easy to measure) is directly related to the absence of reflection of what the substantive output of an original thesis might mean in terms of knowledge generation. In part this is because the White Paper chooses to privilege students as consumers rather than producers and this is most clearly born out in the poverty of the 'research training' framework.

Both the White and Green Papers make much of the need to improve 'research training'.

Notions of 'training' have a long history but in recent years have come to mean something quite specific, notably in the VET sector where it is overwhelmingly associated with notions of 'competencies'.

I want to emphasize that students want a range of skills some of which may well be captured by concepts of training, but the narrow instrumentalism of this concept in its current usage is not appropriate for the richness of the postgraduate research experience. CAPA have consistently refused to use "research training" preferring "postgraduate education" and I also think 'graduate studies' may be a useful umbrella.

Let us make no mistake about this; the language is a non-trivial matter, more so the practices and beliefs underpinning that language. When DETYA staff, and indeed some university administrators, can say that student concern about reducing the time limits from 5 to 4 years for PhDs and 3 to 2 years for Masters is misplaced, because it is "only research training" then we know we have a problem.

This thinking is a form of barbarism because it seperates the research from the "training" and denies the significance of the actual contents of the PhD reducing it to a mere exercise to demonstrate certain skills. The White Paper is quite explicit about this where it says

"Students should be able to make choices about ... what research they do, while training" (p. 6) as if research is some sort of optional extra while the 'real business' of 'training' takes place.

The core of my objection to the government's emphasis on 'Research Training' is that it effectively ignores postgraduate roles in knowledge production. This generative dimension goes right to the heart of student's aspirations and goes to the heart of the formative/transformative character of research. Moreover the priviliging of students as consumers over students as producers means that the core impediments to knowledge production can be overlooked. Thus issues of infrastructure support, the scandelous position of libraries, the time constraints on supervisors in an environment of increasing workload remain unaddressed in the White Paper.

What is required are richer concepts of research education that give greater weight to students as producers of knowledge and takes as a strength the greater differentiation in age, place, aspiration and mode of knowledge generation of the postgraduate research cohort. I say this not as special pleading for students but because it is fundamental to enhancing our research and innovation capability; it serves that somewhat sullied concept, the 'national interest'.

In addition to the financial dimensions, "making ends meet" has a double movement; closure and process. In our deliberations we need to be mindful of both and not overemphasize the closure. An obvious point, but the processes, the journey, is basic to the success and quality of the outcome.

In this session we are invited to consider *The Challenge Of Making Ends Meet In Postgraduate Research Training*. (*sic*). Of course there is no one challenge. There is the challenge of collecting data and evidence that informs rather than is pre-supposed in policy, there is the challenge of luring the Government and DETYA out of their bunkers to engage with all stakeholders, there is the challenge of developing sufficiently robust defences of research, particularly basic research that makes sense to the government and the NSW Right of the ALP, there is the challenge of appreciating the diversity of age, interests, of the postgraduate cohort.

I have focused on the challenge of being alive to the distortions that will come from the White Paper's emphasis on completions and the challenge of replacing 'researcg training' with a more complex understanding of research education or graduate studies.

By way of closing, I would like to issue this challenge to all academics, administrators, journalists, funders, bureaucrats and students at the conference: If we persist in uncritically accepting the discourse of 'research training' and the practices and disaggregation between 'research' and 'training' that it means, then we are complicit in undermining knowledge production and generation in this country, we are complicit in barbarism.

PEDAGOGICAL ISSUES IN RESEARCH EDUCATION

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The questions I will address here today are:

1. How does supervision differ from other forms of teaching?
2. What might the pedagogical issues in postgraduate education be?

How does supervision differ from other forms of teaching?

I want to begin by showing you the kinds of questions that Masters and PhD students ask again and again when they attend a workshop, Negotiating Supervision, I offer at the University of Auckland.

- Exactly what is supervision, assisting or directing?
- What should I expect from my supervisor and what does s/he expect from me?
- How often should I meet with my supervisor?
- How should I make sure the relationship is a good one?
- How should I deal with difficulties that arise?

Now I have framed these questions in general terms—the actual questions I get asked are a lot more poignant:

- How can I maintain my supervisor's interest?
- Are there special tactics or techniques to keep a good relation between us?
- How can I maintain professional boundaries between us? What is OK, safe?
- How do I work out a disagreement between my supervisors?

As well as the repetitiveness and naïvity of some of their questions, what concerns me is that many of the students who are asking them are well into supervision. Students do not know enough about what to expect of supervision and will not ask—and such ignorance and diffidence combined is problematic for them and their supervisors.

I am even more concerned when I consider the diversity of the students who are asking the questions: shy and disorientated overseas students, young women dealing with professorial males, etc. In the everyday run of supervision, what voice do such students have with which to ask the questions they need to of their supervisors? I'll come back to this.

So, how does supervision differ from other forms of university teaching? In my view, there are several ways but first I want to talk briefly about one way in which it is the same.

I usually like to talk about pedagogy rather than teaching and learning. This idea, as it is used by certain education theorists, puts *relations* into focus. In this view, pedagogy refers to the field of productive power relations between teacher, student and knowledge, relations which are to some extent peculiar to the education tradition in which they occur. In the context of the university, the teacher's work is to be the authoritative carrier,

producer and disseminator of worthwhile knowledge; in contrast, the student's work is to obediently absorb this worthwhile knowledge through learning to be critical but in a disciplined sort of way, and maybe one day—as a PhD candidate—to contribute some fragment to it. The relations of pedagogy appear very top down. (I say 'appear' advisedly because I think they are more complex than that.) In this sense, supervision is a particular form of pedagogy in a larger scene of higher education pedagogies. What marks supervision is its role in transforming the student from reproducer of knowledge to producer, a transition that is challenging at many levels.

Now to the differences. First, supervision is a pedagogical context of unusual intimacy and intensity between two (or more) unequally positioned people. In many cases supervision is conducted in privacy and sometimes the student does not have access to anyone else for guidance with their research. At my University often the supervisor will also be the examiner. Even when they are not, they will usually be seen by the student to have influence beyond the context of the supervision itself. Two questions arising for the student out of this characteristic of supervision are, on the one hand, what counts as dependence and, on the other, how much ignorance to show the supervisor. Students are unused to showing a teacher their work-in-progress; many fear that any sign of incompetence or dependence will be used against them in the final examination. This fear springs from the very different institutional locations of supervisor and student – a difference with potentially far-reaching consequences. It is not always unwarranted fear either as Suzie O'Brien pointed out in a paper entitled *"I'll see you'll never work in this field": The student feedback you didn't receive in the quality audits,* which she presented at this conference four years ago (O'Brien, 1996).

Second, the power relations in supervision are not simply the top-down ones usually found between teacher and relatively anonymous student in university classrooms. Because of the face-to-face quality of supervision, they are also those between members of different social groups that structure our society. These kind of power relations enter the intimate context of supervision in a very direct way: gender and cultural differences in communication affect the way meetings and other interactions go. Body language, as well as talk and written feedback, have greater significance when the supervisor and student work together over time and through a process during which the student usually experiences many ups and downs, surges and losses of hope and belief in herself. This may be complicated (as I know from my own experience as a new supervisor) by similar shifts and surges for the supervisor. These then are some of the tangled threads of supervision.

Third, while the pedagogy of supervision is strange and unknown to the student, it is often familiar and thus invisible to the supervisor. Indeed many supervisors do not think of supervision as pedagogy or teaching—they list it in their annual reports under research. The student, often either grateful to, or overawed by, their supervisor finds it hard to ask the most basic questions such as "how often should we meet?" let alone express an opinion on the matter, or feel able to address more complex matters such as feedback they don't understand, unsatisfactory meetings, lateness of feedback—all of which are the normal ups and downs of supervision.

Fourth, there is a great imbalance between supervisor and student in what is at stake. For the student, her sense of self as a capable researcher or scholar is at stake. As a supervisor, I often feel quite confident in the outcome of a student's research work (especially if they have a good academic track record), but as a student my sense of myself as a competent

scholar goes up and down frighteningly. Nowadays, graduate research work involves a substantial financial as well as emotional and intellectual commitment, and to the student her very future may well appear to be at stake. Yet for the supervisor, the supervision of this student and her project is one of many tasks undertaken in any academic year – and the load of such tasks is growing annually.

Fifth, just how the people who take up the positions of supervisor and student enact those positions, the hopes and desires they have of themselves and of the other—these are complex matters which make more tangled threads for supervision. I think we have the makings of some pretty difficult knots here!

This is not an exhaustive list of the differences between supervision and other forms of university teaching but sufficient, I hope, to open up the landscape and to make it clear that we would be wise to prepare supervisors and students for engaging in supervision.

What might the pedagogical issues in postgraduate training be?

Terry Threadgold (1995) has made a trenchant critique of the commodification of postgraduate pedagogy and the kinds of managerialist practices produced as a result. While I generally endorse this criticism, I am aware that in practice there are many bureaucratic issues that supervisors and students need to know about that they often don't (indeed sometimes the institution doesn't know): institutional expectations and regulations, mutual obligations, grievance procedures etc. Managerialist responses to postgraduate education have often meant that these matters are clarified. That has been the trend in my own university. Yet ironically the effect of making these matters explicit is often to more strongly cast the student as an obedient subject—a position which I think is one of the problems in supervision.

But, importantly, these bureaucratic revisions and clarifications miss the heart of supervision as pedagogy. Supervision is not a bureaucratic contract, but is what Bill Readings has called "a network of obligation" (1995, p. 158) of the educative and transformative kind. What student and supervisor need to learn is how to act in ways other to the ones which their institutional experience and position predispose them towards. This is not an easy task as we do not simply *choose* such subject positions. Rather we are enticed or coerced into them by the social context we are in, by our broader values and understandings about what is appropriate and *normal* for people in this kind of position, and by our own sometimes unknown desires and anxieties.

Acknowledging that we are not free, I still want to argue that we can be different. The question is in what ways? The answers to this question are not going to be good for all time, but here are some thoughts for now.

I think students need to reposition themselves from dependence and passive gratitude. This repositioning has often been understood as the fruit of the bitter experience, but I think we could do more to assist and support students in this work of self-transformation through academic development interventions early on. They need to reposition themselves as active players in supervision, as negotiators of the terms—this is a voice which would serve them better than the diffident voice of the obedient subject.

Supervisors, on the other hand, would do well to reposition themselves from speaking knowers to good listeners and probing questioners. This is not easy—there are pleasures in

knowing. But likewise I think a lot could be done to assist this by way of academic development—maybe not only the usual form of seminars and knowledge-disseminating workshops (where more knowing speakers strut their stuff) but maybe more in the form of body work such as role-plays and so on—learning which requires active participation in different forms of communication.

These kinds of transformations of the self cannot be legislated for, or guaranteed, but I think this is a more fruitful way to talk about preparation for the pedagogy of supervision than the regulating and codifying of supervision as a bureaucratic product or practice which is the response that so many universities are making in the present time.

Finally, I would like to suggest that changes in institutional practice would do better to *support* the pedagogy of supervision rather than attempt to increasingly regulate it. For instance, the promotion of supervision for supervisors has possibilities. Such an explicit cultural shift would recognise that supervision requires flexibility, skill and problem solving, that it is *always* possible that it will not proceed smoothly. It would also reframe supervision from being a private practice to a shared pedagogy, the success of which we all have a vested interest in.

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LEARNING DURING POSTGRADUATE SUPERVISION

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Postgraduate supervision is a complex activity. It's personal, it's intellectual, it's a social event, and, as we have been reminded in the previous talk in this plenary session, it also has a political dimension. Student and supervisor meet on many occasions over many years. However, today we are focussing on supervision as a teaching and learning experience. It is the experience as a learning-teaching interchange that is the focus of my concern.

First, two points of clarification. My professional interests is in areas of education and psychology, so some parts of what I say will probably be more relevant to those of you who work in social sciences or humanities, than for those concerned with areas of science. Also note that when I talk about the supervisor here, I'm not necessarily talking about a single person, because supervision is often done in teams. I intend my comments to apply to situations of sole and joint supervision.

Because of the limited time available let me start with an assertion. The assertion is that postgraduate supervision is a situation that should embody the characteristics of self-regulated learning. If you are not aware of the literature on self-regulated learning, treat the next section of my talk as a statement of principles of learning that are representative of contemporary work in the field of instructional psychology.

Some students, I think, are quite familiar with self-regulated learning in postgraduate study because they say, "Well, yes, it was quite self-regulated; I saw him at the start and I saw him at the end, and in the middle I did all the regulation".

We are moving through a period of thinking about learning where we are beginning to realise the extent of the control over learning that is exerted by the student. That's probably blindingly obvious, but we haven't always acted as though it was the case. We have sometimes acted as though we, as teachers or supervisors, are in control of learning, and obviously that's not the case. We must come to terms with how we can act as teachers in this situation.

In a postgraduate study situation, the self-regulated learning perspective also reminds us that the student needs to know how to exert effective control over learning. This is not just controlling the direction of learning, but actually controlling the moment to moment learning activity. It is often forgotten that while we require our students to engage in formal learning for many years, and formal research for a shorter length of time, we typically neglect to help them understand what learning involves. We usually do not teach our students to learn. If we are going to rectify this in the postgraduate supervision experience, our supervisionary practice must promote this control, must be explicit about how a student can be strategic in exploiting the learning and teaching situation. An important part of the argument be made here is that we should not just focus on cold cognition, on the disembodied learning strategies, but must also confront the hotter issues involved in learning. We must focus on the students' affective concerns and their motivational states.

In the next sections of this talk I have taken some of the principles associated with the self-regulated perspective on learning represented in work such as that of Paris and Ayres (1994) and posed them as questions.

In our postgraduate supervision, does the student have an opportunity to exercise personal choice? This issue arises immediately upon meeting the student. Who's topic is this going to be? Is it part of my research programme that the student is joining, or is it a research topic that you're bringing to me? This is likely to be a point of divergence across disciplines. In some disciplines the situation is much more tightly constrained because the research may depend on the availability of a machine, or a particular approach, and so the students tend to join the supervisor's research programmes.

In the humanities and the social sciences we more often face the situation where the student brings the topic and we then have to decide whether we're going to supervise that. As pointed out in a previous talk this morning, power is quite important in postgraduate supervision. Some of us perhaps don't realise how important that is. But whatever the decision must be, the topic must sustain both the supervisor and the student across the period of the project. Even within the tightly constrained research programs in science, I think there is a need for freedom within the choice of topic. I argue for this freedom quite pragmatically because I find that students are the greatest source of new ideas in a research program. Domination by the supervisor risks the cutting off of this source of new ideas.

Does the environment in which the supervision is occurring, and which the learning and teaching is occurring, provide the student with a level of challenge—some degree of risk-taking? We can remove, or attempt to remove, all the risks, for a student as we try to shepherd a nervous person through the supervision process. In adopting this approach we could easily not listen to the very good ideas that they are presenting to us. Often I think we confuse nervousness with lack of competence. But often a student is nervous because we might be quite forbidding, or they've heard something about us—what we did to the last student!

We can, on the other hand, allow a student to shoulder too much risk. In some cases, to allow the student to pursue a particular course will not be productive for them. It will not be productive for the thesis and it will be non-productive for their research careers. I don't think it's acceptable to say, "Look, I've got this question which we dreamt up in our research group. We don't think it's likely to lead anywhere but we want you to do this for your Honours or your Masters project, and you just keep going on it". In some cases I have observed at a distance the project doesn't work out, even though the student tries all sorts of manipulations over many months. In allowing the student to shoulder this amount of risk I think we are placing a student in a situation that is unacceptable, one where the supervisor is being irresponsible. In that case the student's interests are not being properly served.

The student depends upon us for some critical evaluation—an honest evaluation of the goals that are being pursued or being proposed. I would suggest that the key issue is to decide about the productivity of the proposed research topic, to ask "Is this going to be productive for both of us?"

The next question is, "Does the supervisory environment provide for collaboration?" Contemporary descriptions of learning are replete with the virtues of collaboration between teacher and student and among students. Generally, I think this emphasis is quite sound. Postgraduate research is officially collaborative. It involves the student in a

supervised research project. You would think that the potential for the meeting of minds is very high in such a situation. Often I think students aren't prepared for this. A student said to me recently that after two degrees, the honours year was the first time that she had a chance to actually engage in any serious discussion with an academic. Maybe students aren't all that well prepared for collaboration.

There are a number of issues that arise when we consider the preparation of students for collaboration. We must provide the spaces in which collaboration can occur. It is the supervisor's responsibility to set up those spaces and to plan for what will occur in the collaboration. The planning can be easily done. It's just a matter of identifying what's going to happen at our next meeting, or something that needs to be written for the next meeting. Or maybe at the next month's meeting, we're going to discuss a particular paper. If the student is asked to come to the next session with an argument it is likely that something serious will occur. Sometimes students need to be encouraged to be courageous in such sessions as they often endow us with wisdom and knowledge that we do not have. Again this may be a point where we need to be explicit about this collaborative feature of learning.

The responsibility for such collaboration can be shared and it is possible that eventually the student will take over some of this responsibility. Some students are very good at organising their supervisors, as they need to be. When I see a student open a diary and refuse to leave my room until I have entered the time for the next meeting in my diary, I know they're taking over some part of that responsibility.

Do students know how to be collaborators? While we want the learning to be collaborative it may be that the student is not sure about how the collaboration is to proceed. If the supervisor is seen as the sole source of knowledge, then the interaction is unlikely to be really collaborative. Here is another opportunity for helping students to increase their capacity to exert effective control over the learning. We can ask ourselves whether we have discussed with the student the strategies we are using to tackle the particular research issue. It could be that this discussion shows the student how this issue could be addressed in the future.

One of the arguments made in recent discussions of learning is that we must try to make explicit the knowledge that we have about learning. That requires us to do some sharing of that knowledge. This is perhaps the major theme that I would like to stress today—that we must try to make the learning and teaching processes involved in supervision more transparent. Initially this is likely to require of us that we are more reflective about what we are doing. The potential benefit of this reflection for us is an increase in our knowledge of the teaching process.

Collaboration, of course, doesn't have to be just one-to-one. I have for several years used research groups, which I think are quite important in research and give a different perspective. They're important because they give you a chance to observe what the student is saying in a wider group and you're not just the focus of attention; there are other people who are talking and arguing. It's an important teaching and learning medium because the students see what other students are doing and how they're getting over some of their problems, and they get a chance to do that. It's also an important social event. I have described the procedures used in my research groups in a separate paper (Lawson, 2000).

Does the supervision environment provide for practice? Practice is crucial for all learning. This, of course, must not be just mindless repetition. When the project begins we need to

be mindful that this project is being undertaken by a novice in the field. In the course of the planning of the project, and subsequently, there must be space for repetition of arguments and repetitions of research plans and consideration of different interpretations. So, some of the collaborative space we establish must allow for practicing of these arguments and interpretations.

Does the supervision encourage evaluation and reflection? Evaluation and reflection will occur. Students are always looking for our feedback. Even if they're inclined to be nervous or lacking in confidence, they still want you to say "Yes, this is good", or "It's not good". For both types of judgements the feedback that will be of most use is that which will identify the cause for praise or critique and indicate how any problems might be addressed.

It is the case that some students are not as confident as they should be. In my experience many students seriously undervalue their capabilities. It's important to try to point that out to them if you can because we want a student to show some growth in self-evaluation so that this role is not solely the responsibility of the supervisor. In a collaborative project both parties have to be doing some of that evaluation.

A major thrust of recent discussions of learning has been to give due emphasis to the development of a functional affective state in the learner. Does the learner find the research project a rewarding experience? The best research groups that I've experienced in my own and other universities are ones where there is concern for this key influence on learning. Belief in self-competency is crucial for learning. That's where the affective motivational state is important. I can never understand why any supervisor or group of academics would establish an environment where the students are always under pressure that would act to reduce their belief in their capabilities. If the principles of learning suggest that our beliefs about our competency have a big impact upon our learning, why try to reduce that self-efficacy?

Finally, we talk about learning as a situated event. It is obvious perhaps to note that some part of the impact of the supervision is generated by the situation in which it occurs. It is not just the conceptual advances generated by the research project that are stored in memory. The characteristics of the supervisory environment can also be expected to have a lasting effect on the student, on how future research is carried out and on how future supervision is organised. It is also the case that some students need to be reminded that research is but one part of life. A postgraduate project is work. Research is work. I go to work; students come to work. Sometimes, some students treat the thesis research as a mystical experience: "I'm going through this and it's going to take five years, and magically I'm going to end up called Doctor!" Often if this is the perspective adopted the thesis research ends up being the end of a research career rather than the start of one, and I think we should try to avoid that.

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WHAT ARE STUDENTS IN THE UMPA SURVEY SAYING ABOUT THEIR PEDAGOGICAL EXPERIENCES? WHAT ARE THE IMPLICATIONS FOR ESTABLISHING A SOUND PEDAGOGICAL FOUNDATION FOR POSTGRADUATE RESEARCH?

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The University of Melbourne Postgraduate Association (UMPA) is deeply concerned about the quality of supervision students receive. Our advisers consult over 300 postgraduates a year and that figure does not include the more informal help given by elected representatives, members of departmental groups and other students in the UMPA structure. We have conducted research into the supervision of international students, and conducted surveys to assess the problems postgraduates have. We are currently engaged with the School of Graduate Studies in looking into the first year experience for postgraduate students. We are also constantly involved in representing, advising, and engaging with postgraduates and their problems, in areas as diverse as supervision, through to welfare issues.

The types of supervision difficulties that students in our 1995 Survey brought to our attention included, among other issues pedagogical issues of lack of availability, guidance and feedback. In our research into international postgraduates conducted in 1998 we also found that availability and support problems as well as the nature of the pedagogical relationship were important factors. Our current as yet unfinished research into the first year experience is also revealing significant pedagogical issues. As advisers dealing with a range of postgraduate students we are constantly confronted with the issue of pedagogy as it relates to supervisors and the broader educational environment.

Students are very concerned about pedagogy and they tell us several things. They are concerned about the availability of their supervisors. An unavailable supervisor is a bad supervisor. Students seek guidance, and engagement with their supervisor they seek in short a pedagogical relationship. If supervisors have no time to see students, are overworked and over stressed then the value of the relationship is diminished. A significant area of concern is availability as such. Secondly, students are concerned about he quality of feedback. Postgraduate students are looking for feedback, they are looking for engagement, and they hope and trust that supervisors care enough to read and critically review their work. Good supervisors in short make themselves available to students, are aware of the needs of students and take time to guide and instruct students in their projects.

Finally, students are concerned about the specific nature of the relationship that does exist between supervisor and student. The type of pedagogical role a supervisor plays is very important. However, students come from diverse cultural, gender and class backgrounds. They often have different notions of what a good relationship with a supervisor is. The fact is that student and supervisors differ in how they perceive their perspective roles. These differences turn on cultural influences, issue of gender as well as the specific academic and disciplinary cultures that characterise faculties as diverse as Education and Science. The idea that there should be one type of supervisor, one type of practice that all supervisors should stick to and student must fit simply wont work. Saying this of course is not the same as saying that there should be no common framework for supervision. All universities have their basic regulations and statutes in this area and these are very important.

However, the fact is that what good supervision is as a pedagogical practice is practiced in different ways. Underpinning that difference however is a fundamental desire on the part of students to be given recognition by supervisors, to engage in dialogue, and to become part of the community of learning that should characterise universities. As Judith Brett points out the underpinning values of a university rely on trust, cooperation and reciprocity: these values indeed are also central to student supervision relations. These values are in essence pedagogical values and they characterise good pedagogy, they should underpin good teaching and supervision.

Given this very broad overview of some of the things students tell us, what then are the implications for the pedagogical foundations of postgraduate research? Perhaps the single most important implication is that pedagogy has to be taken seriously. Pedagogy is indeed a difficult and complex subject. However its centrality to the learning process has to be understood. How do we take pedagogy seriously? We take the implications seriously. For this speaker the implications are as follows:

First, supervisors should be given more time for teaching and the significance of supervision must be recognised by departments and faculty. For example supervision should be given higher weighting in calculating workload. This would be a practical reform, which genuinely recognises the fundamental importance of teaching. Associate or co-supervision should also be given serious weighting. The material prerequisites for proper pedagogy must, in short, also be forthcoming. In the shadow of the White Paper this is becoming increasingly difficult.

Following on from this, supervisors and students should be given instruction in what is expected of them. This is done in part at the University of Melbourne through the running of supervisor training workshops and workshops and seminars run by both UMPA and SGS on supervision. However many students and supervisors still fall between the cracks. Another strategy is to run departmental seminars on the topic. Recently the Howard Florey Institute ran a seminar on supervision, which according to feedback at the time was successful. These workshops and seminars are extremely useful for student and supervisor alike and always receive good feedback.

Finally, I think it is plausible to investigate the possibility of forms of teaching training for academics. There are several models of this. For example, The Graduate Teacher Program at Boulder Colorado, which is part of the Preparing Future Faculty (PFF) program run by the Council of Graduate Schools and the American Association of Colleges and Universities. One of PFF's long-range goals is to change the culture of higher education by institutionalising future faculty training in all disciplines. The fact that many academics are being asked to teach more effectively, inclusively and professionally stands in stark contrast to the fact that many of them have never been properly trained in how to teach. Universities should look at this issue seriously. Indeed, it would be a sign of the seriousness with which they take teaching.

In conclusion, pedagogical issues are central to the sort of issues we at UMPA deal with whether in the supervisor student relationship or in the broader community of learning to which a student and indeed teachers and researchers belong. UMPA's research and our experience both as students and educational workers bear this out. All members of the University community are ultimately part of a pedagogical and civic enterprise, the importance of which can not be overestimated.

MEETING WHAT ENDS? CHALLENGES TO DOCTORAL EDUCATION IN AUSTRALIA

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The Australian government questions PhDs Meeting What Ends?

Recently, three government-initiated documents—the West Report (1998), the Green Paper *New Knowledge, New Opportunities: a discussion paper on higher education research and research training* (Kemp, 1999a) and the subsequent White Paper *Knowledge and Innovation: a policy statement on research and research training* (Kemp, 1999b)—have made observations and recommendations about doctoral education which are potentially far-reaching in their impact for Australia. The foundations upon which these observations and recommendations were made appeared to consist principally of analyses of government statistics and anecdote, rather than on research on doctoral education and a systematic understanding of contemporary higher degree by research (all doctorates, not just PhDs) practice itself. The observations included views that research training courses are too narrow and specialised to be useful (to industry and commerce); they were taking too long to be completed; they were too inflexible; student mobility was difficult; there were too many postgraduate research students; and PhD graduates were too frequently under/unemployed (see for example, Kemp, 1999b, pp. 1–2; West, 1998 pp. 150–153). In a sense, one could argue that these government-sponsored documents were questioning the PhD for *Meeting What Ends?*

Those who keep a critical eye on government higher education policy will not be surprised about such observations. For some years the governmental approach to higher education has been laced with economic rationalism, performance management and quality assurance. The undergraduate courses and students have been the major concern because these not only represent the bulk of higher education, but they also bear directly on issues concerned with youth unemployment (in unmet demand for places) and the preparation of a skilled workforce (through professionally oriented courses). However, postgraduate coursework programs have never been far from governmental concern either. The expansion in the numbers of these courses and students in the decade to the late 1990s was such that no government could afford to avoid becoming involved. The current federal government's strategy was to shift the problem to the 'postgraduate coursework marketplace' by establishing procedures which effectively drained universities of government subsidised (Higher Education Contribution Scheme—HECS) places for postgraduate students by re-directing them to provide growth in undergraduate programs. Over the past few years many previously HECS-based postgraduate coursework programs have ceased or changed to charging fees, usually with diminished enrolments.

Now the higher education policy embrace includes postgraduate research. However, postgraduate research occupies a very different place in universities from undergraduate and postgraduate courses. No longer is the emphasis on curriculum and course development, teaching, learning and assessment; rather the emphasis shifts to individual research projects, supervision and examination. It can be argued that research and postgraduate research training are distinguishing features of universities. That is—perhaps

rather simplistically—whereas other educational organisations are about knowledge (and skills) dissemination (training, teaching and learning), universities are also involved in knowledge production (research) and knowledge production skills training (postgraduate research). Therefore, when government reports and papers on higher education make pronouncements on these distinguishing features of universities it is necessary for those reports to incorporate a sufficient understanding of these distinguishing features and not apply uncritically the broader frameworks they use to pronounce on undergraduate and postgraduate coursework. It is arguable that many of the criticisms voiced in the press and elsewhere (such as the submissions by individual universities, the AVCC, CAPA and DDOGS on the Green Paper) of the positions argued on research and research training in the West Report in 1998, and the Green and White Papers in 1999, hinged on a lack of understanding of the nature, complexities and benefits of research and research training in universities.

Both the West Report's and The Green Paper's observations and recommendations on research training were founded on some apparent assumptions of research training as being principally about PhDs: undertaken full-time and on-campus by recent honours graduates who are supported by both a subsistence scholarship and an exemption from liability for HECS; and who would be looking for employment with their PhDs on graduation. Of course, such students do form the bulk of the research training (Higher Degree by Research) load in terms of full-time equivalent students in Australian universities, but there are many other students to those outlined above and —as will be discussed below—there are many other doctoral programs other than the PhD. The work of Pearson and Ford (1997) (see also, Evans & Pearson, 1999; Pearson 1999) shows that the biggest growth in doctoral education in the past decade has been in the number of part-time, and also off-campus, non-scholarship holding students. For example, whereas total doctoral enrolments expanded by over 250 percent in the eight years to 1996: from 8744 doctoral students (James & Beattie, 1996, p. 10) to 22,696 (Pearson & Ford, 1997, p. 8) since the early 1970s, part-time study has risen from practically zero to about forty percent of doctoral enrolments by 2000.

It was particularly ironic that the West Report—a report commissioned by the Australian Government into higher education *finance* and policy—contained considerable discussion of the relationships between undergraduate education, employment, finance and the Australian economy, but was virtually silent on such relationships in postgraduate research. Yet one might have assumed that a glimpse at these matters in relation to doctoral research would have shown that in Australia and overseas there were significant changes underway and some useful analyses and debates being pursued, some of which were funded and commissioned by the Australian Government: Pearson and Ford's (1997) and Trigwell, Shannon and Maurizi's (1997) work in particular. For instance, about half of all doctoral students are enrolled in the DETYA Broad Fields of Study related to the professions (Evans, & Pearson, 1999) and it is here where most of the part-time enrolments are distributed. In effect, this means that not only are people conducting research related to a profession, but it is also one in which they are most likely to be employed. Therefore, the sorts of economic benefits which the West Report (and others) have been seeking for undergraduate education, are likely to be most profound within doctoral research in the professions because, not only are the students being 'trained' to do research in their field, but they are expected to make a significant contribution to knowledge in this field in order to obtain their doctorates. In addition, these students are employed, hence, on graduation they are not leaving a scholarship and joining the ranks of the unemployed to await a suitable position.

International links

The shift towards doctoral research in professional fields is not just evident in Australia. Indeed, it has been a growing trend since the 1970s in North America, the UK and some continental European nations, where there have been rises in doctoral enrolments in professional and 'practitioner-oriented' fields of study, in comparison with traditional arts and sciences, to the extent that they now comprise the majority of degrees conferred (Becher, Henkel & Kogan, 1994; Clark, 1993; Haworth, 1996; Noble, 1994). It is important to recognise that these are doctoral enrolments, not just PhD enrolments. In many respects the PhD has not been seen to be appropriate for *Meeting the Ends* required of many in the professions (that is, industry, commerce, the public sector as well as the professions more specifically) and that new forms of doctorate, often called 'professional doctorates' have been developed. Partly, this can be seen to be as a result of the PhD as evolving largely as a piece of research focused on a discipline or field of study, and the graduate as likely to be destined for a career in universities and/or research institutes. It is also a result of the demands for research and development having broadened in this post-industrial, late-modern and knowledge-based age.

These broader demands for research and development not only have affected research training in universities, but also in the circumstances of university research itself. Although university research is still regarded as the production of basic or fundamental knowledge, there is increasing pressure on universities to 'commercialise' their 'intellectual property' (Kemp, 1999a, pp. 1-12; 1999b, pp. 4–6). In these circumstances, the traditional values of the university towards the dissemination, publication and presentation of knowledge conflicts with the need to control, patent, and then market, the 'products' of their research. Hence, universities nowadays are usually concerned to enhance their research profiles through working with commercial and other non-university partners which commission or sponsor research that is in their commercial or strategic interests. Given that a significant proportion of the research conducted by universities is undertaken by postgraduate research students, it is not surprising that doctoral research programs and scholarships have developed to accommodate the research and development training needs of industry and commerce. As a result, the products of that research and development training are exposed to tensions concerning the ownership and commercial exploitation of the findings from students' research.

In part these tensions are addressed by the debates that have ensued around the emergence of new doctorates, including with respect to what constitutes the examinable products of that research, how they are represented and who examines them. In addition, there have also been debates about the means of 'delivering' doctoral programs in ways that meet the needs of the students and their employers. These discussions and debates have spawned a significant body of literature in recent years.

In North America, the United Kingdom and Europe the literature on doctorates demonstrates that there has been a prolonged debate, informed by some significant research, about the nature and purposes of doctoral programs (see, for examples, Adams & Mathieu, 1999; Baddeley, 1979; Becher, Henkel & Kogan, 1994; Clark, 1993; Fox, 1997; Noble, 1994). There are some important differences between these national groupings, in that 'traditional' doctorates, usually PhDs, have sometimes differed in their nature, products and examinations, notwithstanding their many common attributes too. Although, especially in North America, some doctoral programs have always had coursework as an important preliminary phase, the dissertation or thesis is recognised as the dominant or only examinable element for the award. As has been suggested previously, the nature,

purpose and examination of this element has come under scrutiny as part of the broader debate about doctorates (see, for example, Goodchild, 1997). In summary, it may be said that there is some important international literature on which an Australian government could *make its ends meet* in postgraduate research policy.

Australian research and debates on doctorates

Australia, like New Zealand, has tended to emulate the British approach to the PhD with the award being based solely on research towards a thesis deemed to have produced a significant contribution to knowledge in the field. In the United States there has been a recent history of doctorates which have a majority of coursework together with a relatively smaller dissertation. These have often been called 'professional doctorates' and in the past decade Australian versions have become well-established. However, the funding formulae which apply to research versus coursework programs in Australian universities, together with the other different historical and contextual circumstances which obtain, have contributed to some particular trends in professional doctorates which have prompted enquiry and debate (see Evans, 1998a; Grichting, 1997; Trigwell, Shannon & Maurizi, 1997). This work focuses on the emergence of 'professional', 'flexible' or 'research-coursework' doctorates, rather than on the PhD in its traditional form and with its usual full-time, scholarship students.

Part of the contextual circumstances that need to be taken into account in Australia include the profound changes to the higher education sector in the past decade which have both direct and indirect consequences for doctoral education. The expansion toward mass undergraduate education has led inexorably to a pressure to expand the numbers of doctoral places. This has occurred at a time when other qualitative factors are coming to bear, for example as follows:

- as a consequence of the establishment in the 1990s of the Unified National System of Australian universities there has emerged a spread of doctoral programs into new 'applied' fields of study which are endeavouring to find their place as university (rather than College of Advanced Education) 'disciplines'
- some of the established 'professional' fields of study/disciplines in universities, such as Education, Business Administration and Nursing, have created 'professional' doctorates to cater for demands from those who wish continue their study and develop their research capacities, in professionally relevant ways, beyond their Masters degrees
- the media with which candidates are able to explore and represent their research are becoming more complex and powerful while the examination culture remains anchored in the printed thesis or dissertation
- the PhD itself has come under threat as being too specialised and too focused specifically on academic careers.

As a consequence, every Australian university has altered and extended their doctoral programs over the past decade or so. They have developed and offered new 'researchcoursework' or 'professional' doctorates (Grichting, 1997; Trigwell, Shannon & Maurizi, 1997), and modified the requirements and conditions for the candidature and examination of PhDs (Pearson & Ford, 1997, Pearson, 1999). The Australian Government's White Paper (Kemp, 1999b, p. 17–18) on research and research training endorses moves toward greater flexibility and linkage to industry in the research training provided by universities. It loosely endorses the moves to new forms of doctorate to

achieve such ends, notwithstanding the previous Green Paper's reservations about *making ends meet* financially.

The changes to doctoral education in Australia can be viewed in the context of the reforms to higher education more generally. For example, the demand for part-time—especially off-campus—doctoral study, and the pressures to harness higher education to the professions, industry and to the economy (Clark, 1996). These changes have contributed to significant innovations in doctoral practice, many of which yield potential benefits in terms of applied research that is related to industry, the professions and the workplace.

New doctorates are emerging alongside, but not isolated from, these tensions. The extent to which such doctorates have been developed partly to enhance research training for the workplace and for building stronger linkages with industry and the professions is unclear. Such links may create tensions over the ownership and commercialisation of intellectual property between the university, the student and the students' employer (who may contribute materially the research to be carried-out). Indeed, the normal examination processes of theses, and their subsequent placement in the public domain, potentially conflict with employers' commercial interests. These tensions are similar to others that occur around animal and human research ethics, the allocation of research resources, and the managing of supervision in the university and workplace. The ways in which universities interpret, confront and manage these sorts of issues around their new doctorates will be an important aspect to research and to understand for the future.

Another challenging element of new doctoral programs is the extent to which they involve coursework and research. The proportions of coursework in such programs in Australia ranges from zero to eighty-three percent, with the balance being research (Trigwell, Shannon & Maurizi, 1997, pp. 6–7). Typically, Australian doctorates involve at least sixty-seven percent research thereby conforming to the DETYA definition of a research degree, which currently brings with it certain direct and indirect funding benefits. Questions are emerging in the literature (for example, Adams and Mathieu, 1999 and Noble, 1994) and in the Green Paper (Kemp, 1999) as to whether the 'traditional' PhD should include coursework and, if so, what the real difference will be between such new 'coursework plus research' PhD programs and the other new 'professional' doctoral programs (Jongeling, 1996). The author has contributed to the debate by proposing that doctorates should be fundamentally about research (that is, the production of new knowledge) that represents a significant and original contribution to a field of study, discipline, professional practice and/or a workplace context or professional body (Evans, 1998a, 1998b, 2000). Pearson (1999), drawing on her Australian research (Pearson & Ford, 1997) argues for a substantial re-thinking of doctoral processes and pedagogies. She eschews the creeping bureaucratisation of current quality assurance procedures and favours moving towards a holistic approach that enhances and develops the concepts and practices in doctoral programs.

The development of new doctoral programs, together with the related expansion in the doctoral enrolments, reflects a greater diversity of students' backgrounds, needs, interests and contexts. This is heightened by more 'open' forms of entry for doctoral students with a broader range of qualifications (often requiring professional experience). Traditionally, PhD supervisors worked almost exclusively with young full-time students on scholarships. The spurt in the introduction of part-time candidature in the mid-1970s in Australia and then the surge in professional (typically part-time) doctoral programs in the mid-1990s has changed the nature of supervision (see Evans, 1997, 1998c, Evans & Pearson, 1999).

Supervisors now commonly encounter students who are as old or older than themselves, who balance senior work responsibilities and family commitments alongside their research, and who are often better paid than themselves. This requires substantial changes to the ways supervisors and institutions attract, accommodate, support, supervise and examine such students. It also means dealing with some different student-orientations to doctoral research, and also adapting to the potential of drawing on the richness of their personal and professional interests and contexts, and of addressing research questions and issues related to those interests and contexts (Brennan & Walker, 1994; Evans, 1997, 1998c; Pearson, 1999; Walker & Henry, 1995).

Making What Ends Meet? West, Green, White and PREQ

In summary there have been substantial changes to doctoral programs in the past decade in Australia, which are also reflected overseas. These changes are the result of demands from individual, professional, business and industry sources and have been the subject of government policy discussions and actions. The West Report (1998), the Green Paper *New Knowledge, New Opportunities: a discussion paper on higher education research and research training* (Kemp, 1999a) and the subsequent White Paper *Knowledge and Innovation: a policy statement on research and research training* (Kemp, 1999b) tap into these changes, but only in rather superficial ways. The White Paper, which will now re-shape doctoral education for the period from 2001 onwards, is rather about *Making Ends Meet* in doctoral funding and quality in a rather limited and superficial way. Even in these terms, its prescriptions and procedures are often absent or unclear.

Another related initiative which is congruent with this view of the White Paper is the approach taken toward developing, piloting and implementing a Postgraduate Research Experience Questionnaire (PREQ) (see, Fullarton & Harvey-Beavis 1999a, 1999b). As Marsh, Rowe and Martin (1999) argue, the conceptualisations of the student and supervisor relationship embedded within the PREQ, the place of student evaluations in enhancing educational quality, and the statistics selected and analysed, are so flawed as to be worthless for the intended purposes. Taken together, the West Report, the Green Paper and the White Paper (and the PREQ) reflect an impoverished and narrow view of postgraduate research experience. For example, as has been noted, each of these documents reflects a view of postgraduate research as being undertaken by full-time, scholarship-holding students. This is not to say that they do not mention part-time students, but rather that they do not explore the significance of such students, most of whom are not only working, but also undertaking research which is of direct benefit to their work or profession, and may also draw on the 'research infrastructure' of their workplaces. Given that the West Report was concerned with the financing of higher education, it would seem that these aspects would be worthy of the sort of attention (if not more) that matters such as 'student mobility' are given. Likewise, the White Paper considers research training as 'a national investment' (p.1) and as 'linkage and collaboration;' (p.7), but the significant interrelationships between working part-time students and these matters are not explored.

There are no doubt several reasons for this—some of which may be based in political ideological dispositions—but two seem to relate directly to the matter of research in Australia into the dynamics of doctoral education. One is that the aforementioned government-initiated reports have not used and/or learned from the available Australian research—some of which was also government-initiated—or appreciated the international

research; the other is that there is a lack, as Pearson (1999, pp. 282–283) argues powerfully, of research into the nature and complexities of doctoral education in Australia.

There is a need to embark upon research and critical debate about what ends should be met by doctoral education and how those ends should me met. The need for research that explores the nature and contexts doctoral education, and which informs critical debates about the future direction of doctorates is essential. To leave matters relatively unresearched will render any debates as ill-informed and leave universities vulnerable to further government policy on research training which is poorly conceptualised and less creative and constructive than it might be. Perhaps worse is that Australia will lose the opportunity to be the sort of innovative and knowledge-based society that is envisaged by the White Paper (Kemp, 1999b, pp. 3–7). In effect, somewhat ironically, the aspirations espoused in policy will fall short in practice, because the policymakers have not embraced the existing research on research training, and do not see the need for (further) research to inform policy development on research and research training.

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QUALITY IN POSTGRADUATE RESEARCH IN A DEVOLVED SETTING: MAKING ENDS MEET

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Introduction

This paper will be looking specifically at issues around the achievement of quality in postgraduate research in the Faculty of Humanities and Social Sciences (FHSS) at Victoria University of Wellington (VUW) while maintaining a balance between student demands and expectations, policies from the centre, and resource constraints.

Victoria University was founded in 1899 as one of four New Zealand university colleges. From small beginnings with most students fitting in part-time study round full-time work, it has grown to an institution of 13,000 students on four different sites. In the 1990s a systematic process of review and restructuring was begun and currently the university operates under a relatively devolved structure. By the beginning of 1998 the four faculties had a great deal of autonomy in dealing with a variety of functions that had previously been administered from the centre. At the same time overall guidelines operated to ensure that there were common standards and provisions for students so they would not be unduly advantaged or disadvantaged institutionally because of their area of study.

Defining Quality

Before exploring the relevant issues it is important to define what is meant by 'quality' in this situation and why we are talking about it. As Seymour (1992) points out, quality is a crucial aspect for survival in an increasingly competitive environment. In TQM terms, quality is defined as "fitness for purpose" (Kanji et al., 1999a, Woodhouse 1999). It builds on the concept of critical success factors—the aspects that must go well—with the aim of continuous improvement and incremental change. Pennington (in Anwyl, 1992) goes further suggesting that academics look at ways in which quality can be defined so that real changes actually relate to quality of education rather than "superficial external monitoring". However, Nightingale and O'Neil (1994) argue that while fitness for purpose may look to be a democratic standpoint from which to examine quality it may well finish up as a hierarchical construct. They suggest instead asking and then answering a series of questions as posed by the quality auditors in the UK: what are you trying to do and why, how and why are you doing it, why do you think it is the best way of doing it and finally how do you know—as more appropriate in determining what quality is.

The Research Administration Structure

Since the beginning of 1998 a substantial proportion of the responsibility for quality issues around postgraduate research have been delegated to faculties with a general oversight by the University Research Committee (URC). The URC is chaired by the Assistant Vice-Chancellor (Research) and its membership consists of the four Associate Deans (Research), the University librarian, the Chief Executive and two managers from VictoriaLink (the commercial arm of the university) and a representative of the postgraduate students' association. URC sets research policy and has a research monitoring function. The Human Ethics Committee, which is accredited to the Health Research Council, provides a benchmark for standards of research as well as operating as a further mechanism for accountability. Thus, at VUW the over arching committee structure works on a premise of centrality when the activities they are overseeing are devolved. In part this is because the institution itself is ultimately responsible for quality control, standards and any breaches of them.

There is also a concern with equity so students are not seen to be unduly disadvantaged because they are situated in a particular sector of the University. Harman (1998) argues that quality assurance is driven by concern about academic standards and the levels of achievement of graduates. This can create problems in a devolved setting where accountability mechanisms and general oversight are located at the centre. While University policy on research is managed by the URC the majority of the operational activities are dealt with by the faculty research committee, which has a postgraduate students' association representative on it. This committee has the responsibility for ensuring that postgraduate students are supported to reach a successful outcome i.e. producing quality research and gaining their degree.

Quality Assurance Agencies

The work of quality assurance agencies, that through a system of reviews have emphasised identifying and enhancing the quality of the student experience, is a major external factor when looking at quality. In New Zealand this role is filled by the Academic Audit Unit (AAU)[1] which has the task of auditing the extent and effectiveness of the universities' mechanisms for assuring academic quality and standards. The AAU has as its over-riding aim to encourage and assist the continuous development of an organisational culture in Higher Education that values quality and is constantly focused on identifying possibilities for its improvement and on finding ways of turning such possibilities into reality (Woodhouse, 1999, p.42)

This brings to the fore the notion of accountability and as Seymour (1992) indicates accountability is an issue in institutions such as universities that are staffed by professionals. Accountability and quality assurance may be seen differently by managers and academics. For example, imposing particular processes and systems to ensure

[1] See Appendix 1 for AAU checklist for postgraduate students

accountability and quality can appear to academics to have limited relevance to the work they do. This is a concern in a devolved environment where the requirements of the Centre can be interpreted as irrelevant to teaching and research, and reporting through the faculty seen as adding another 'unnecessary' level of bureaucracy. Thus, staff may consider that managers are interfering with 'academic freedom' in their pursuit of managerial imperatives. While this may look like an 'us and them' situation, academics are also very committed to the best possible outcomes for their students but with higher staff-student ratios there is increasing pressure. This type of tension then needs to be dealt with at the faculty level in the best interests of all concerned.

As Woodhouse (1999) indicates, with continually more students enrolling in postgraduate qualifications, institutions are required to find more staff to supervise, and to provide more resources such as offices, laboratories, equipment and funding. This encapsulates the two major on-going concerns articulated by the VUW Postgraduate Students Association (PGSA)—access to resources and the quality of supervision.

Access to Resources

Prior to devolution there had been a good deal of financial cross-faculty subsidisation at VUW with each area receiving what they considered necessary to run their respective programmes. With the income attribution model that now operates, faculties are given budget targets, money is linked to student numbers, and schools and departments are held accountable for their budgeted spending. This new environment has a number of implications for quality of postgraduate research in FHSS and issues that have needed to be worked through over the past two years in a climate of increasing economic stringency.

Costs have escalated and institutions are being made more accountable for their actions and outcomes. There is a need for overall containment of costs while at the same time students are increasingly questioning what they are getting for their fees. The shift to seeing higher education as a service industry and thus placing more emphasis on meeting the needs and expectations of students is occurring world wide, for example in the US, UK and Malaysia, (Kanji et al., 1999b, Long et al., 1999). Finance is an important external factor influencing this shift. Students are paying an increasing contribution to the costs of their education through higher fees, taking out loans and accumulating large debts (Kanji et al., 1999b, Long et al., 1999, Woodhouse, 1998). Added to this, in New Zealand the previous government changed the way post-graduate students were funded and this has had a disproportionately negative affect on FHSS, adding to the financial pressures of making ends meet.

Brewer et al., (1999) indicate that financial assistance is an influential factor on graduate research productivity. They suggest that awarding grants, fellowships, and actively seeking out research funds for postgraduate students have an extremely positive long-term effect. In times of budgetary constraint this may be hard to achieve. At VUW there are university scholarships including targeted PhD scholarships that provide varying amounts

of money to assist with the payment of fees and a contribution towards living expenses. There are also national scholarships students can apply for but generally there is not a great deal of this sort of financial assistance available to humanities and social science students.

The FHSS research committee has responsibility for allocating funds to research students from its research budget. Doctoral students can apply for up to $1000 per annum for three years while Masters by thesis students can apply for up to $500 over the period of their candidature. The money is granted to pay for inter-library loans, tapes, stationery, attendance at conferences and other associated research expenses. Departments and schools are also expected to provide some support in-kind such as computer disks, some printing, Internet access, and postage. The FHSS Research Committee has increased both the number and total amount of grants given to students. This has been a deliberate policy decision on the basis that students generally do not have access to other sources of funds. While the individual dollar amounts are not large they are enough to make a difference.

Table 1: FHSS Research Committee Grants to Postgraduate Students

		1998		1999	
		No of grants	$ Amount	No of grants	$ Amount
Research grants	MA	20	9150	14	5931
	MMus			1	400
	PhD	25	18589	31	20760
Conferences	MA	5	1570	7	3110
	MMus			1	85
	PhD	16	6852	17	8930
Total		**66**	**36,161**	**71**	**39,216**

As a faculty we were very poorly resourced in terms of IT. This was compounded by the need to ensure Y2K compliance, making even fewer computers available for the use of postgraduate students. Some schools and departments are able to provide shared office space and computing facilities for their postgraduate students while other students need to rely on the postgraduate student laboratory. Six laptop computers, five PCs and one Mac, were purchased by the FHSS Research Committee to lend to staff and doctoral students. Being able to borrow a laptop for a limited period has proved to be very beneficial for off-campus research. The provision of a new postgraduate computer lab this year has gone some way toward addressing the long-standing problem of inequitable access. However, a tension remains because some FHSS students still themselves as disadvantaged in comparison with students from other faculties.

Quality of Supervision

While access to resources may seem to have more immediate relevance to making ends meet, the supervision experience is inextricably linked in ensuring quality of postgraduate research.

As the AAU Manual suggests, the increasing postgraduate role not only requires more supervisors, but also better supervision (Woodhouse 1999, p.42). This has resource implications for the institution in terms of investment in training and quality assurance monitoring. One aspect of quality assurance monitoring is the examination process. Examiners for doctorates in particular provide external validation of quality but this also applies at the masters' level. The role of the external examiner is essential in quality assurance (Atkins & Redley, 1998, Ashworth & Harvey, 1994). Staff expertise is enhanced by being an examiner elsewhere, standards are assured over time as well as compatibility between institutions.

Research indicates (Brewer et. al, 1999) that there is a strong correlation between doctoral research productivity and staff research productivity. Therefore, an institution that is concerned about quality research needs to put resources in to both staff and students. While the research teaching nexus is seen as the cornerstone of a university, recently there has been some discussion about equalisation of workloads. Staff who are not research active could be expected to do more teaching and administration in comparison to their research active colleagues. This may also have implications for student supervision.

The eventual success or otherwise of a postgraduate student's research depends on the relationship with their supervisor. Institutions are advised to have guidelines and regulations for staff involved in supervising postgraduate students and for the postgraduate students themselves (Woodhouse, 1999 p.42). The PhD Handbook issued by the URC and the MA Handbook issued by FHSS provide these guidelines for the supervisor and the research student. Further school or department specific information may also be provided.

Meeting requirements to provide necessary information is only one aspect of endeavouring to ensure quality supervision. Mechanisms for monitoring the process must also be put in place. Six monthly reports from thesis students and their supervisors are requested in April and October each year. There is generally a good return for these reports. They are very useful in charting progress and in evaluating requests for extensions or suspensions. PhD supervisors use them as part of the process of deciding whether a PhD candidate is ready to move from provisional to full enrolment. Some concern has been expressed as to whether either students or supervisors will signal problems if each is reading what the other has written. However, the report does give both an opportunity to

raise issues before they become insurmountable problems requiring intervention by the postgraduate co-ordinator in the school/department, the HOD/s or the Associate Dean (Research).

A recent innovation is the systematic distribution of supervision evaluation questionnaires to students when they hand in their thesis to the FHSS office[2]. Returned questionnaires are kept on file until the degree is conferred and are then distributed to the supervisor and their HOD/s. A copy also goes to the Associate Dean (Research) so that any recurring problems with supervision in the faculty can be addressed, for example by the University Research and Development Centre running a relevant session. As this initiative has only been in place for a limited time it is too early to assess how successful it is in gaining useful feed back. However, it is hoped it will give the opportunity for targeted staff training for the benefit of both staff and students.

The quality of supervision can be reflected in the length of time it takes to finish a thesis. In the United Kingdom stricter deadlines have been imposed for the completion of research degree theses (Collinson, 1998). This is seen as a more generalised reflection of concern with institutional quality assurance practices at this level. There is greater pressure for full time students within a context of relatively high standards, particularly for social science students. In part this is indicative of issues around making ends meet and the tension between high quality work, preparedness for employment and financial imperatives. Collinson (1998) has questioned the ability of institutions to meet the UK ideal of postgraduate research students completing a piece of quality original research plus being generically trained researchers at the end of their degree programme.

Student Learning Support at VUW provides a series of sessions for all postgraduate students to supplement the work of schools and departments. As with the UK experience, students at VUW can be introduced to but do not necessarily become competent in a range of research methods and techniques. The comparatively isolated and individualised experience of social science and humanities students relative to that of the physical natural sciences combined with time and other resource constraints suggests that this is likely to remain the case. A realistic outcome for the majority of students is the acquisition of the necessary skills to produce a high quality piece of research.

Overall, the quality assurance measures now in place are generally working well for staff and students at VUW and as Seymour (1992) stressed, it is important to recognise and reward quality. The Postgraduate Students Association instituted inaugural awards for staff in 1999, which included a best supervisor award in each faculty. The recipients of

[2] Previously exit questionnaires were only sent out at the request of the supervisor for their own feedback

these awards (along with best teachers and non-academic staff) were taken out to dinner and given a framed certificate and bottle of bubbly. At a time when morale at the university was very low, staff were extremely appreciative of this acknowledgement of their skills.

Conclusion

To conclude then, how are we managing to make ends meet and ensure quality in postgraduate research in a devolved setting?

Devolution has had both positive and negative implications for ensuring quality in postgraduate research for students in FHSS. On the one hand decisions, particularly operational ones, are made closer to the people they impact on and there is easier access for all concerned. Both staff and students generally know who to go to when issues arise which makes for more immediate accountability. However, this can create its own tensions as individuals only see the smaller picture. Formulation of policy is in part consultative and consensual but is also driven by AAU imperatives and the concerns of a wider community. FHSS as the largest faculty is not always in a position to respond quickly and maintain its ethos of consultation and reconciling opposing points of view.

Students are also faced with the dilemma of balancing competing imperatives. On the one hand they want to be enrolled for the minimum time to complete their qualification so they can seek employment while on the other hand they want to be sure to produce a quality outcome. The longer the students remain at university the more it costs them both financially and in terms of opportunity lost.

Policy enacted by the new government means that student loans do not start accruing interest until the individual leaves university. However, students are understandably reluctant to amass any larger debt than they have to. Research on undergraduates at VUW (Neale & Boddy, 1998) indicated that finance was a major concern for students. As they progressed through their degree they were spending more hours in paid employment and having very real problems juggling the competing demands of paid employment, study and their personal lives. This does not lead to a quality experience.

Overall, it is clear that postgraduate students are operating in an environment with limited access to resources and FHSS needs to have good systems in place to offset this inadequate resource base. In an endeavour to attain a quality outcome more reliance needs to be placed on what the people involved are able to provide in terms of the supervision experience. In the final analysis though, the best possible processes may be in place but as representatives of the PGSA point out the relationship between student and supervisor is an intensely personal one. Research is risky because the individual is putting her/his ideas on the line and although the supervisor may finally sign it off, ultimately the student has to stand by what she/he writes. Quality postgraduate supervision is a two way process that relies on both the student and the supervisor to make it work.

In the short term, FHSS is unlikely to be in a better position with regard to making more resources available to postgraduate research students. The funding mechanisms that resulted from the previous government's philosophy of seeing post-compulsory education as more of a private good is unlikely to be radically changed in the foreseeable future. Therefore, in making ends meet, FHSS will be continuing with its initiatives around quality assurance and accountability concentrating on the student-supervisor relationship to make sure that we have quality in postgraduate research.

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Appendix 1

Extracts from NZ Academic Audit Unit checklist for postgraduate students:

- institutions have a central committee and/or faculty committees to manage postgraduate research. Such a committee may include representatives from all divisions/departments and students. If there are separate faculty committees, there must be mechanisms for co-ordination and consistency

- policies on organising regular meetings between supervisor and student, turn-round time for marking or commenting on assessed work or drafts, resources (including financial) and facilities. These commitments and others such as the availability of the supervisor generally and how disputes will be managed should be written down as an agreement, to permit reference as necessary

- institutions should have guidelines on what is and is not the responsibility of the supervisor

- institutions may operate a provisional registration process where candidates for postgraduate study are required to make sufficient progress prior to being offered full registration

- postgraduate students may have access to research support services such as transcribing, data entry and editing

- institutions should have policies intended to ensure that postgraduate students are completing work within expected timeframes. These policies normally require the regular reporting of progress, and for postgraduate students to give presentations

- the institution may also provide training for postgraduate students in research methodologies, writing proposals, preparing and delivering presentations and time management.

VALUE-ADDING TO POSTGRADUATE RESEARCH TRAINING IN THE SCIENCES: LEARNING FROM CO-OPERATIVE RESEARCH CENTRES

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Introduction

For several years industry has publicly complained that Universities are not producing postgraduate researchers, especially in the sciences, that meet its requirements. Julian Clarke (1996), Group Director of F.H. Faulding and a member of the Business Higher Education Round Table, claimed that too many Australian research postgraduates had little or no understanding of: planning and time management, team skills, experimental design, context, social and business awareness, communication skills, occupational health and safety, good laboratory practice, good clinical practice and good manufacturing practice and management principals. Toncich (1999, p.99) endorsed this view asserting that those involved in industry-based postgraduate research programs make better industry employees because they are better communicators, and have a better understanding of the role of research and its possible commercialisation. Much of the discussion has focussed on research training for postgraduates in the sciences because they are more likely than their counterparts in the humanities and social sciences to be employed in industry when they graduate. Moreover, science postgraduates with wider industry skills are more likely to be entrepreneurial and might look to opportunities to further explore new industry or business options.

More recently the federal government has focussed on the deficiencies of doctoral graduates in Australia. The Research and Research Training Management Plan (RTMP) outlined in the White Paper, discussed below, together with the new system of auditing research in Universities that it outlines, will require a set of performance indicators for postgraduate research training. The McKinnon report on benchmarking, also discussed below, provides quite specific guidelines for implementation of R&RTMPs.

This paper will examine the political context in which the focus on value-adding for postgraduate research training in the sciences in Australia has sharpened in the last few years. It will explore how Universities can value-add, while still achieving optimum completion times and outcomes. It will also assess whether models of postgraduate training outlined in the Council of Australian Deans and Directors of Graduate Studies' statement on skills development for research students, and research training provided by Cooperative Research Centres (CRCs) offer any guidance to Universities as they come to terms with the requirements for research training outlined in the White Paper.

Given that Australia has nearly doubled its numbers of postgraduate research students from 15,000 in 1991 to 27,000 in 1999, and that the Graduate Careers Council of Australia latest destination survey suggested that about 11 per cent of recent PhD graduates fail to find work, it is imperative that they receive value added training while

they are candidates, rather than after graduation, as is commonly the experience. Sonneveld (1998) noted that Australian universities in general were reluctant to add vocational-oriented skills training to the PhD curriculum. Yet increasingly, businesses are seeking "company-ready" graduates and postgraduates.

Research training in higher education can be defined as both the context in which knowledge and skills are provided to postgraduate researchers, as well as acquisition of this knowledge and skill. Postgraduate research at doctoral level is about generating new knowledge that is presented in a thesis. This is more likely to occur within a dynamic research culture and where the respective roles and responsibilities of Department, supervisor and student are clearly articulated. This then is the context for research training. Acquiring those skills will occur in various ways—through the mentorship of supervisors, through sharing knowledge with other postgraduate researchers, through presenting at conferences, writing articles and eventually a thesis, and also through acquiring generic skills that increase their employability when they graduate.

There has been a fundamental shift in recent years, however, in the concept of a PhD. The emphasis has moved from postgraduates who can research, present at conferences and write theses to those who can, in addition, communicate research to a wider audience, acquire professional skills while doing research, and who can contextualise what they are doing more broadly. There has been little discussion within higher education in Australia about this shift. But the emphasis in the White Paper on generic skills acquisition has perhaps forced debate on the issue.

The Green Paper

The Green Paper (*New Knowledge, New Opportunities: a Discussion Paper on Higher Education Research and Research Training*) released in June 1999 not surprisingly reiterated industry dissatisfaction with the calibre of postgraduate researchers emerging from Australian Universities. It also reported that postgraduates too often considered the training provided was narrow and limiting in its specialisation, poorly supervised, and not meeting the needs and expectations of employers. As well, it reported students feeling trapped by their initial choice of specialisation, institution and supervisor and found options to change courses extremely limited. (Kemp, 1999a, p.10) The Green Paper linked what it saw as the poor quality and effectiveness of research training to high drop-out rates which it considered "a significant waste of both talent and investment".

The Green Paper claimed that several overseas countries had moved to review and reform their graduate training programs. Common objectives have been to "broaden the base of the research training experience, strengthen the creativity, communication and problem-solving skills of graduates, and provide training opportunities and experience outside of the academic environment". It asserted that "the pace of change needs to be lifted across the higher education system as a whole" (Kemp, 1999a, p.11).

The question of how universities might best broaden the base of research training experience was not comprehensively addressed in the Green Paper. But there was much discussion across the sector about introducing coursework components in doctoral programs. The Council of Australian Deans and Directors of Graduate

Studies responded to federal government concern about broadening the PhD and have examined the acquisition of generic skills for doctoral candidates, which will be discussed below (DDOGS 1999).

The White Paper

The White Paper Knowledge and Innovation: A policy statement on research and research training (Kemp, 1999b) was released in late December 1999.

In the White Paper the Government returned to its theme of lack of quality and breadth of research training. It reiterated "persistent concerns" about research programs being too narrow, too specialised and too theoretical; a research training environment associated with poor supervision, inadequate levels of departmental support and limited access to quality infrastructure; a mismatch between the research priorities of the institution and the interests of the students; limited opportunities for students to gain experience in appropriate research environments and the resulting cultural gap between academic researchers and staff in industry; and the high attrition rates and slow rates of completion for research students (Kemp, 1999b, p.20). The White Paper's diagnosis of the problems with research training programs was much too general, and presumed that these were uniform across all institutions. Many Australian Universities have invested resources in training programs, including generic skills programs. Moreover, the way in which DETYA calculated completion rates and attrition rates could be questioned.

This then provided the rationale for the Government to outline in the White Paper how funding for research training is to be allocated to higher education institutions through HECS-exempt scholarships on a performance basis.

Part of this performance will be measured through a funding formula as follows: 50 per cent for completions, 40 per cent for research income and 10 per cent for publications. The formula currently used to determine HECS exempt places is 40% higher degree research students, 20% completions and 40% composite index (minus completions).

The other part of measuring this performance is to be through the institution's research and research training management plans that are required to report on the following:

- the operating environment for research and research training
- proposed future directions for research and research training and how these link to the University's strategic plan
- arrangements for ensuring a quality research training experience for research students
- collaboration with other institutions, industry and other bodies
- management of commercialisation, intellectual property and contractual arrangements
- quality assurance mechanisms for self-assessment
- a review of recent past research performance
- graduate outcomes both in terms of attributes and employment

- research active staff and their research outputs and achievements (Kemp, 1999b, p.30).

The White Paper emphasises that the Government will not be conducting "detailed audits of the Research and Research Training Management Plans…Rather, the process will provide for an on-going dialogue with institutions on accountability for public funds and provide a benchmark for the verification and assurance of the quality of research and research training at the national level". However, the McKinnon Report (McKinnon et al., 2000) suggests quite rigorous benchmarking of Universities will be required.

The White Paper states that the **first element** of the Government's approach to quality assurance is to include objective output measures in mechanisms to allocate funds to institutions, a modified publications index incorporated in the formula to allocate funds under the Institutional Block grants and research training schemes, and the RIBG scheme with funding allocations dependent on institutions' success in attracting national competitive grants.

The **second** element is "a more subjective verification of research quality under the new quality assurance framework being developed for higher education" (The Australian University Quality Agency).

The McKinnon report (2000, p.103) is quite prescriptive about what will constitute good practice in research and research training planning. It states that good practice should include the following: monitoring (both in-progress and upon exit) student-supervisor relationships, providing resources in essential facilities, developing a research culture, role and status supervisor, examination processes, student processes, student progress and completion rates, induction and familiarisation, generic skills development, and scholarships and financial support.

Performance based funding and the requirement for research and research training management plans linked to institution's strategic plans will put pressure on universities to set in place mechanisms for improving the quality of research training and also improving research outcomes.

Given the impetus in the White Paper for Universities to "ensure a quality research training experience for research students" and collaborations with other institutions, industry and other bodies, (Kemp, 199b, p.30), universities need to explore a range of collaborations for research training.

Exploring collaborations to develop and deliver research training

These collaborations may include:

- several universities developing and delivering research training
- universities contracting this training to CRCs and other industry groups who already provide training
- universities contracting some research training to commercial trainers

It could be argued that universities should deliver this training in order to integrate it into the standard educational and research streams and to change the culture that often fails to support wider research training.

Universities, like the CRCs described below, all need to identify target groups, determine who will develop and provide this training, and widely consult stakeholders. For example, universities in Victoria could benefit from the state government's Technology Commercialisation Program partner group of experienced external businesses that are seeking to identify and foster commercialisation of startup ventures. This group may have valuable advice about developing postgraduate research training. Moreover, various programs that are addressing the issue of skills and skill shortages in industry may be useful.

What value adding is required?

The Council of Australian Deans and Directors of Graduate Studies (DDOGS) (1999) distinguished types of skills it considered were necessary for postgraduates to succeed in research and subsequent employment. These included:

- project-specific skills
- cognitive skills
- discipline-specific skills
- career and professional practice skills.

The DDOGS asserted that a program that provides opportunities for research degree students to acquire these skills "is an essential element of the infrastructure for research degree students in any university".

Generic skills that DDOGS considered appropriate included:

- induction
- skills for research and thesis preparation
- communication skills—writing skills, academic conventions, design or oral presentations, use of e-mail, conferencing, design of web pages etc
- information skills—access to information sources and searching strategies, information management, data analysis and ways of presenting data, bibliographic skills
- project skills—project management skills (planning and organisational skills, time management, team work, negotiation, leadership skills, decision-making), compliance with regulations/guidelines (intellectual property, biosafety regulations and good practice including handling and disposing of dangerous materials); animal and human research and how to gain approval for projects; management of project data; keeping records of work; maintenance of data within AVCC guidelines; confidentiality; applying for research grants, dealing with NGO's, government and other agencies; and basic industrial requirements for employing personnel), approaches to developing products from research results (patents; dealing with intellectual property issues; business planning, including marketing; entrepreneurship)
- cognitive skills—analysis, evaluation, synthesis and application of ideas and information (constructing arguments, including use of evidence); understanding research qualitative and quantitative methods, including experimental design, surveys, participant observation, interviewing and other techniques; and language skills

- skills for professional development and career preparation—tertiary teaching skills; the structure of business and industry; the employment relationship; intercultural/interdisciplinary understanding; postdoctoral positions.

While the DDOGS proposal represents perhaps the first comprehensive needs analysis of postgraduate research training in Australian Universities, it probably falls short of the value-adding that government and industry have in mind. Industry would probably focus more on the project management skills outlined in the above list.

It should be added that many Australian Universities have centres for education and training and these often offer courses in transferable skills. However, most are designed for staff rather than postgraduate researchers. Some Universities have made participation in courses conducted by their education and training centres a compulsory element of PhD training. Again, some larger Universities with graduate schools have developed skills programs for postgraduates. For example, the University of Melbourne has an Advanced Leadership and Professional Development program for final year postgraduates. However, there has been little longitudinal evaluation of such programs and no analysis of their effectiveness in improving employment outcomes.

Few universities have comprehensively designed and delivered skills training in the way that Cooperative Research Centres have managed in the late 1990s. Universities have a good deal to learn from CRCs in developing and implementing their research training plans. As mentioned earlier, Universities have been reluctant to add skills training to their PhD curriculum. Not only might Universities learn much from CRCs but collaboration with them could lead to vastly enhanced research training for both groups.

CRC postgraduate research training

Cooperative Research Centres began considering research and research training management plans some years ago and may provide some lessons for moving forward for Universities.

Following the 1995 Myer Report which recommended that a specific CRC management training program be put in place by the CRC Association in consultation with the CRC Committee, CRCs have been at the forefront of providing training for postgraduate students and researchers.

Identifying target groups

The CRC Association undertook a training needs analysis in 1997. That analysis identified target groups for training as:

- postgraduate students
- researchers—postdoctoral researchers and technical staff, senior researchers, industry project staff
- managers—program/project leaders, communications managers, education and training manager

- executive—business manager/executive officers, directors and board members (CRCs Association: 1997).

However, as CRCs develop international linkages, alliances and exchanges with international organisations, target groups may extend to international organisations.

There have been some discussions within CRCs about these target groups and where the focus for training should be. For example, The CRC for International Food Manufacture and Packaging Science in a perceptions survey found that there was a need to focus on the needs of the researcher/research assistant group rather than the then current priorities of training for the CRCs scholars and management development for CRC program managers and project leaders (Bennett,1997, pp. 27-28).

Providers for research training

CRCs have shown great flexibility in the range of providers they have used for research training. Some of these have been internal—all CRCs have education program managers. Others are external to the CRCs. They include: The Australian Institute of Management, Melbourne Business School Limited, University of Adelaide Training Unit, UTS Staff Development Branch etc. However, there are also an array of external consultants who have training expertise which the CRCs cannot provide. Some CRCS, given their nature, for example the Tourism CRC, could be more likely to use external consultants.

The CRC for International Food Manufacture and Packaging Science, for instance, had a range of providers for its 1997-8 education program. These included Business Higher Education Round Table, CRC Education sub-Committee, University of Melbourne School of Business, and the Centre for Professional Development, VUT, while some training programs were provided by the CRC itself. (Bennett, 1997).

Consulting stakeholders

The CRC Association is aware of the need for training programs to form part of the strategic direction of the organisation. As one CRC put it:

> Effective training needs analysis requires rigorous analysis that takes into account the strategic directions of the CRC as a whole…e.g. What knowledge and skills development do those working for CRC's need for their organisations to develop and survive as businesses beyond the seven year period that is independent of Federal Government funding? Such an analysis cannot be achieved solely through respondents' selection of what training they would like, think they need or currently see the need for. (CRCs Association, p. 14).

If one was to ask individuals in CRCs what training they believe they will require, the response might differ from asking them what training they believe the CRC needs to run effectively, as the CRC Association *(*1997*)* found. It is possibly more effective for managers in CRCs to explain their vision for the Centre and their expectations of staff and postgraduate researchers over a say three or four years period and then devise a training program to assist them to reach these goals.

The International Food Manufacture & Packaging Science CRC (Bennett, 1997, p.19) stressed that a training needs analysis is not a market research exercise, adding:

> ...it is also important that all affected or interested parties (stakeholders) are consulted or feel involved in the training needs analysis process. Apart from being good management practice, the need for effective consultation is additionally reinforced by the peculiar situation in which the CRC and organisations like it find themselves. When such organisations wish to request that participant organisations (and contractors) release employees from their other work duties to undergo training and development to meet CRC needs, ideally there should be well-established and good reasons for doing so. These reasons must go beyond statements that rest upon the employer's requirement to train because of contractual obligations. Rather, they must really justify the type of training offered, training priorities, timing and other training arrangements etc.

This suggests that analysis of training needs must occur within the context of the organisation's overall strategic plan. Moreover, it suggests that if the users are involved in the design and development of training, they have some ownership of it and are more likely to participate.

There is a good argument for combining some target groups in developing and delivering education programs. For example:

- the Centre for Mining Technology and Equipment in 1997 conducted a half-day student/supervisor workshop, which included communication skills and presentation skills
- the CRC for Cardiac Technology conducted a "Managing your time workshop" which they noted was "really useful to the post-graduate students and helpful as a reminder to more experienced people" (CRCs Association, 1997, p. 49 & p. 62).

It may be more effective then, if Universities develop some training to target both postgraduate researchers and their supervisors. There have been comments that some supervisors in institutions involved in CRCs complain about the time that their research students spend participating in the training offered by the CRC. This is an important consideration and requires a cultural change within the institution that acknowledges this training is not an add-on but rather integral to the individual's wider research development.

Possibly, this training might be more effective if supervisors are at the very least briefed about it. The better strategy might be to make the training mandatory for both postgraduate researchers and their supervisors.

Some senior academics probably have had no leadership or management training. It is part of a culture that values academic freedom, as one senior academic explained: "academics are like self-employed people". CRC education program managers have found that if postgraduate researchers are to gain the optimum benefit from researching within a CRC it is important that the supervisors endorse and support the training program of the CRC. (White, 1999). Universities then, in developing skills training for postgraduates might carefully consider the role of supervisors, and the extent to which supervisors also need training.

Future directions in CRC research training

While training delivered across CRCs in Australia varies, they have a great deal to teach other research institutions about the way in which they develop and deliver training. It could be envisaged that CRCs will soon not only be developing and delivering research training but also be tendering to deliver training in Universities. The point that needs to be made here is that CRCs have developed training relevant to the needs of particular target groups.

Given that CRCs have set the pace with research training, the question that arises is how they should market that training. Is it to be designed and delivered primarily within the CRCs or should education program managers be defining their markets more widely? Some mining CRCs are already selling their courses to mining companies, while the brief for training in the Tourism CRC is looking to expand its markets nationally and internationally. (CRC Tourism, 1999, p. 5)

Other issues here would be the costing of this training. Should it be developed and delivered on a cost recovery basis within CRCs or should it be subsidised. Should CRCs deliver training to other CRCs to facilitate the transfer of research outcomes that enhance education and training performance of both CRC member institutions?

And what about commercialisation of this training? If CRCs market their training products externally and tender for external training, do they have a different fee structure for such training? This leads to the question of whether or not CRC education programs should produce income for the CRC.

It might be prudent for CRCs to explore external marketing opportunities for the products they develop. Providing training for other educational institutions, and for the corporate or public sector is one way to publicise CRCs.

External training can also develop links, alliances and exchanges with international organisations involved in education in that area to underpin research opportunities for students in a CRC. (CRC Tourism, 1999) This may occur within the context of CRCs spawning new start-up companies from commercially viable ideas and concepts developed within the CRC.

Conclusion

Australian Universities have only one year to develop research training programs before the new system of funding as outlined in the White Paper is implemented. The focus of this training—is it to be directed towards postgraduate researchers, their supervisors, postgraduate coordinators or Heads of Department—needs to be discussed as a matter of urgency. Universities may also benefit from consulting with Cooperative Research Centres, with various state and federal government industry groups, and with external consultants in developing this training. A further issue that needs to be addressed is whether optimal outcomes for postgraduate researchers will be achieved through the universities delivering this training themselves or whether external providers should also be involved. Finally, both Universities and Cooperative Research Centres could benefit from collaborating in designing and delivering skills training for postgraduate researchers and their supervisors, rather than Universities duplicating training that is similar to that offered in CRCs. There may also be resource

and outcome efficiencies to be achieved from collaboration across several Universities and CRCs.

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Quality Enhancement in Doctoral Education: A Case Study of MGSM

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Introduction: The national policy context

Postgraduate education, and in particular doctoral education, has consistently held the attention of the Commonwealth government for more than a decade. On the one hand doctoral education is a vital component of the national research development process. The importance of the link between postgraduate research students and the national research effort has been clearly recognised and acknowledged since the influential study by Powles (1984). On the other hand, postgraduate education is linked to student funding and government investment in student places. Consequently developments in research policy at the national level have increasingly emphasised research training and its links with university research processes and outcomes as well as student completions.

Continuing increases in numbers of students enrolled in research degrees Australia-wide have the potential to benefit and increase research outputs, but at the same time place pressure on government student funding. Between 1989 and 1998 there was an overall four-fold increase in PhD commencements (from 443 to 1637). There was also a 144.6 percent increase in both Masters and PhD completions between 1988 and 1998, from 2089 to 5109 (DETYA, 1999d, 3.3). To give an indication of the scope of research activity, DETYA reports that government funding of research activity within this sector totaled over $2 billion in 1996. Allocations for 2000 for postgraduate awards total $113.5million (DETYA, 1999d, 3.5).

With increasing numbers of students undertaking research degrees, diversification in research and supervision practice based on disciplinary, professional, and student needs and expectations is taking place. The focus on progression and completion rates of postgraduate research students however remains strong. The West Report (1998) and the Green Paper on research, *New Knowledge, New Opportunities*, are critical of the reported completion times (1999a, 6.6, 6.8) and outcomes of research degree programs (DETYA 1999a, 6.4, 6.5, 6.10).

The new emphasis on measurable outputs must be understood in the context of policy transformations across the Australian Public Sector (APS) based on market principles. The

resulting emphasis on 'quality assurance' has involved a strong focus on public accountability, and, wherever possible, self-sufficiency and a 'users pay' approach to funding services (Parker & Guthrie, 1998). In the academic world, these broader changes in the APS have been reflected in cut backs in government funding of student places and an expectation of increasing private sector funding of education and in particular postgraduate research.[1] Consequently, there is pressure on the Higher Education Sector (HES) towards market 'responsiveness', which means responsiveness to the stated needs of industry (Parker, Guthrie & Gray, 1998).

With the 'rationalization' of higher degree funding, research degree processes and completions have become focal points in university wide drives for quality assurance processes. The research White Paper will require universities to specify "arrangements for ensuring a quality research training experience for research students" in Research and Research Training Management Plans (DETYA, 1999b, 26). The statements in these plans will then be verified and publicly reported by the future Australian University Quality Agency (AUQA). Demonstrating quality processes and outcomes in relation to postgraduate research students will thus be paramount for universities. Funding for student places and the research quantum will have weightings based on postgraduate completions (DETYA 1999b, 3.3).

In terms of the supervision of research students, the emphasis of quality assurance in doctoral education will focus on improved completions through quality processes which include supervisor training, formal induction of students and the importance of fostering a departmental research culture which is inclusive of students. Quite clearly, the departments are at the heart of developing and ensuring quality processes. These, in turn, provide a key link to institutional and national quality assurance processes on the one hand, and the relationship between individual supervisors and doctoral students on the other.

The focus of this paper is at the departmental[2] level and presents a case study of practice in the management discipline at Macquarie University. The quality enhancement initiatives described in the case study are underpinned by three key aspects:

1. the broader national and institutional policy contexts
2. the nature of the management discipline, and,

[1] See James Guthrie, Lee Parker and Rob Gray, "Exploring the Changing Nature of HES in Australia and the UK: Commodification of Quality in Accounting and Management Journals", (working paper). As that paper points out, the desire to link government funding with measurable outcomes is fraught with contradictions and inconsistencies, nevertheless this trend is gaining greater impetus and is not likely to abate in the near future.

[2] At Macquarie University units of activity are: colleges, divisions and departments. Throughout the paper the term 'Department' will be used, except when referring to the Macquarie Graduate School of Management (MGSM) where 'School' is used.

3. the pivotal role of the department in institutional quality assurance processes. (Clark, 1984; Golde, 2000).

Case Study: the Macquarie Graduate School of Management

2.1 Doctoral Education

Quality enhancement processes for doctoral education have been a priority within the Macquarie Graduate School of Management, over a twelve month period. The priority arises from increasing numbers of PhD students in recent years coupled with the introduction in 1997 of a DBA. The priority also dovetails with institutional quality assurance processes, particularly at postgraduate levels, which have gained increasing momentum over the past year.

The MGSM[3], founded in 1969 as part of Macquarie University, has established campuses in Hong Kong, Singapore and most recently in the Sydney CBD. In 1999, 2,200 students were enrolled, of which 105 were doctoral students. In 1999, the PhD and DBA enrolled 57 and 48 students respectively. The DBA enrolments include 35 off-shore students studying in Hong Kong. Most doctoral students are enrolled part time, since they work full time in business with active professional lives. Most have returned to study after a break of several years. Very few have an undergraduate degree majoring in management. Many have initial degrees in science, commerce, engineering, arts or specialisations in areas such as marketing, finance and human resources.

Doctoral students are enrolled in either the PhD or DBA.[4] The two doctoral degrees provide differing emphases. The PhD, introduced in the early 1990s, requires an original theoretical contribution to the field and is completely research based. The DBA offers a more rigorous structure through specialised coursework involving 4 units of 40 hours face-to-face lectures each. As a professional doctorate, the DBA's research component is geared towards equipping candidates with the ability to apply research, learning and problem-solving methods to their organisations. The off-shore component of the DBA is jointly managed with the Hong Kong Management Association.

The number of research students graduating in the period 1990-1999 has totalled 17, but the annual figure has varied significantly. Completion rates are slow as major increases in doctoral enrolments have only come recently (1997/98). The greatest current growth in student numbers has been in the DBA, with an increase from 14 new enrolments in 1997 to 31 in 1999 (11 in Sydney and 20 in Hong Kong). There were also 8 new PhD enrolments, bringing the total to 39. With new enrolments in management research higher

[3] A recent BRW survey ranked the MGSM as second in Australia across all categories, following closely on from the Melbourne Business School. See Kirby, 2000.

[4] Other research students studying at MGSM are enrolled in one of the following degrees: MA (Hons); MA (Res.); MEc (Hons); MEc (Res.); MSc (Hons); MSc (Res.).

degrees Australia-wide (including PhDs and Masters) numbering 311 in 1999 (DETYA, 1999f, p. 34), the MGSM carries an important share of new enrolments nationally.

Steps towards research quality improvement in the MGSM are occurring within the context of a rapid expansion of doctoral enrolments in the management discipline at large (Pearson, 1999), as well as institutional[5] and national developments in doctoral quality assurance. Further, the nature of the student group together with characteristics of the management discipline mean that student induction into both the research process and management discipline are different from the needs of other disciplines. It is important to note that management enrolls few full time students compared with many other disciplines. Management is an applied multidisciplinary field with strong professional links. The field draws on disciplines such as psychology, economics, and other multidisciplinary fields such as accounting, communications and marketing. Thus, the nature of management knowledge is only loosely bounded compared with the single paradigm of science disciplines. Consequently students' research is mostly an individualistic experience and the range of research methods diverse. Team research and large research grants are not a strong feature of the management discipline.

Within the context of the national policy context, increasing student enrolments, especially in the DBA, the nature of the student population and the discipline, and the time frame of our case study, the focus for enhancement at MGSM has been in three areas:

1. the introduction of a *Code of Practice* in doctoral supervision
2. communication, induction and acculturation processes, and
3. quality supervisory practices.

The case study provides an important starting point in examining these issues within the context of a professional discipline and the broader policy context.

Code of Practice in Doctoral Supervision

More than a decade ago, the Australian Vice-Chancellors' Committee (AVCC) and the Council of Australian Postgraduate Associations (CAPA) developed codes of conduct and practice in research supervision. Both have recently been updated (AVCC, 1998; CAPA, 1998). These Codes have provided an important lead for universities and their branch postgraduate associations. Many have subsequently developed their own codes to reflect specific institutional priorities and cultures. Further, examples may be found on the web of

[5] At present Macquarie University is undertaking a major review of doctoral supervision and quality assurance.

departmental codes which may take into account disciplinary expectations and practices. Such codes represent an important connection between the departmental and institutional levels.

Within the MGSM it was felt that the articulation between the School and institutional levels should be made clearer. The Code thus has explicit links between institutional policies and procedures and the MGSM. However, the Code highlights that the School is at the heart of the supervision experience. It formally acknowledges the various roles and levels of involvement within the doctoral program and provides a framework conducive to successful supervision and research. Designed to complement existing University codes in relation to postgraduate supervision and good research practice, the Code explicitly acknowledges the contribution of both the AVCC and CAPA Codes (MGSM, 1999c, p. 1).

The Code expresses MGSM's concern to continue to provide the highest quality of doctoral programs. It acknowledges that central to successful research degree completion is the relationship between supervisor and doctoral student. The supervisory relationship is a professional one which recognises the key elements of communication, integrity and honesty. It also respects that the nature of the student-supervisor relationship is highly personal and that the needs and styles of supervision may change over the different stages of the research process. Above all, the Code is concerned not to bureaucratise this most important element of doctoral education. Extensive input and feedback from staff and doctoral students was sought in the development stages of the Code and it will be formally introduced in 2000.

Communication, induction and acculturation processes

Policy formulations have focused on advocating the need for more formal student induction into the research process and creating institutional and organizational unit conditions favorable to the needs of research degree students. Much emphasis has also been placed on the development and sharing of the disciplinary or multi-disciplinary research culture.

Central to these processes is communication. It is at the heart of MGSM's current developments. A first step has been the development of the Code of Practice as discussed above. The second step has been a review of the clarity and type of information available to doctoral students, in order to ensure adequate and quality information on programs, enrolment, the research process, research support, and completion of degrees. To facilitate information flow, students are provided with email updates, a student newsletter and access to an internet site, which includes links with university-wide and other relevant sites. An institutional teaching development grant for 2000 will further develop this site in order to introduce students to University support services, administration, and up-to-date

contact on research developments within MGSM. The package will also enhance communication through notice board and bulletin board facilities.

To facilitate and encourage both communication and the development of research students, MGSM has a number of research support structures in place, mainly centring on the Research Office and the Director of Research whose responsibility it is to guide the policy direction and scholarly functioning of the Research Office. The Research Office is supported by three highly experienced staff, a part time Director of the DBA Program, and an MGSM Research Committee. Its operation is guided by clear policies to support various aspects of the research process, namely research ethics, intellectual property, ethics clearance, academic publications, research centres, research grants and conference funding. The Office also provides research infrastructure support including a research / study room and computer access, photocopying facilities, funds for conference participation, and active intranet and internet information sites6. These facility and resource provisions for research students are seen as fundamental, although examinations in the literature show their provision to be quite variable across disciplines and institutions (see for example Becher, Kogan & Henkel, 1994; Brown & Esson, 1999).

A major priority for the Director of Research has been the strengthened fostering of a research culture and the induction of doctoral students into the management disciplinary culture. Hence, the third step has been a review of the doctoral student induction process. This has been an important step. Induction of postgraduate students into the research process can vary according to discipline. For example, disciplines with a strong paradigm, such as the physical sciences, or those which can be described as "pure", such as most humanities and science fields, will assume acculturation into the discipline has taken place in the undergraduate and especially honours years (Biglan, 1973). Other fields, especially the applied areas such as management, can be seen as multi-disciplinary, often drawing students with undergraduate experience in a range of related areas, bringing with them quite differing expectations. Consequently MGSM has acculturation responsibilities which differ from other disciplines.

A search of the literature on postgraduate student induction reveals very few accounts of successful induction programs. Trigwell et al. (1997) provide a detailed and helpful example of a departmental induction program specific to professional doctorates. Parry and Hayden (1994) provide policy recommendations for effective departmental support for research supervision. Cullen et al. (1994) suggest that induction programs include: alerting students to the stages of the research process; and assisting them to clarify their expectations both personally and in relation to their supervisor.

[6] See https://w3.gsm.mq.edu.au/research; https://w3.gsm.mq.edu.au/sydney; and https://w3.gsm.mq.edu.au/hongkong.

At MGSM, all new DBA students are given an introduction to the School and an outline of the School's expectations of them, followed by a dinner. An introduction to the university Library's facilities is incorporated into the coursework, and monthly DBA Support Group meetings are held. Similar induction is held for Hong Kong DBA students. It is planned that PhD students participate in a half-day induction program similar to that offered to DBA students.[7] Feedback is regularly sought to improve the induction process and in future fostering the management discipline culture will be a specific focus. In addition, a review at institutional level of postgraduate studies will most likely recommend a stronger institutional approach to induction to be linked in with departmental initiatives. Such an institutional move will assist in strengthening the MGSM induction process.

Other initiatives in fostering the disciplinary research culture include MGSM student research workshops and seminars, research showcases, and social events, as well as regular Student Liaison Committee meetings and student participation in MGSM Research Committee meetings. The Research Office is responsible for monitoring the progress of research students, and all DBA students are treated on a case-by-case basis. Full-time DBA students are reviewed four times a year, and part-time DBA students twice a year. Their progress is assessed against previously agreed milestones, by a review panel consisting of the student's supervisor, DBA Program Director and other interested academics. The Hong Kong campus follows its own, similar procedure. PhD students will be required to present their topic once a year to a research student session, organised by the Research Office and attended by the student's supervisor, Director of Research and two academics who submit a written report to the Research Office. All research students are encouraged to attend research seminars run by MGSM. From 2000 student research workshops and showcases will take on a higher profile.

Finally, the teaching development grant received to enhance the website includes the creation of an on-line research package. A generic research package will be designed bearing in mind the student profile. The package will include six modules on research in the multidisciplinary field of management, quantitative and qualitative research methods, how to access literature sources, project management skills and generic research and learning activities.

[7] At present each new enrolling student is encouraged to meet with the Director of Research and must enrol through the MGSM Research Office.

Supervisory quality

The General Trend

The most recent AVCC Code (1998) as well as the higher education literature (see for example, Pearson, 1999; DETYA, 1998; Parry & Hayden, 1994) recommend training and mentoring of supervisors.

Essentially three types of supervisor training approaches can be discerned from the literature: workshops; action research / learning; and formal award courses. The first type, workshops, are usually offered university-wide and are open to staff with differing levels of supervisory experience. Their focus is on research degree policies, supervisor / student roles and the research training process. Thus they are generic with only some reference to discipline-specific issues. Though these workshops may succeed in "consciousness raising", their weakness is that they are "transmission-oriented" in their approach (Johnston, 1995), and hence limited at being able to influence attitudes and practice.

The second type approach is the action research / learning approach. This form of supervisor training is more flexible and may include both supervisors and students. It has the scope for being more discipline specific and for focusing on the specific needs and issues directly pertinent to participants. By incorporating reflective practice there is the capacity to bring about changes in attitude and practice. This direct approach, however, may be perceived to be threatening to individuals who feel vulnerable, particularly academics who are inexperienced at supervision (Clegg & Gall, 1998). Furthermore, this approach requires time commitment by staff (and students) and hence is limited in success due to irregular attendance. Time to focus on the supervision process is seen as a luxury given other pressures (Johnston, 1995).

The third type, formal award courses, appear to be few in number. To date only one such example has been found in the research literature (Clegg, 1997; Clegg & Gall, 1998; Clegg & Green, 1995). The award described, the *Advanced Professional Diploma in Research Awards Supervision*, was introduced in 1995.[8]

In considering and evaluating the three types of supervisory training approaches, it is important to keep in mind the factors that influence the quality of supervisory performance. Firstly, an academic's own supervision experience influences their supervisory approach and style. Secondly, the relationship between supervisor and student is highly individualistic in nature, more so than any teaching in coursework programs, and, the relationship between supervisor and student continually changes throughout the

[8] It is of 6-12 months duration and targets academics with little experience in research supervision. The curriculum employs a reflective practice model and requires participants to keep journals and confidential logs, the latter being assessed.

research process (Becher, Kogan & Henkel, 1994). The relationship can also been seen as private in the master / apprentice tradition (Frankland, 1999) as potentially 'closed' (Clegg & Green, 1995) but also as a mentoring role (Shannon, 1995). Thirdly, students value and need non-expertise related support from their supervisors, yet these skills are rarely "taught" to supervisors (Fraser & Mathews, 1999). Finally, changes in attitude and practice are generally slow and possibly evolutionary (Clegg, 1997).

MGSM Doctoral Supervision Training and Development Program

Recognising the problems with the existing supervisory training models, the recent MGSM approach emphasises on-the-job development. Within the current climate, MGSM Research Office is assuring quality of supervision for doctoral degree students by ensuring an appropriate policy framework for the selection of supervisors of doctoral students and matching them with the appropriate research students. MGSM supervisors must be at academic level C or above, have personally completed a doctoral degree and have their own research program and research output. Finally, supervisors must have already successfully supervised research students, while those who are inexperienced in supervision are initially teamed with experienced supervisors.

Once supervisors are chosen and teamed with students, the Research Office is responsible for implementing a training and skills development program; a reward structure which recognises supervisory load; and a performance management system which includes doctoral supervision quality. In this way MGSM's policy assures that supervisors meet the expertise requirements necessary to be good supervisors, while the training and skills development program assures that supervisors have awareness and skills in the non-expertise related areas of the supervision process. The performance reward structure is designed to encourage a research culture and focus supervisors on successful completions.

All MGSM supervisors of doctoral students have access to Macquarie University training on the research supervision process, including access to problem solving sessions and skills development workshops. Within MGSM, supervisors can also undertake periodic "refresher updates", where they are informed of updates on policy changes within MGSM, Macquarie University, and at the national level. The use of "refresher updates" aims to foster an open research culture, based on trust and learning from each other to deal with changed and unexpected circumstances to improve the overall quality of students' learning. For example, the introduction of off-shore student supervision brings opportunities to explore aspects of supervision potentially new to most supervisors.

The MGSM supervisory development approach is based on the premise that supervision is a negotiated process in which supervisors adapt their styles to individual students. It also understands that changes in practice may not occur quickly. The supervision of research students is highly personalised and hence by nature a complex process. The MGSM

development program for supervisors of doctoral students builds on the existing strengths and skills of academic staff and aims to:

a) broaden the range of research supervision experiences of staff through the sharing of expertise, particularly in non-expertise related areas

b) foster an open research culture among staff and students of the MGSM

c) heighten staff awareness of the continually changing policy environment and requirements.

Summary and Future Issues

MGSM currently enrols a significant proportion of Australia's management doctoral students. The case study has discussed the recent quality enhancement initiatives in doctoral education highlighting three key areas: the clarification of roles and expectations through the development of a Code of Practice; a review and strengthening of communication and acculturation aspects of the doctoral program; and an examination and introduction of appropriate supervisor training. These initiatives, implemented from the end of 1999 and throughout 2000, have ongoing monitoring and feedback loops built in. They also include regular liaison with students, student representatives and the MGSM Research Committee. Success in these initiatives will play an important part in the University's quality assurance program and contribute nationally to quality in the management discipline.

Despite ongoing improvement and refinement of the supervisory process at MGSM, there remains scope for further development. Several areas have been identified for future focus. First, a closer examination of the off-shore student supervisory process might uncover new and creative ways of delivering a better service to these students. Off-shore teaching and research is the area of greatest MGSM priority and it is where substantial future growth is expected. Second, there is scope for further refinement of the School / institutional interface in doctoral education. Finally, more work needs to be done in examining and responding to the developing needs of doctoral education within the management discipline.[9] The interconnection between the needs of discipline, profession and students must be continually explored and the practical relevance of doctoral education to industry ensured. The introduction of the DBA recognises the importance of practice and provides an alternative to the PhD, which can be seen as a traditional model.

The School maintains that it has the prime role in maintaining a productive framework to ensure success of individual supervisory roles on the one hand, and on the other, to

[9] A recent initiative in this direction has come from ANZAM (the Australian and New Zealand Academy of Management), which has launched a number of workshops dealing with issues of inter-organisational collaboration. These workshops have been co-sponsored by the Australian Research Council (ARC). See ANZAM, 1999.

provide a key link in overall University supervision quality assurance and enhancement processes.

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Flexible postgraduate research supervision in an open system

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Introduction

Current practice in research education in Australia is much more flexible than is recognised by many custodians of postgraduate educational quality. Increasingly research education is an open system where postgraduate research students move around a wider world than one campus, a world which includes the 'virtual' campus and a growing network of knowledge institutions in addition to universities. This situation is not entirely new. There has always been more flexibility and mobility than acknowledged by many institutional rules, and established attitudes. Doctoral education is heavily laden with myths (Cullen, Pearson, Saha & Spear 1994; Green & Lee 1995) which can express more about cultural norms than actual practice. Postgraduate research students have always moved around within established national and international research networks, gone on field trips, or disappeared into libraries on and off-campus. However recent changes in the higher education system and changing patterns in research activity have added to the complexity of the educational environment. Flexible conditions for postgraduate research students in the increasingly open system have become more widespread and diverse. More postgraduate research students are no longer on-campus for much of the continuous informal interaction which has provided opportunity for induction into the discipline and the culture of a research group or department. Nor are all current postgraduate research students looking primarily for induction into academia. The implicit approaches and processes of the traditional system which assumed informal interaction on campus are proving insufficient to meet new circumstances for all postgraduate research students whether primarily on or off-campus.

> I think the whole nature of supervision relationships has changed a lot in the past 10 years. Just because of the number of students, different pressures and I think there has definitely been a change in that relationship and I think that norm has to be questioned. And I think both students and staff are finding it difficult, working out exactly what is the supervisory relationship any more, what's a good one, what's not a good one and I think it's difficult. Some of the best supervisors still have problems with some of their students. Just because of the nature of the work or the student or whatever. So, I find the best students have difficulties with supervisors so it's a very difficult area. (Student officer, at a research-based university. Pearson and Ford 1997, pp. 109).

This paper provides an explanation of the growth of an increasingly open system, and explores emerging practice for negotiating and managing flexible supervisory interaction, creating effective open research learning environments, and ensuring institutional accountability and support. The concluding discussion raises some issues for future directions in change. The discussion is grounded in examples of practice from the Australian system, but the selection is in no way exhaustive, and I am aware that there are similar developments elsewhere (e.g. Burgess 1997: Haworth 1996; LaPidus 1997).

An open system: diversity and flexibility

In a recent report (Pearson and Ford 1997) we concluded that the higher education system at the research level in Australia was characterised by:

- the diversity of the research population
- an 'opening' campus, and
- the growing reality of the 'virtual' campus.

These are all factors in explaining the growth of an increasingly open system. We found that many Australian research students move around geographically and institutionally during their candidature; they change supervisors - or work with unofficial 'supervisors', or add to their supervisory group (however described in their institution); they move in and out of modes of enrolment depending on their life circumstances; and can show great independence and enterprise in finding suitable research and study conditions, expertise and support. As a consequence of these trends students may be researching and studying for part or all of the time in locations such as: university or hospital-based labs; libraries; research agencies and government departments; industry sites; professional workplaces; remote areas of regional Australia; and off-shore. The situation is fluid and a variety of flexible supervisory arrangements are in place.

The diversity of the research student population

The diversity of the research student population is partly a consequence of a growth in numbers (from 14751 higher degree research students in 1989, to 34070 of whom 23390 were research students in 1997 (West 1998)). Partly the diversity arises from what Clark (1996) refers as 'substantive growth' which is the proliferating base of academic knowledge and disciplinary fragmentation, which results in ever-growing system complexity. Not only are there more and more specialties and sub specialties, interdisciplinary and multi-disciplinary subjects, there is in addition a growth taking place in newer professional fields which are developing a research capacity, e.g. Nursing. The diversity of the research population is reflected in the profile presented in Table 1.

Table 1: Characteristics of doctoral level research students in Australia (1996 population).

Characteristic	**% students (n=22696)**
30 years and over	65%
Female	41%
External	3%
Part-time	36%
International	13%

As might be expected there are differences across institutions and broad fields of study (BFOS) to be considered. In 1996 the largest percentages of candidates under 30 years of

age were in Science, and Veterinary Science; in professional areas such as Business and Law students were likely to be in their 30s or older and in Education the largest number was in the 40-49 age group. Interestingly age group patterns for men and women within BFOS were similar (Pearson & Ford 1997, pp. 127-131). Institutional differences can reflect these differences in discipline mix. For example at the University of Technology Sydney which has more students in the professional fields, 76% of their research students in 1996 were 30 years of age or over, and 41% were over 39 years of age (Sekhon & Shannon 1998).

These changes in the characteristics of the research student population have been accompanied by a diversification of career goals and employment outcomes. Candidates can be using research degrees for a range of purposes including entry into employment in industry and government in areas such as management and policy. Even by 1995 only 44% of research graduates seeking employment were employed as either an academic or a full-time researcher (West 1998, p. 157). For younger students seeking career entry a research degree can give competitive advantage among the growing numbers of graduates in the job market. For older postgraduates a research degree can allow them to consolidate their expertise, to reflect on their professional practice, or to change career during their employment life. These changes in research graduate outcomes are leading to calls for more overtly professional preparation, rather than what is often criticised as a narrow focus on a research project. Some industry spokespersons (Clark 1996, p. 6-12) emphasise the need for the cultivation of industry relevant competencies, attitudinal and interpersonal, such as leadership, team building, and a results orientation.

The 'opening' campus

The more diverse population of research students includes those who are seeking greater flexibility in the conditions of learning and researching. Some indication of the extent of such flexibility is given by the distribution of enrolment types. About 39% of both men and women candidates in 1996 were part-time or external with variation among BFOS (Pearson & Ford 1997, p. 121). More significant than the detail of the enrolment figures for specific BFOS is that they underplay the extent of 'flexible' enrolments, and hybrid patterns of attendance. Doctoral students can and do change their type enrolment from external, to part-time and full-time, and combinations thereof, during their candidature, particularly in the final stages. (It is interesting that in the 1997 Postgraduate Destination Survey only 35% of research (masters research and PhD) students reported that they were enrolled mainly full-time during their course of study, and 49.9% reported that they were working mainly full-time in their final year of study (Morgan & Guthrie, 1998, pp. 30-31))**.**

In addition, many institutions (e.g. Griffith University, University of Queensland, University of Technology, Sydney) have provisions for off-campus study that do not constitute 'external' enrolment so that the official figures for external study do not capture the larger number of postgraduate research students who are based off-campus much of the time, as are many part-timers who are likely to be working in areas related to their research, or who have other responsibilities which lead them to carry out much of their candidature off-campus. Other institutions that have a strongly professional and applied focus do not mention explicitly the topic of place or location of candidature at all in their regulations. Instead they express a positive interest in employment or community-based research as in the following statement:

> The program of research and study shall be carried out either within the university or within an industrial, commercial, government, educational, research or other organisation approved by the Faculty Research Degrees Management Committee. (Academic Regulations for the Degree of PhD, University of South Australia, section 4.1.3.)

These trends to postgraduate research and study in various sites are strengthening given continuing disciplinary growth and fragmentation, and projected changes in the production of knowledge. Writers such as Scott (1997) argue that the distinction between applied and pure research is becoming obsolete, and research more user-oriented. In Australia according to an ARC/NBEET report (1996) the balance of research carried out in universities, industry, government funded laboratories and other agencies is changing, and more research within universities and across universities is interdisciplinary and multi-disciplinary, more applied and more industry-related. Additionally there is pressure for diversifying funding sources in universities which has made industry supported research more attractive and closer links more likely. The increase in numbers of professional students means more interest in research and joint supervisory arrangements in industries that now include areas such as health, education, social work, business and media, where a growing number of research students are likely to be researching professional practice in their own field and/or their own workplace. And there is increased pressure for alternative models of postgraduate education to provide exposure to industry experience. Currently there are two government funded schemes to assist industry-related research: the Australian Postgraduate Research Awards (Industry) Scheme (APA (I)) which was launched in 1990 to strengthen industry-university linkages (Powles, 1996); and the Cooperative Research Centre Scheme (CRCs) (Steering Committee Report, 1995).

Internationalisation is also a pressure for student mobility during candidature. There are various strategies in place to facilitate student movement within established but informal national and international university research networks. In these networks students can visit laboratories around the world, and carry out experimentation and smaller projects. They are participating in ongoing collaboration that is seen as a continuing exchange. Visitors at whatever level contribute to the departmental/laboratory output, and/or bring in new expertise to the host group or take it back to their home base. Students are able to broaden their experience and skill base, and receive induction into the relevant national and international research networks for their future career as indicated in the case given by one supervisor (Pearson & Ford, 1997, p. 51):

> In 1995, one of my students spent one month in the lab of a collaborator in Canada....It was a 'technical transfer fellowship' and the idea was to enable her to learn techniques in use in our collaborator's lab and bring those techniques back to my lab to implement them here. This has worked quite well; both from the techniques/expertise standpoint and also that it exposed the student to a different laboratory in a different country and may have opened up post research opportunities.

Some universities offer special funds to students to encourage collaborative links and there are special assistance schemes such as the Overseas Postgraduate Research Scholarship (OPRS). Interest is also growing in more flexible arrangements including off-shore candidature, or mixed-mode study whereby limited time is spent in Australia by overseas research students, and more attention is given to encouraging Australian research students to spend time abroad.

The Virtual campus

Supporting the 'opening' of postgraduate research education is the greater availability of communication and information technology. Communication and information technology allows further flexibility as the boundaries of on- and off-campus attendance are blurred by the feasibility of 'real time' and asynchronous interaction that is not face-to-face. These technologies allow for alternative communication strategies for research students who are seeking to communicate with their supervisors and the institution from off campus. The authors of the ARC/NBEET Report (1996, pp. 7-11) in discussing changes in research activity link them to the use of information technology and describe the emergence of a 'global web' in which 'the number of interconnections are being continuously expanded by the creation of new sites of production'. They argue that with ready access to results through information technology, researchers may no longer need to cluster around physical sites such as laboratories. Moreover researchers in all disciplines are increasingly using electronic communications to open up discussion and exchange, sharing ideas in real-time, posting news, distributing pre-print articles, and convening electronic conferences. The opportunity for collegial discussion is endless and particularly significant for those whose specialties are few in numbers and dispersed nationally and/or worldwide.

The variety of flexible supervisory arrangements

An outcome of the changes and trends depicted are a variety of flexible supervisory arrangements in place. As argued in Evans and Pearson (1999) the future will see a continuing shift in thinking whereby part-time and off-campus postgraduate research students will not be seen as a marginal category but rather examples of flexibility as students choose the conditions appropriate to them. As the following examples show flexible supervisory arrangements open up choice in conditions and opportunities for research and study; increase options for interaction with peers/supervisors/experts; and increase access to specialist expertise and equipment (Pearson & Ford 1997, p. 38):

- A research student with supervisors at the ANU and CSIRO has spent roughly half his time in each institution; has been able to use the expertise of both groups; and has benefited greatly from the dualism of his supervision.
- A Lecturer at a university with a masters degree has enrolled in another state; approached potential supervisor concerning a couple of topics; got a scholarship and took leave to work full-time on the thesis, and resided in at least three different locations during the candidature. Supervision was by phone, post, email and occasional (once a semester) visits; all completed in just over three years, last six months in a full-time senior public service job.
- A PhD student visited a leading US university for several months, and spent a month with a telecommunications R & D. Centre in Indiana known to the supervisor. All of this visiting was on scholarship, and all focused on the PhD…The student "was in the right milieu to understand the practicalities of the industrial delivery."
- A research student and supervisor from a regional university visit regularly a laboratory at the Division of Plant Industry, Canberra.

Negotiating and managing flexible supervisory interaction

In a paper on supervision and distance education, Evans and Green use the metaphor of 'dancing' to describe the interaction of learners and teachers. They see as important the image of exchange, the 'give-and-take movement' of teaching and learning, whereby the

teacher is presented as both 'framing and responsive with regard to the learner' (Evans & Green, 1995, p. 11). Others have used concepts such as dialogue and conversation for learning in the virtual world of electronic communication (Brown and Duguid, 1996). Such metaphors and concepts give both the supervisor and the student as learner a role in negotiating and managing supervisory and collegial interactions as they structure communication channels and maintain contact on and off-campus. For both partners (and others who might be involved) careful and explicit planning and management will be an inescapable element of successful interaction.

Where there are distance and time constraints, and where there are complex arrangements for carrying out research and study in various sites with more than one supervisor, the task of managing interactions will be more challenging. That challenge will include the need to attend to the interplay of the intellectual and emotional dimensions of supervision (Cullen et al. 1994, p. 92). Sensitivity to the latter is particularly significant when face-to-face and informal contact is limited. In a case cited in Pearson & Ford (1997, p. 39) a supervisor who had supervised off-campus research higher degree research students including off-shore Masters and PhD research students from Singapore and Hong Kong gave an account of how she managed interactions sensitively. She put effort into getting to know her research students well so they would come for help when they needed it, often visiting her research students when interstate. She used three media with discrete functions:

- email to prod research students, when there had been no contact or for urgent communication, to list what has to be done, and to set up telephone appointments so both supervisor and research student have chapters and edits properly arranged and ready for the call
- the telephone for establishing rapport, especially at the beginning of a candidature in talking to research students, and before discussing draft material
- print for inserting sometimes 'ruthless criticism' in the margins of a hard copy printed out from discs and sent by mail.

The initiation of such strategies can come also from the student who can advance and lead in the dance. The postgraduate research student too can set up visits in advance via email, mail material for discussion, and make actual interactions off- and on-campus more efficient. Students can also participate in conversations among wider peer and expert groups nationally and internationally. Given the importance of participation in such academic networks for research, particularly in very specialised areas, and those which are leading edge, the value of this virtual extension of collegial interaction must not be underestimated (Pearson, 1996). In addition while online discussion groups can be focussed on research topics and methodology, they can also be a forum for discussing more personal issues to do with the stresses of being a postgraduate research student. These groups can provide 'virtual' community support where postgraduate research students get the opportunity to learn from one another and allay anxieties.

However face-to-face communication is still important as indicated in the case of the experienced supervisor. Some people find it hard to use email effectively for extensive or substantive conversation with those whom they have never met. For them the mix which appeals is to make contact by visiting first and then sustain the relationship though electronically mediated communication. A widespread practice is to use the occasion of conferences to meet up with supervisors or other advisers. Similarly supervisors who travel can visit their students as the occasion arises. Some institutions provide funds for

supervisors of sponsored international students to visit the student when that student is on fieldwork in their home country. Another possibility is to fund students to visit their supervisor. Funding to supervisors or students for supervisory visits appears at present to be dependent on the availability of discretionary funds.

As already discussed internationalising is increasingly seen as a process of academic exchange and research collaboration. In so far as internationalising research education means that students are off-campus some of the time, it raises similar issues to those for any other off-campus students, with the additional concerns about cultural differences to make those of distance more acute. Formal institutional exchange agreements can assist in aiding the process of academic exchange for individual students who are not necessarily going to work in a laboratory engaged in collaborative work with their supervisor or her/his department. In some cases they can make it easier for a student to access facilities, arrange visas and be recognised as part of a formal program. Another formalising of arrangements is a more recent curriculum approach called loosely 'sandwich' degrees. In a sandwich degree an introductory period is spent in the country of origin, with visits to Australia of about a year for research, followed by completion of the candidature back in the country of origin.

Arrangements linking research students and supervisors in industry and work-based research are various in terms of supervisory arrangements and conditions in industry sites. Powles' (1996) study of the Australian Postgraduate Award (Industry) Scheme (APA (I) showed that there was a range of university and industry supervisory arrangements, the most common being for a student to have an industry and an academic supervisor, or co-supervision within the university department with one industry supervisor. The extent of interaction of the students in industry depended on the time spent at various sites, and the size of the industry research group which could vary but was commonly one or two research and technical staff. Individual arrangements are usually at the discretion of university faculties or departments within the overall framework of institutional rules. The official handbooks give guidelines for more long term off-campus study and research which may be work-based or part-time study. These cover issues such as: will the work environment be appropriate and facilities adequate? will the industry supervisor be appropriate and competent? how will responsibilities be distributed for supervision? In the social sciences and professional disciplines there are additional issues concerning responsible research practice in the field for those researching in their own workplace.

Responsibility for addressing issues of off-campus research is usually left to departments and supervisors. Particularly in science-based disciplines, and laboratory-based fields, the concern is to ensure that the student will be working where there is already a collaborative arrangement in place between industry supervisors and members of the university department which will have responsibility for the candidature. The view is that this will ensure that there is sufficient understanding of what is needed and reliable communication channels. However it is clear from Powles' study (1996) and from Pearson and Ford (1997) that some of these arrangements worked better than others, and that knowing the industry supervisors was not sufficient to overcome problems which could arise when there were conflicting expectations as to research outcomes.

In contrast some other schemes within Australia give more institutional support for, and structure to, individual arrangements for supervisors and students who are located away from the campus, or part-time, or of mixed enrolment status, or off-shore. Examples are

the Queensland University of Technology (QUT) Multi-modal scheme; the Adelaide University Split PhD program, and the University of Queensland provisions for remote status candidates (Pearson & Ford 1997, pp. 48-50). The structure of these schemes gives visibility and legitimacy to the student's status, assists in ensuring that they and their particular needs are not neglected, and that they and their supervisors meet minimum institutional requirements. Additionally where they are carefully conceived as in the examples referred to, they anticipate possible problems and have included features which can enhance the quality of the student experience. Interestingly only the Adelaide scheme insists on an initial period of residency.

Residency requirements for individual postgraduate research students has been a feature of distance education for many years. It is seen as a way of operationalising the traditional view that a PhD is more than a thesis. Residency is expected to ensure collegial interaction and, especially for those off-campus, professional mentoring for independent distance learners who may not be working in environments which provide such stimulation and guidance. For some postgraduate research students, and particularly part-timers who are not regularly on-campus, the salient issue may however be one of having uninterrupted focus and 'time on task'. It is a feature of many institutional rules that enrolment status is defined by hours per week with advice on maintaining steady progress. The reality of part-time study is that students usually work in chunks or blocks of time, rather than a set number of hours per week. A student enrolled at one university while employed at another, commented:

> From personal experience, I feel the major flexibility issue for many part-timers is simply that of negotiating adequate "blocks" of time with one's employers (or other commitments) to make real progress on the work! I do know that I benefit enormously from brief periods on-site in the remote university where I'm doing my PhD. This is partly because I can speak to my supervisors and partly because there's a good library and I don't have to negotiate elaborate and fiddly external student arrangements for library support, but mostly because I have some uninterrupted time. (Pearson & Ford, pp. 49-50).

Group supervision initiated by individual supervisors is another strategy which can assist those who find a connection with their peer group and disciplinary community difficult to maintain. Regular meetings such as seminars and lab meetings can be organised so that part-time and itinerant students can attend some if not all. This is more feasible where off-campus (include part-time) students are within reasonable travelling distance. An example of how group supervision can be a mechanism for an 'active mentoring' program where distances were a minor problem is described in Pearson and Ford (1997, pp. 47-8). The exemplary supervisor brought together on and off-campus students to provide active support and collegiality to reduce isolation, to nurture a interchange and sharing amongst the students, and to mentor students to develop publications, conference papers and job seeking strategies.

Creating and sustaining open research learning environments

The discussion so far has focussed mainly on arrangements for individual students and supervisors, even though some have been formalised institutionally. They assume the 'traditional' model of individualised tutorial relationships between supervisors and

students. This is not surprising because the traditional culture of research education has been to decentralise practice to departments (or Academic Organisational Units — AOUs), and within them to supervisors. However there are limits to what can be done on an individual basis. This is true for supervisors and students. In many universities and AOUs there are postgraduate co-ordinators with varying responsibilities, who can provide pastoral care, deal with grievances, oversight the administration of the students' progress, convene a regular seminar program, and arrange social events; however they are usually monitoring and enriching programs that are still conceived as the aggregation of individual supervisory arrangements on campus. Even in the virtual realm of electronic collegial communication already mentioned the initiative for engagement is left primarily to the students. In contrast there has been the development of approaches to creating open research learning environments that provide structured communication and connection with researchers for students who might be located on and/or off-campus. These developments range from collegial arrangements which complement and amplify existing supervisory arrangements, through to the explicit redesign of research degree programs, and the construction of open environments for students with diverse needs.

Some collaborative approaches that are an extension of the notions of group supervision and of residentials, bring groups of students, supervisors and other researchers within a discipline area together for workshops, conferences or short courses, on a regional, national or program basis. Disciplinary areas where these events have been convened include Mathematics, Economics, Physics, Housing and Urban Studies and English Literature, and Education (Pearson & Ford, 1997). The intent is to reduce social—intellectual isolation, and to provide a forum for structured input and, most significantly, interaction with practising researchers. These collegial events offer students opportunities for engagement with the research culture of their disciplinary group. This can also be of benefit to staff as one supervisor in a relatively dispersed and multi-disciplinary area said:

> The great distances separating relevant groups of researchers and the often poor information flow between research initiatives…inhibit staff from learning together, from exploring the boundaries of the area through cumulative research and from interacting systematically with employers and policy-makers at different levels (Supervisor ANU, Pearson & Ford, p. 64).

The following examples of a regional and a national initiative show how they can be similar, but have their own flavour. The Annual Regional Postgraduate Seminar in English Literature held at the start of the academic year is a mixture of orientation, practical thesis-writing tips and stimulating ideas and offers students a chance to hear world-class writers. Each seminar attracts postgraduate English Literature students from five universities and the venue shifts among them. From a different disciplinary perspective the Inter-university Collaborative PhD program in Science, Technology and Economic Progress, (STEP) brings together staff and PhD students researching multi- and interdisciplinary topics in science, technology and socio-economic fields. Themes covered in past conferences include the development and implications of government science policy; innovations in the Asia-Pacific region; local, regional and international development; Australia's role in the globalisation of science and technology; communications development and policy. Student participants are limited to 25 annually and are selected from 10 or more universities to maximise the spread of PhD experience. Participating students present papers reporting on their research, some of which papers have been published.

Another approach is to design programs for off-campus research students that structure the components of the candidature to ensure communication, connectivity and group supervision in ways that are similar to mixed-mode approaches in undergraduate courses. Forming a cohort of research students has been a feature of the EdD program at the University of New England (Maxwell & Shanahan, 1997). Residential courses can combine coursework and opportunity for face-to-face supervision, and for the making of connections for future support and exchange where a beginning cohort are brought together. In an international program with students in different locations (University of South Australia and APMC, Pearson & Ford, 1997, p. 60), a similar intent is realised by a structured six month induction program during which proposals are developed. The initial induction includes components on research methodology and the nature of the program itself. However it is possible to create a cohort without residency as is the case in the EdD at Deakin. This program is designed around the processes of the supervised study and research. Students enrol on a semester basis that allows for a 'virtual cohort' to form (Pearson and Ford, pp. 87-89), but they are individually supervised by course team, and are not required to complete a period of residency during their course of study. They are encouraged to participate in annual conferences for research students.

Different again is an approach that addresses the common reality of postgraduate research students who begin and complete at different times within an AOU by offering a variety of channels for interaction. The National Centre for School Science and Mathematics (SMEC) at Curtin University, Perth is a centre for national and international teaching and research, which operates as an ‘open’ program assuming hybrid patterns of attendance, and providing flexible courses and programs for on- and off-campus maths and science education research students who are local, national and international. There is a residency requirement for individual students that can be completed in several short visits. Research students can attend SMEC's regular Institutes that are short courses lasting a week, and offered at various sites within Australia and overseas. Some research coursework units are mounted on the World Wide Web and accompanied by electronic discussion groups where everybody in the course can interact. Where possible, for off-campus students, SMEC makes use of a local Associate Supervisor for extra face-to-face assistance. Communication with the off-campus students relies heavily on email, fax, phone, audio and video-tapes and the computer. Off-campus students can attend and present papers at the weekly on-campus staff-student colloquium. Supervisors meet with off-shore students during their regular recruitment trips and conference visits. This fluid yet organised approach to a program in which individual students can participate physically, virtually and intermittently, has something in common with the situation in some other specially funded programs such as the Co-operative Research Centres that also have the capacity to provide such a focus for research and research education across sites and institutions (Pearson & Ford, 1997, pp. 89-93).

Institutional accountability and support

Whatever the circumstances of a research student's program of study and research, the program of research and study, and the thesis must comply with the policies and procedures of the institution at which the student is enrolled. In this respect the attention to quality in research education over recent years has been helpful for students. There has been a move to formalise institutional processes and procedures in an area that has hitherto been highly decentralised. There are now clearer definitions of responsibilities and accountability for institutions, supervisors and candidates, and senior academic

officers with overall responsibility for graduate education have been appointed. Such formalising of processes and consequent transparency of policy and procedures has been a valuable and necessary counterpoint to increasing flexibility for all postgraduate research students especially those who are off-campus some or part of the time.

Students' needs for information and support at entry have also been addressed by the development of user-friendly guidelines and handbooks that set out both the basic requirements for graduation, and expectations about the program of study and research, grievance procedures, ethics and intellectual property policies and so forth. More specific guidelines produced by departments, faculties or other groups can assist in contextualising the generic institutional expectations. Even so the first point of contact will remain the principle supervisor who should be clear as to their responsibilities concerning administrative information as well as the strictly academic aspects of supervision. Picking up information through informal and incidental contact with a range of others, as do many on-campus research students (Parry & Hayden, 1994) is completely inadequate for those who are not physically on campus for much of the time.

An important additional contact for many students whether on or off-campus, will be the appropriate administrative staff who can and do more than administer the rules in a narrow sense. Some administrators exploit the opportunity of formal requirements to monitor student progress, making them act as milestones for students, and check on supervision. Some ensure that annual reports are submitted independently by students and supervisors as a check on whether supervision is working; others contact students who fail to submit annual reports, even if they are in remote fieldwork locations. Supervisors can also follow this approach, and integrate their advising on academic progress with the formal requirements of reporting and reviews.

Another way of structuring support is to provide a more formal introduction and orientation to the institution, to complement departmental initiatives. A further step is a structured induction program as has been developed at Adelaide University, which is not only helpful for all students, but is particularly useful for students who are off-campus much of the time. It is mandatory for all those in the Adelaide Split Program. The Program at Adelaide requires every PhD candidate in the first six months of their candidature to produce a detailed literature review, a project proposal, and to give a project seminar. Candidates also meet with their Head of Department or Program Coordinator to plan and organise their research; they participate in research group meetings and in Departmental and Campus seminars and discussion groups. Various models of the Structured Program have been developed in response to the needs of different departments, one of which has developed an off-campus model where materials are provided to students who are mostly based in hospitals and are unable to visit the campus regularly, and a combination program addresses the needs of students who are working at a range of locations (Austin & Kiley, 1996).

A parallel concern is the quality of supervision, supervisory induction and professional development. All universities have some provision for the accreditation of supervisors, and for additional supervisors (associate, co-supervisors) which provision can be extended to off-campus arrangements. Some institutions insist on supervisors (in contrast to advisers) who are not on their staff meeting requirements for adjunct professorship. Most institutions conduct workshops for supervisors and some institutions and CRCs encourage industry supervisors to participate in these. These workshops provide an opportunity to

clarify expectations and to discuss the tensions arising from differences in research cultures and constraints.

Also important for students is access to resources, particularly electronic media and the library. Although there are many variants on using electronic communications, it is unclear how widely these facilities are used. Not all students have sufficient expertise, and some do not have access to sufficiently sophisticated equipment. Those in disciplines where the electronic communications equipment is part of their research infrastructure clearly have an advantage, raising equity and access issues. Many institutions have set up postgraduate computer facilities, and especially for those in fields where they are not tools of trade. However it also needs to be provided in ways which are user-friendly. Deakin and Edith Cowan universities have set up special systems with user-friendly interfaces for students. Deakin University provides all its' off-campus (which can include part-time) research students with a CD-ROM Learning Toolkit that provides a research student with access from their desktop to email, the Internet, library access and help desk support, and postgraduate conferencing facilities. Macauley and McKnight (1998) suggest that librarians can now be in effect co-supervisors. This suggestion derives from their experience at Deakin University in providing library services to off-campus postgraduate research students.

The role of postgraduate student associations is a significant one. These associations provide support to all postgraduate students, but their assistance is particularly important for students in non-traditional and off-campus situations. They can keep students who are off-campus, mostly or temporarily, connected by communicating through email and regular newsletters. Student-initiated conferences complement the national discipline-based workshops already mentioned They serve a similar purpose of bringing students together to learn from one another both about the process of the PhD, but also to gain intellectual stimulation through the sharing of ideas.

Concluding discussion

The traditional notion of research education has been that of inducting postgraduate research students into the academic community and the discipline. This notion is based on assumptions of elite education processes of informal enculturation and socialisation rather than explicit intellectual formation and skills development (Scott, 1995). The former also assumes on-campus interaction. As the characteristics, goals and career opportunities of postgraduate research students change, pursuing postgraduate research education outside the campus becomes more attractive; but having research students move off-campus for much of their study and research challenges traditional conceptions. Some of the issues raised are fundamental as to the nature of research education, and some immediate as to the quality of the experience.

In our study reported in Pearson and Ford (1997) we came across instances of co-supervision and off-campus sites which were working very well and those involved were highly enthusiastic. There were also stories of difficulties from supervisors and research students—stories of conflicting goals, supervisory neglect, and confused lines of responsibility. Some university supervisors are unhappy with being left with the role of the administrative link for a research student with whom they little to do of substance in carrying out the research. Not all students enjoyed being independent. Student organisations were worried about industry supervisors who were isolated in that role and

unclear as to what was expected of them both as supervisors and as to the standard and type of research appropriate. Students who are also employees can suffer from role conflict (Pearson & Ford, 1997; Powles, 1996). The need for more explicit structuring and managing of educational transactions and roles is clear. As in undergraduate flexible and open education the largely private world of the traditional supervisor and postgraduate research student has to become more public and pre-arranged. These issues are relevant for all supervisors and postgraduate students. That this is so confirms the view of the Research Student Officer already quoted that the current problems are encountered by supposedly 'good' supervisors and 'good' students as well as those who are not coping.

In this changed environment the role which is most problematic is that of the academic supervisor because it is there that the changes in research education and higher education have had the greatest impact. Supervisors are caught between the pressures generated by a growth in research student numbers and the complexity of conditions and relationships; and pressures for quality defined as efficiency and shorter completion times. Supervision is becoming not only less private and individual, but revealed more clearly as a teaching role, and one which requires strongly developed interpersonal, professional and organisational skills. To my knowledge the significance of this for the professional development of supervisors has not yet been fully addressed. I would argue that effective professional development must encompass some reframing of the supervisory role to be productive. In Pearson (1996) I raised the need for supervisors to have an accepted conceptual understanding of what is involved in supervision, otherwise I suggested that using terms such as 'mentor' and 'coach' loosely could perpetuate the mystification of the process. Such loose use of the terminology does not lead to any rigorous engagement with the theory and practice of professional education as elaborated by writers such as Schön (1987).

Similarly in considering cross-site and industry-based supervision, 'goodwill' is not an adequate basis for effective communication. The thinking behind this view relies on trust in the efficacy of personal relations (a feature of traditional university culture) which is no longer sufficient to bridge or accommodate different research cultures and expectations. In this instance it would be helpful to look to the literature and experience of work-based education in other arenas (Foster & Stephenson, 1998). Another helpful approach might be to look at the literature and experience of research collaboration. Currently there are calls to include industry supervisors in supervisor development activity, but this is a view that positions them as in deficit. Cullen (1996) on the other hand discusses the nature of collaboration across research cultures and advocates the building of new hybrid cultures which transcend those of the partners in any collaboration. At an operational level it might be opportune to explore more carefully the roles of 'co-supervisors', 'advisers', and 'associate supervisors'. These terms have commonsense meanings, but the usage is usually decided at the level of institutional policy. It would be useful to distinguish these terms conceptually so as to guide the structuring of different combinations of roles for persons involved in multi-site, supervisory panels or committees. Although co-supervision can work well, it is not uniformly a partnership with equal input. It can be a partnership among a group of persons who have assumed complementary but different supervisory roles (Alderman & Milne, 1998). Having such an arrangement acknowledged would open up the possibility of enhancing relationships among a supervisory team and the student.

Just how far such reconceptualisation of supervisory practice and research education should go will depend on more fundamental issues as to the nature and purpose of

research education. Particularly relevant for the open and flexible world of postgraduate students is the issue as to whether an award is for a product—the thesis, or the completion of a research project - or for the educational process. The usual expectation is that the PhD is a program of research and study under supervision (Pearson and Ford, 1997). There are curricular and teaching implications which flow from this expectation which cannot usefully be addressed by individual supervisors or students through informal interaction. What is needed is a more holistic approach to providing and integrating the components and processes of a research education program for particular purposes and circumstances (Pearson, 1999). Some of the innovation of this sort has been in the design of professional doctorates that focus on programs suitable for professionals working and researching in professional fields, often off-campus. However the possible applicability of their innovative ideas across all research education programs has been somewhat obscured by the emphasis in debate on the difference between the two sorts of doctorates. In fact professional doctorates are various in design (Jongeling, 1996), and their focus is not unique to them as the trends to industry-related research, and the pressures for broadening the PhD to encompass professional preparation are common to all fields of study.

Advice on how to proceed was presented in a recent policy statement on distance graduate education from the US Council of Graduate Schools (1998). The authors stated that distance graduate education was a 'work in progress' rather than a finished product; the task of unpacking the 'familiar gestalt' of on-campus activity to distribute and package differently yet to be completed. I would argue that the task of reconstructing postgraduate research education (or 'research training' as is becoming the currency) is also incomplete in Australia. But our task is not just to substitute off-campus arrangements for what has happened traditionally on-campus, but a more complex project which addresses a shift in how we construct research education for all postgraduate students in an increasingly flexible and open research education environment.

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AN ARITHMETIC APPROACH TO USING REFEREE REPORTS IN THE RANKING OF RESEARCH DEGREE SCHOLARSHIP APPLICATIONS

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Introduction

Australian universities each use their own methods for determining academic merit for the distribution of Australian government funded research degree scholarships. Academic transcripts and confidential reports, supplied by referees, provide two measures of the academic merit and research potential that are applicable to virtually all for research degree scholarship applicants. Only a very small number of applicants cannot obtain an academic transcript or have lost contact with potential referees. Other measures such as work experience and publications are auxiliary methods that are applicable to a limited group of applicants. Most fresh graduates have not had the opportunity to perform in these areas and can be disadvantaged by their overuse.

The effectiveness of these measures of the academic merit or research potential of scholarship applicants has been debated within the Scholarships Panel of the University of South Australia's Research Degrees Committee for a number of years. In particular, the methods of obtaining written confidential referee reports have been under scrutiny. This paper reports on a new method of obtaining a confidential written report from a referee, chosen by an applicant, and the outcome of efforts to produce an objective measure of the applicant's ability as rated by the referee[1].

The University of South Australia is a large and diverse institution with discipline areas including science, engineering, education, social sciences, visual arts and architecture. With competition between such diverse disciplines it is important to have measures of merit that are applied without advantage or disadvantage to any one particular group. Academic transcripts and grade point averages are indispensable in this regard. However, these have their limitations as an objective measure of merit. Differences within and between universities, some of which are international, limits the objectivity of using undergraduate results. Some graduates do not have postgraduate degrees so it may not be appropriate to score these. Likewise, some graduates may not have had the opportunity to demonstrate their research potential through publications or relevant work experience. The use of such factors in scoring

[1] The authors were unable to find any publications dealing with this issue.

scholarship applications disadvantages fresh graduates who may be equally ready and able to complete an excellent research degree thesis.

Confidential referee reports provide an independent measure of an applicant's academic merit or research potential. However, referee reports have their own set of problems such as those listed below:

- if referees are asked to provide a score between 1-10, for example, different referees will score using different standards
- a referee who is a potential supervisor has an obvious incentive to score generously without accountability
- a referee who is a potential supervisor at another university has an incentive to score sparingly on a referee report supplied to another university.

Written comments are difficult to score because of differences in skill and even culture of referees. Referees tend to omit negative comments and one is forced to "read between the lines" and infer the worst about what is not said. A lot depends on the experience and intuition of those doing the scoring.

This paper reports on the changes in approach used in the University of South Australia for the scoring of referee reports over the past five years. Initially a Referee Allocated Scoring (RAS) method was used. In order to standardize fairly the scoring of reports an Arithmetically Allocated Scoring (AAS) was used in the last two years. The process used and the results obtained are described and assessed.

Background

The University of South Australia is a relatively new university, originating in 1990 from the amalgamation of a number of former institutions. The research degree profile has grown steadily since then to about 800 research degree students. Currently a combined total of about 40 Australian Postgraduate Awards (funded by the Australian Research Council) and University of South Australia Postgraduate Research Awards are offered annually.

Administrative procedures

The process of ranking applications at the University of South Australia has been for the Scholarships Officer to produce a tentative scoring of the applicants prior to a formal initial ranking at a meeting of the Scholarships Panel. Applications were then divided up and sent to the relevant Faculties for checking. Any recommended changes were then considered by a final ranking meeting of the Scholarships Panel. This checking by a representative central committee was aimed at preventing bias. A minor

change in the last round was that the relevant Faculty[2] committees did the initial ranking, rather than the Scholarships Panel. This enabled the initial ranking to be done by those who were familiar with the relevant disciplines. It also reduced the work of the Scholarships Panel to consideration of contentious cases.

Scoring of applications and determination of honours equivalence was based on a combination of undergraduate results, confidential referee reports, relevant work experience and publications. Considerable changes have been made to the referee report forms and the way these are scored. These changes are the subject of this paper.

Numerical scores

At the University of South Australia referee reports were scored entirely by the use of scores in boxes in the 1993/94 and 1994/95 scholarship rounds (Table 1 summarizes the changes from 1993 to 2000). Space was given to provide written comments, but in practice these were only used to check internal consistency; some referees are familiar with using 1 as their top score and others followed the instructions and used 5 as the top score. The written comments were considered when a referee used scores of 1 and 2 out of 5 to see if scores of 5 and 4 were intended.

Table 1: Changes to referee reports at the University of South Australia

Round	Numerical scores	Written comments
1993/1994 1994/1995 1995/1996	Referees indicated scores of 1-5 or Referees indicated boxes that were scored in the range 1-5.	Not scored Used for checking internal consistency
1996/1997 1997/1998	Referees indicated scores of 1-5 or Referees indicated boxes that were scored in the range 1-5.	Scored in the range 110 based on comparative comments
1998/1999	Referees indicated scores of 1-10, but the scoring was based entirely on an arithmetic score of overall ranking.	Only used to help determine the overall ranking
1999/2000	Scoring was based entirely on an arithmetic score of overall ranking. Referees indicated scores of 1-10, but these were only used for fine scale ranking of applicants on the same score	Only used to help determine the overall ranking

[2] 2 Due to restructuring within the University of South Australia, seven Faculties were replaced by four Divisions prior to the 1999/2000 scholarship round. Divisional Committees had the same role as the former Faculties in providing recommendations to the central Scholarships Panel. Two research Institutes and the Whyalla Campus also had committees that provided recommendations on scholarship ranking.

Prior to 1995/96 referees were asked to rank the applicant into one of a number of categories, these being the top 2%, 5%, 10%, 25 %, 50% or the bottom 50%. Such a high number of referees used the top 2% that it was considered unfair to continue using this question. The question was removed from the form after the 1996/97 round.

Scoring of written comments

There was also concern between 1993 and 1996 that the written comments were being ignored. In one particular case in the 1995/96 round a referee report from a senior academic in a university with a longer tradition of research was given a mediocre score. Those who knew the referee said this was a very good report for a person with such a strong background in research and experience with research degree students. It was argued that this particularly experienced researcher attracted students of the highest academic merit. Choosing a referee with experience of top class students had effectively disadvantaged the applicant.

In 1996/97 an innovation was introduced in which written comments were given a score out of 10 with the aim of using the full range of scores (Table 2), rather than to score comments in a conventional manner in which 90% or more scored in the range 6-10. The aim was to score normal research degree students, whom referees considered capable of completing a research degree, a score of 3 or 4. This left two score categories for the few scholarship applicants considered less than average. It allowed for the rest of the range to be used to separate out the higher quality students.

The Scholarships Panel considered it was necessary for the initial scoring of all referee reports to be scored by one independent person. If more than one person did this task, the same referee report may have received different scores depending on who did the scoring. This would have introduced another variable. A more uniform approach was thought possible if the same person did the task. The Scholarships Officer was chosen for this task. As a general staff member within a central administrative unit of the University, this person had with no attachment to any particular Faculty or discipline within the University. The Scholarships Officer was also familiar with comparing written comments and scores provided in referee reports. The relevant Faculties checked the scores given by the Scholarships Officer. The Scholarships Panel adjusted some scores during the final ranking based on recommendations from Faculties.

In the 1996/97 round the aim was to score written comments using the full range of scores between 1 and 10. In deciding how to allocate scores the Scholarships Officer took into account the instructions to referees to provide comparative statements in their written comments. Thus, comparative comments attracted the higher scores. After completing this exercise for a complete set of referee reports, the Scholarships Officer wrote out the criteria that had been used for scoring (Table 2). These criteria were used again without change in the following 1997/98 round.

This table was included in instructions to the Faculty committees for checking the scoring of scholarship applications. The Scholarships Panel considered the feedback from the Faculties in order to prevent bias.

Faculty committee members who checked the scoring did not appreciate the unconventional approach to scoring written comments. Those who were also referees came to see how their comments had been scored. There were examples of referees who expected a score of 7 or 8 that were shocked to see a score of only 4. Although the same approach was used throughout the University, many committee members considered the process was disadvantaging their particular Faculty. Staff did not see how reports were scored in other Faculties. Only the small representative committee, the Scholarships Panel, had oversight of all the applications.

Table 2: Method of scoring written comments in 1996/97 and 1997/98

Score 10	Represents the best students encountered by the referee for a student ideally suited to the proposed program of study.
Scores 6-9	Only students that were actually compared with other students were scored 6 or more. If a small group was selected a lower score was given. If a student was best in his or her group or year, with no reference to other groups or years a lower mark was given. Referees were asked to compare with all research students they have known in their field. Restrictive comments resulted in lower scores. Scores of 6-7 were for students with excellent performance expected to complete their programs within the minimum period. Scores of 8 and 9 were for students of exceptional merit or combinations of performance personal attitudes, and suitability to postgraduate research.
Score 5	Exceptional comments which went short of making any comparison with other students. Comments were completely positive. Many on this score may well have received higher scores if the referee had followed instructions.
Scores 3-4	A positive reference with no reference to performance relative to other students scores. Any negative comment resulted in the lower score.
Score 1-2	Student expected to be able to complete a research degree, but referee has severe reservations or negative comments.
Score 0	Student is not suited to postgraduate research

In spite of lack of understanding in Faculty committees of the approach to scoring the written comments and in spite of recommendations for widespread increase in scores in their particular Faculty, this system was used with little change in two rounds of scholarship applications. However, staff on the Faculty selection committees did not

grow in appreciation of the unconventional method of scoring written comments. Academic staff speculated that there was some special skill in writing reports or that certain key words were used in scoring, even though the criteria (Table 2) were supplied to Faculty committees that checked the scoring.

Knowledge of the applicant

During the 1997/98 round, the chair of the Scholarships Panel was impressed with the depth of questions asked about the referee's knowledge of the applicant on the form used by another university. The university in question was asked how it used the answers. However, it was disappointing to find that these reports were not scored at all; they were merely to meet the requirements of the guidelines to the Australian Postgraduate Award scheme that a referee report be attached to each successful application. Nevertheless, the form was modified to ask more questions about the referee's experience of the applicant.

Defining the sample group for comparison

In the 1998/99 round, a completely revised referee report was used. Referees were asked to compare the applicant with all students they had known who had actually commenced a research degree. They were asked to compare the merit of the applicant with the standard of research degree students at the start of their studies. It was understood that the research skill and potential of an applicant would increase as progress was made through a research degree. It was intended to reward a scholarship applicant, who was midway through a research degree, for the experience gained and the performance demonstrated. Thus, an applicant who commenced a research degree without being able to win a scholarship could be recognized for performance in the research degree and be more competitive in the future.

Principles of using referee reports

The use of confidential referee reports in the ranking of scholarship applications will be flawed if referees are left to interpret and answer questions in different ways and if there is not an appropriate method of producing a numerical score for each report. Some of the factors taken into account in designing the referee report form for use in the 1998/99 round are considered below.

1. Experience of the referee

In order to qualify to be a referee of a research degree scholarship applicant, one needs some knowledge of other research degree students in order to be able to make a comparison. It is important that questions be asked in such a way that a person who is not qualified to be a referee cannot answer the questions. Referees who indicate no knowledge of research degree students can be contacted to check they understand the

questions. Generally it is necessary to contact the applicant and to advise them to chose another referee.

2. Point of comparison

The Scholarships Panel wanted to avoid a comparison of the applicants with undergraduate students. If the best students choose to commence a research degree, such comparisons are of little value. To illustrate, if the top 10% of graduates in a particular discipline commence a research degree, somebody in the top 1% of graduates would be in the top 10% of students starting a research degree.

Likewise, it is not known whether in one discipline 3% of undergraduates go on to do a research degree whereas 33% might in another discipline. An applicant who is in the top 1% of undergraduates in the former would be in the top 33% of research degree students, whereas in the latter discipline he or she would be in the top 5% of research degree students in that particular discipline.

Experience in scoring referee reports in the past suggested that referees used a range of comparisons. Some compared with all undergraduates, some with graduates in a particular cohort, some with honours students, other with students doing a Masters by coursework. It would have been to an applicant's disadvantage for a referee to compare him or her only with research degree students and it is likely that few did.

It was considered that it was necessary to compare applicants who were commencing, or who had commenced a research degree. The Panel was mindful that some applicants had no experience in a research degree whereas others were well into their candidature. The aim was to allow a student who had performed better than expected at the start of their research degree candidature to be recognized by the referees. The only point of comparison, however, was with students at the outset of their research degrees.

3. Sample size used by referees

It was expected that referees would make broad comparisons taking into account not only students they had directly supervised, but other experiences such as of research degree coordinators, colleagues known while the referee was doing a research degree or using impressions gained from attending seminars. This would enable a referee to compare an applicant in the largest pool possible. In practice referees only referred to students they had actually supervised during the 1998/1999 round. Unless the applicant was one of these students it was ambiguous how the applicant should rank among these. In the 1999/2000 round, applicants for a research degree where included in the sample for comparison.

4. Using written comments for clarification

The Panel did not want applicants who chose less experienced referees to be disadvantaged, nor did it wish to disadvantage applicants when a referee had

experience of students in a university which they considered to be of a higher academic standard. It was anticipated that referees would make a statement inferring where the applicant would rank in a larger group based, for example, on their experience of honours students. Likewise, it was hoped referees would make quantitative assessments of different standards between universities.

It was decided not to advise applicants in the 1998/99 round that they could be disadvantaged by choosing less experienced referees because it was thought that this could be compensated for with the written comments and ranking in other categories.

5. Comparison with honours students

Referees were given an optional question asking about the applicant's ranking in the current cohort of honours students (or other relevant category) and all similar students known throughout their career. It was anticipated that this would provide information on the quality of research degree students compared with all graduates. It was also thought these answers would help to evaluate scores for less experienced referees.

Two methods of scoring referee reports

Referees in the 1998/99 round were given a table of scores from 1 to 10 corresponding with categories of percentage levels (Table 3). It was envisaged that these scores would be used to score each of seven aspects of research potential[3] (Appendix A) and an overall ranking. The overall ranking was calculated by dividing the ranked position of the applicant by the size of the group compared. For example, an applicant ranked first among a sample of five would be in the top 20%. By referring to Table 3 such an applicant would be given a score of 6. This is the basis of the Arithmetically Allocate Scoring (AAS).

This method of scoring limits the maximum scores possible for less experienced referees (Table 4). For example, an applicant is best among three students would be in the top 33% and would receive a maximum score of 5 using the table. The Scholarships Panel, which designed this scoring system, debated this matter at some length. Members were sensitive to the possibility of disadvantaging applicants who chose less experienced referees. For some applicants it is difficult to find appropriate referees, particularly if they are returning to study after gaining years of experience or if they have recently arrived from another country. Often less experienced referees have the best knowledge of the applicant. Nevertheless, applicants generally choose the most experienced referees if they have the option. They rightly consider that these

[3] [3] The seven aspects of research potential considered were Critical Ability, Creativeness, Initiative, Motivation to complete a research degree, Ability to keep to a schedule, Perseverance and Ability to communicate effectively in the field of study

should be more influential. There was the real danger, however, that the opposite could happen with applicants disadvantaged by choosing experienced referees. This situation has to be avoided.

Table 3. Score allocation based on overall ranking

Score	Ranking of the applicant
10	Top 1%
9	Top 1-2%
8	Top 2-5%
7	Top 5-10%
6	Top 10-20%
5	Top 20-40%
4	Range 40-60%
3	Bottom 20-40%
2	Bottom 10-20%
1	Bottom 10%

Essentially there are two methods for scoring different answers on the referee reports. The Referee Allocated Scores are the scores actually given by the referees. The Arithmetically Allocated Scores were determined by a committee process. The figures supplied by referees where used to calculate the relative ranking of the applicant and a score was determined based on Table 3. The outcomes of these two methods are considered below.

Table 4. Sample size required for each score

Maximum score possible	Required sample size
4	1
5	3
6	5
7	10
8	20
9	50
10	100

Outcomes and lessons learned

Essentially, the new method of scoring referee reports was trailed for the first time during the 1998/99 round and fine-tuning put into place in the 1999/2000 round. Following is a discussion of the results and lessons learned in these two rounds.

Misuse of the scoring table by referees

Prior to the 1998/99 round it was expected that referees would use the score allocation of Table 3. An initial analysis of the Referee Allocated Scores (RAS) showed an unrealistic distribution. This is illustrated by the scoring of the aspects of research potential. One of the aspects, namely critical ability, illustrates the trend for the RAS (Table 5). It is not valid for 15% of applicants to be comparable with the top 1% of research degree students. Indeed, it is not reasonable that 90% of scholarship applicants should equate with the top 20% of research degree students, as would be indicated by Table 5. Consequentially the scores allocated by referees in the 1998/99 round were regarded as meaningless and ignored in the final ranking.

Table 5. Comparison of cumulative scores for Referee Allocated Scores (RAS) with Arithmetically Allocated Scores (AAS) in the 1998/99 round

Score	Ideal distribution	Referee Allocated Scores (RAS)	Arithmetically Allocated Scores (AAS)
10	1.0%	14.8%	0.7%
9	2.0%	37.1%	0.7%
8	5.0%	63.2%	3.2%
7	10.0%	77.7%	10.8%
6	20.0%	89.6%	30.1%
5	40.0%	95.8%	59.1%
4	60.0%	98.8%	86.4%
3	80.0%	99.7%	95.0%
2	90.0%	99.7%	97.5%
1	100.0%	100.0%	100.0%

In place of using Referee Allocated Scores (RAS) the committee used Arithmetically Allocated Scores (AAS) alone for scoring referee reports. In this method a score was calculated for each referee report using the number of research degree students known and the ranked position of the applicant among these. A very reasonable distribution resulted with 11% scored as being in the top 10% (Table 5). Ninety five percent of scholarship applicants ranked in the top 80% of scholarship applications. This is reasonably interpreted to mean that most of the bottom 20% of research degree students did not apply for scholarships.

Due to the reasonable distribution of scores obtained in the 1998/99 round using the AAS method (Table 5) a similar approach was then used in the 1999/2000 round. That is, the scoring of the referee reports was based on one overall-ranking figure. Referees were still asked to score each of the seven aspects of research potential, but the results again ignored in the scoring of the reports. In the 1999/2000 these scores (using a RAS method) were only used for detailed ranking of applicants on the same total score. Referees were left to decide for themselves how to score these. They were not instructed to use Table 3.

Analysis of discrepancies in referee scores

In the 1998/99 round the Scholarships Officer took the initiative of contacting referees, by e-mail or telephone, to ask about discrepancies in their answers. For example, a referee who has supervised five students would be asked why the applicant was given a score representing a ranking the top 5% when the best result possible was in the top 20%. Such referees saw no inconsistency in such an answer. For example, referees were content to score an applicant that they regarded as the second best student supervised out of a group of 5 in the top 5%. However, the Scholarships Panel saw such applicants as being in the top 40% of research degree students known. It was not uncommon for a referee to justify a high ranking by saying that the applicant was not the best known to them, but was equal among an exceptional group of 2 or 3 students. This may well have reflected their perception of the quality of the applicants. However, in order to treat all applicants fairly it is necessary for referees to restrict their assessment to their own actual experience of research degree students.

It would appear that the two main factors behind the high scores given in the RAS method are supervisors' desire to advantage students and complexity of instructions given to referees. Some referees may not have read the instructions well enough to understand the implications. The problem is that there is no easy method that will determine the way referees actually think and how they would justify the scores given. They would be reluctant to admit that referee reports have been written to advantage an applicant rather than to provide a true reflection of their perception. The motivation could be extremely complex.

It seems reasonable to conclude that referees fear that an unconventional numerical ranking method does not do justice to the applicant. They are aware of how much better the research degree students are than other undergraduates finishing in the same cohort. They are also wanted to avoid disadvantaging their applicants by giving what traditionally would appear to be mediocre numerical scores.

On the other hand, the perception of members of a scholarships selection committee is different. Every year the same referees report that the quality of applicants is improving. Thus, the tendency of the selection committee is to lower the scores, while the tendency of referees is to maximize them. The strict application of an arithmetic method best supports the aim of the Panel to produce an equitable ranking.

Commonly an applicant was given a high ranking, such as in the top 5% of research degree students, for a limited sample size. It appeared that such applicants would have been the best known to the referee. Before recalculating scores based on this assumption, referees were often pressed to state whether the applicant was the best ever known to the referee. However, such applicants were commonly considered to be the second or third best of those known to the referee. Thus it was concluded that any

percentages provided by referees were meaningless. Care was then taken in the 1999/2000 round to instruct referees to provide a numerical ranking only. They were instructed that percentages were not acceptable. Percentages were calculated and scores were allocated as part of the administrative process after the completed referee report form was received.

Referees only compared students they had actually supervised

Designers of the form used in the 1998/1999 round specifically avoided asking referees how many students they had supervised. It was expected that referees would draw on a wider experience of research degree students. When the forms were received, referees stated they knew surprisingly small number of students well enough for comparison with the applicant. Referees who were Research Degree Coordinators were expected to make use of the wider number of students known, but they clearly did not consider that this role gave them adequate detailed knowledge of students that they had not supervised. Rather than to increase the complexity of instructions in the 1999/2000 round no attempt was made to get referees to draw on experience other than students they had actually supervised.

In the 1999/2000 round some referees pointed out that they knew honours students who had gone on to do a research degree under another supervisor. These should be included in the sample in the future.

Referees declined to compare standards between universities

In the 1998/1999 round it was hoped that referees would make comparisons about the quality of students from the University of South Australia in comparison with other universities. Some referees had stated in their written comments that it was unfair to compare the applicant with all research degree students they have known because this includes research degree students at an international university that were generally of a higher standard. If other referees were only comparing applicants at the same institution then the applicant would be disadvantaged by their comparison with the international university. When such referees were interviewed they were asked to quantify the difference in standards so that this difference could be taken into account. However, referees were very reluctant to make such comparisons, even in a confidential referee report that would not be seen outside of a couple of small selection committees. They were not even prepared to provide such an assessment verbally to the Scholarships Officer. This was the case even when pressed to make such a statement for the benefit of the applicant that they hoped to supervise.

It is conceivable that there are differences in standards of students between universities because there are different entrance requirements. However, it is yet to be

demonstrated that the standard of those students who actually go on to do a research degree is different between universities. Thus, research degree students across all universities have been treated as being of equal merit for the purpose of comparison in referee reports.

It was not possible to rank applicants scored by the same referee

One particular referee completed five referee reports in the 1998/99 round. Various scores were given for individual aspects of research potential. In correspondence with the referee it was stated that two of the five were outstanding compared with the others. An attempt was made to identify the top two from the written comments and the scores for aspects of research potential. This proved impossible, so the referee was asked to rank the five applicants. When this ranking was provided there was no obvious correlation with either the written comments or the numerical scores. Other referees who had completed more than one referee report were also asked to rank them in order, when this was not obvious from their reports.

This approach was adopted in the 1999/2000 round and has proved to be a very useful approach in comparing applicants.

Summary of changes made

Taking into account the lessons learned in the 1998/99 round, a number of changes were made in the 1999/2000 round of scholarship applications. Following is a list of improvements:

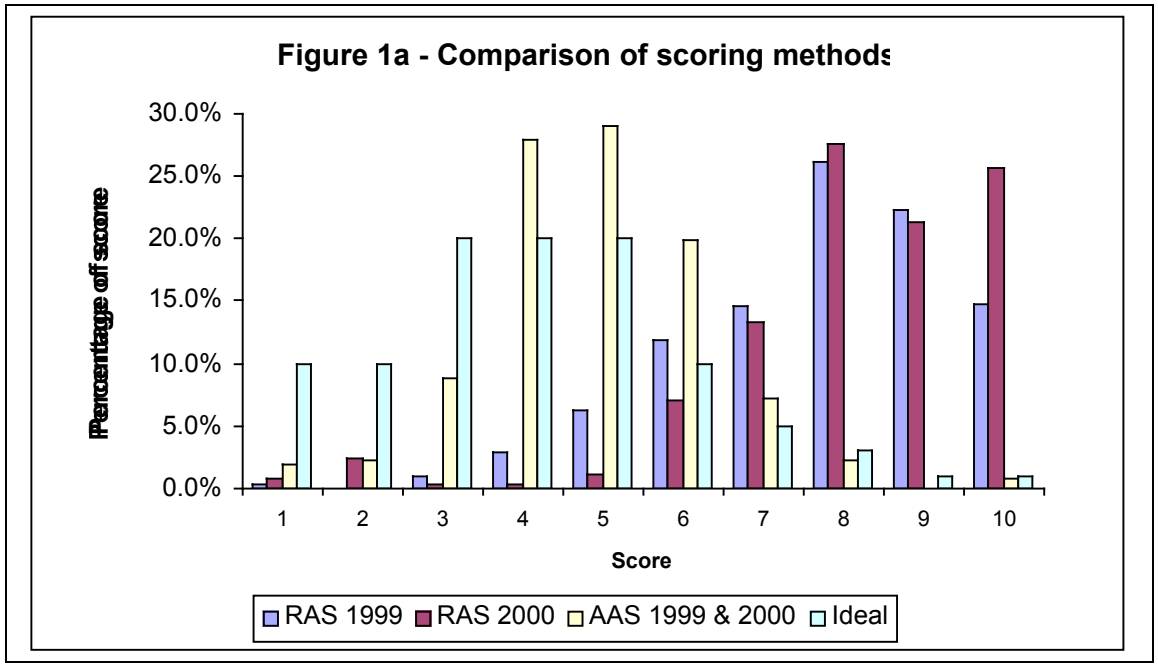
1. simplify the form by only asking for a ranked position. There is no attempt to explain the scoring and referees are not asked for percentages. Referees were told that percentages would be disregarded
2. referees, who complete more than one report, are asked to rank applicants in the current round relative to each other, as well as in the larger pool of actual starters of a research degree
3. an attempt has been made to remove ambiguity by asking for a numerical ranking, suggesting referees use 1 for best, 2 for second best or equal best of two etc
4. for aspects of research potential, referees were only instructed to score out of 10 and to use the higher numbers for the best applicants. It is considered important to give referees the opportunity to express their views using such scores so that they are more willing to provide an honest assessment in the overall ranking section. These scores were effectively only used at the margins to differentiate between applicants with the same overall score.

Analysis of results

In the both the 1998/99 and the 1999/2000 rounds data obtained using Referee Allocated Scores (RAS) and Arithmetically Allocated Scores (AAS) were available (Table 6). In the 1999/2000 round additional information was recorded on the size of the group the referees were using in their comparisons. This has made it possible for additional analysis of the data in the latter round.

Table 6. Distribution of scores in both rounds (numbers of cases of each score being allocated).

	Referee Allocated Scores		Arithmetically Allocated Scores	
Score	1998/1999	1999/2000	1998/1999	1999/2000
10	50	65	2	2
9	75	54	0	0
8	88	70	7	5
7	49	34	21	18
6	40	18	54	53
5	21	3	81	75
4	10	1	76	74
3	3	1	24	23
2	0	6	7	5
1	1	2	7	3

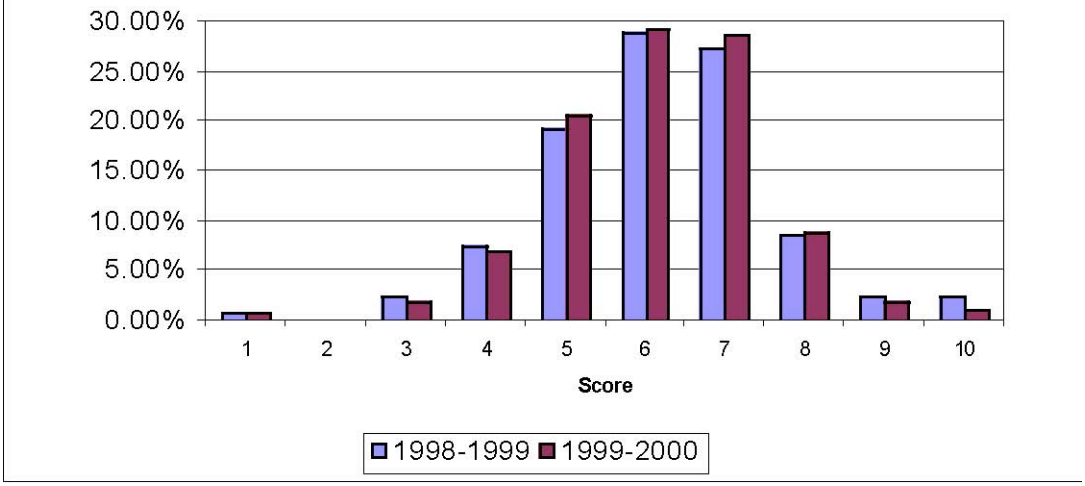


These data are represented in Figure 1 in terms of percentages. The pattern of AAS ranking is indistinguishable in both rounds (Figure 1b), so the data are amalgamated in

Figure 1a. The AAS results correspond fairly closely an Ideal[4] pattern. The scores display a bias on the higher side of the Ideal pattern. This appears in part to be due to a tendency of referees to be generous in their reports. The important aspect of these results is that they show it is possible to obtain a reasonable distribution of scores using the AAS method, especially in comparison with the RAS method.

The ideal distribution is the pattern that would occur if the referee reports reflected a representative sample of all research degree students and the scores given by referees reflects a true distribution of the quality of applicants. It is the lack of correspondence of the RAS pattern that shows its results to be absurd (see Table 6). For example, 90% of applicants cannot be in the top 20% of research degree students. The ideal pattern would result if referees accurately reflected their perceptions in the reports. Alternatively, the correspondence between the actual and ideal may be merely a numerical artifact. Such an artefact could result from the variation in sample size that limits the maximum scores possible. In reality, this is difficult to determine. If there were any systematic bias that would indicate whether the variation is due to a reasonable measurement or to an artefact of the method.

Figure 1b - Comparison of scores using the AAS method.

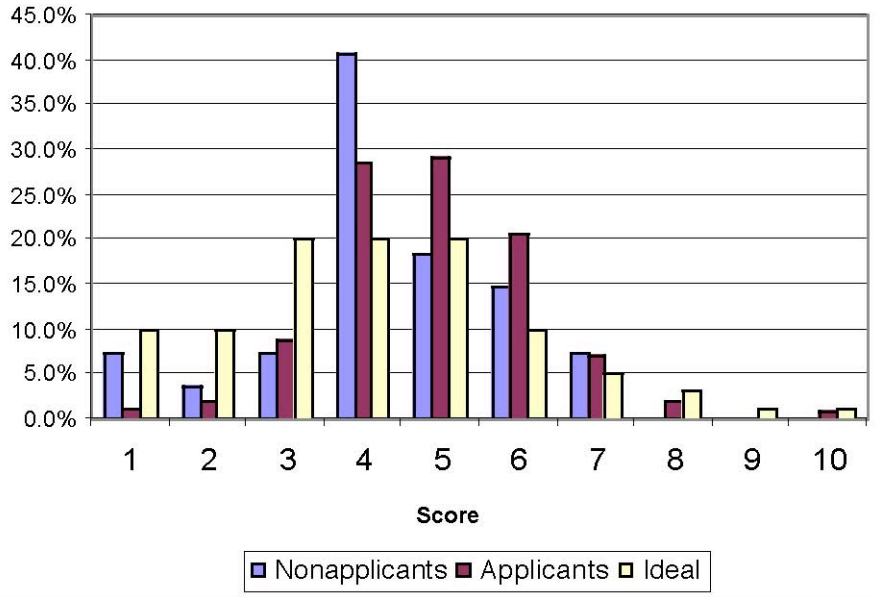


It was had been often suggested that intending research degree students who considered that they would not have been competitive for a scholarship would not have proceeded to submit their applications. This appears to be confirmed by an analysis of 27 referee reports received for which no application was finally submitted (Figure 2).

[4] The ideal distribution is the pattern that would occur if the referee reports reflected a representative sample of all research degree students and the scores given by referees reflects a true distribution of the quality of applicants.

The pattern of scores for these non-applicants is on the lower side of the actual applicants. Some of the non-applicants may not have qualified for admission to a research degree, so the overall standard could well be lower.

Figure 2 - Comparison of non-applicants with applicants in the 1999/2000 round



As stated above, it could be argued that the results show the distribution of scores in Figure 1b is a numerical artefact of the scoring method rather than a measure of the veracity of the AAS method. For referees who were only able to compare applicants with a small number of other applicants and research degree students supervised, the method limits the number of high scores possible, as reflected in Table 3. Figure 3 shows the distribution of results for different numbers of students supervised. (Only 7 reports had sample sizes above 32). These data are summarized and normalized in Figure 4.

Figure 4 does show an increase in higher scores with sample size over the range 1-25. However, this trend is reversed over the range 26-35, for which the results are probably too small to be significant. Trends are also observed using RAS results in the 1999/2000 round (Figure 5). These variations with sample size cannot be interpreted merely as a numerical artifact because the referees determined the scores, not an arithmetic method. In both cases there is a tendency of the more experienced referees to avoid the middle-range scores. The fact is that both scoring methods show variation with sample size, which reflects the experience of the referees.

Figure 3 - Distribution of AAS results with sample size in 1999/2000

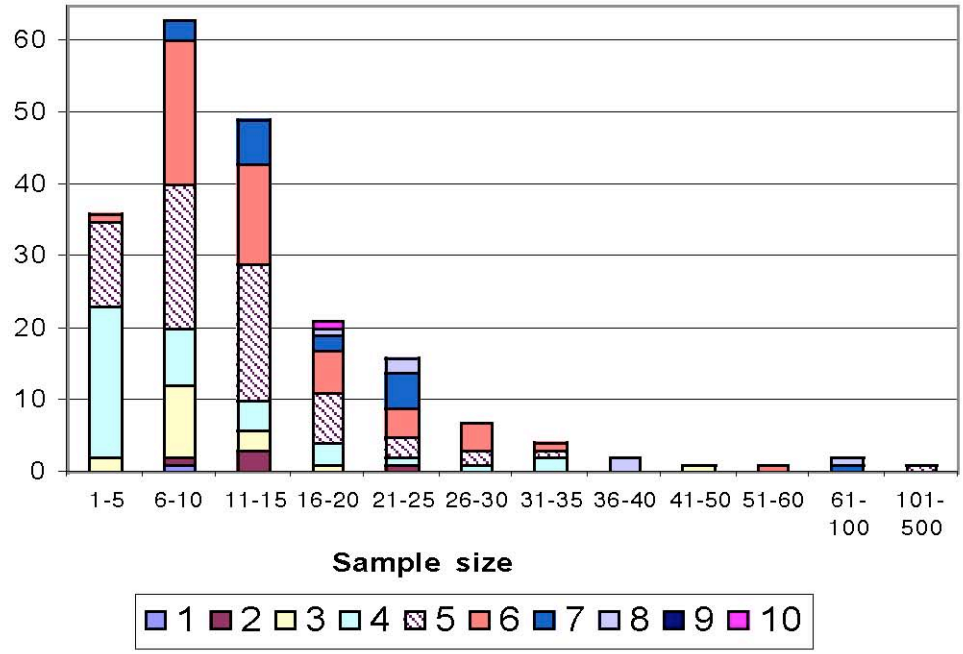
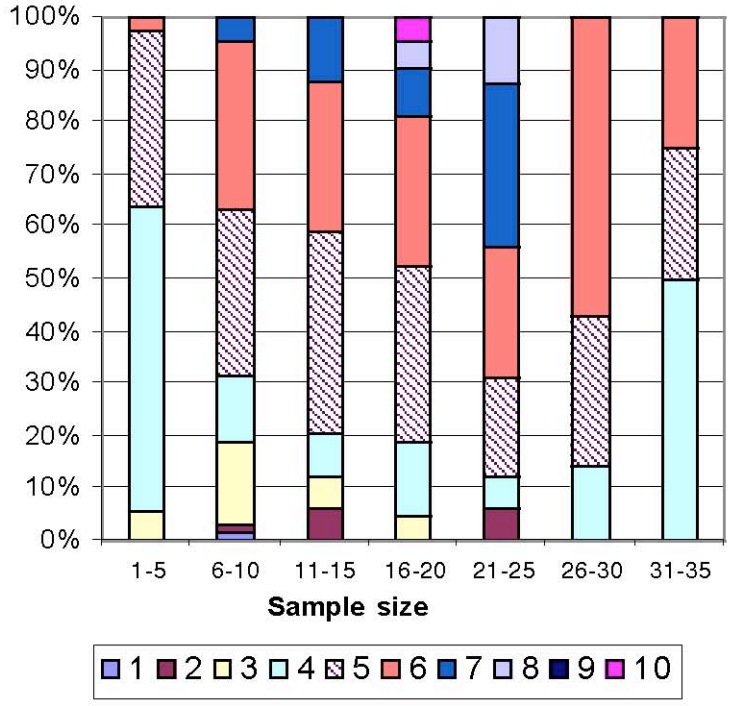
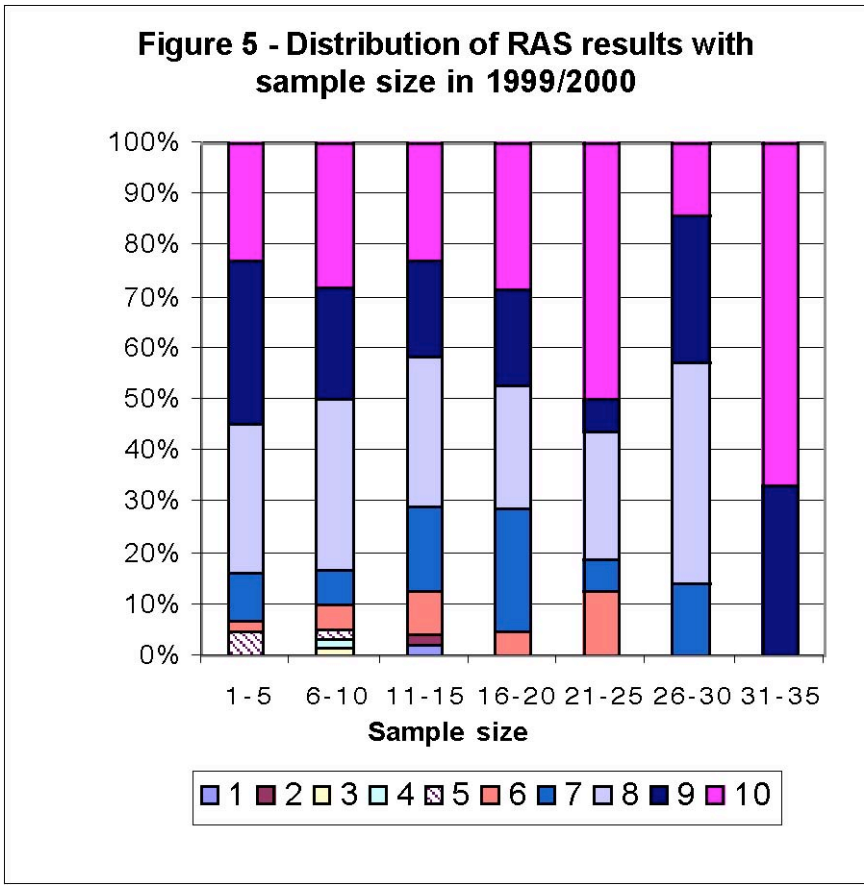


Figure 4 - Distribution of AAS results with sample size in 1999/2000





The method used for producing the AAS results generally prevents inflated scores, particularly for less experienced referees who lack the experience to give an accurate ranking of a candidate. It also prevents a referee from giving the maximum possible score to a number of different applicants.

A related issue is the scoring of each result. Scoring of 10 for the top 1% compared with 5 for the top 20% may be regarded as too generous for the highest scores. There is scope for different approaches here. This paper is concerned about is the method of collecting data, rather than possible variations in the weightings given in the scoring of the results. The AAS method could be used with a different scoring than that used in Table 2.

Discussion and Conclusions

One of the main problems with the usual approach in which referees allocate scores (RAS) is that they tend to be heavily weighted to the higher scores. This limits the usefulness of the tool for distinguishing the best applicants. Rather, it only becomes a tool for eliminating the poorer quality applicants. However, scores weighted toward the middle of the range are useful in distinguishing the best applicants. This is the case for the scores obtained using the AAS method. This is particularly important for single prestigious scholarships such as those offered to the best applicant in a discipline. At the University of South Australia about a third of applicants end up receiving a

scholarship offer, although more than two thirds of applicants with a first class honours degree or equivalent receive an offer. The spread of scores resulting from the AAS method has proved helpful, particularly at the boundary between the more highly scoring government-funded scholarships and the university-funded scholarships.

The Arithmetically Allocated Scoring (AAS) method has been very successful in avoiding the weighting toward high scores. However, the question remains as to whether the method is an accurate reflection of the perception of referees. If a method was a true reflection of the referees' perceptions then the distribution of scores should match the ideal distribution. The match has been documented in the previous section of this paper. However, it is possible for such a distribution to be produced artificially. It would appear feasible for the distribution to be a numerical artefact of an arithmetic system in which the scores are limited for less experienced referees.

The maximum scores are limited for less experienced referees (see Table 3). This effectively disadvantages applicants who chose less experienced referees. This limitation of scores of less experienced referees may not be inappropriate. It would, on the other hand, be inappropriate to disadvantage applicants who chose a well-qualified experienced supervisor of research degree students to be a supervisor. Intuitively applicants would expect to be advantaged by a supportive report referee from a highly respected referee. This should be rewarded by the scoring method. Thus, the disadvantage of limiting scores of less experienced referees is not seen as a serious deficiency in the method in producing a fair ranking of all applicants.

Referees are justifiably concerned that their applicants will be disadvantaged unless they give the maximum scores that they consider their colleagues will consider acceptable. Their perception is that the arithmetic scores are lower than they would have liked and that their applicant will be disadvantaged in the particular round. They tend to think that the small sample size of students they have supervised may unfairly limit the score. Their perception is that the applicant is better than the scores reflect. They consider that scoring by this method may reduce the competitiveness of their applicants.

The members of the selection committee view the matter from a different perspective. They are concerned that all applicants get a reasonable opportunity to score well and that they are scored on the same basis. Some referees have expressed the view that a particular applicant was within a group of exceptional students and that it would disadvantage them to rank them. In effect such referees are comparing the applicants with a larger group than research degree students and applicants that they have actually known. The arithmetic method helps to ensure that applicants are not compared with larger groups, such as final year undergraduate students. If they did do so, higher scores than appropriate would result.

This issue of an applicant being disadvantaged by being part of a group of exceptional applicants needs to be seen in perspective. It appears to be common for referees to score as if the quality of applicants increases in consecutive years. This factor may explain some of the bias of the results toward a distribution higher than the ideal. Applicants with less experienced referees would be seriously disadvantaged if the AAS approach was not applied strictly for more experienced referees. Figure 4 shows that there is already a bias toward higher scores with greater sample size. It is therefore important the selection committee allocate the scores and not the referees.

Due to the contrasting views of referees and selection committee members, the AAS method provides a clear advantage over the RAS method in providing an appropriate measure of the merit of a scholarship applicant. The RAS method is largely a measure of how much a potential supervisor would like the applicant to study under their supervision. This desire may be due to other factors than the academic merit or research potential of an applicant. It could be that particular referees want to increase the number of students under their supervision or to increase the research degree profile in their research concentration. Alternatively, the applicant's proposed research topic may be of strategic interest to a supervisor. For the scholarship schemes in question, only the academic merit and potential of the applicant to do research should be measured. Indeed, it could be argued that the results of the RAS method are invalid in the scoring of scholarship applications. At University of South Australia such scores were used in the last round only for the fine ranking of applicants who received the same overall score.

There is value in having an independent measure of academic merit and research potential. Standards of scoring undergraduate results vary greatly between universities, countries and discipline areas. Referee reports, particularly if they use the AAS method, can help to provide a balance.

In addition to the scoring of scholarship applications, referee reports can also be used in assessment of honours equivalence. Questions can be included that enable referees to indicate the equivalent level of honours represented by such things as an overseas qualification, a postgraduate qualification, work experience and publications. This is particularly helpful if a referee is familiar with the quality of an applicant's work, as the quality of this work cannot be determined from the applicant's curriculum vitae.

In summary, the Arithmetically Allocated Scoring (AAS) method of scoring provides a viable alternative to Referees Allocated Scores (RAS) or the scoring of written comments provided by referees. If used correctly it provides an independent means of scoring all applicants on the same basis. It avoids the difficult problems of scoring written comments. Given the difficulties in comparing such things as undergraduate performance and honours equivalence, the AAS method is a tool that can be of great assistance in the scoring of scholarship applications.

Further research is warranted to evaluate the degree to which the distribution of scores resulting from the use of the AAS method may be a numerical artifact. In the next round we will collect data on the number of referee reports completed by particular referees. It should be possible to determine whether the pattern of scores varies with the number of forms completed. This may help to explain the apparent tendency of more experienced referees avoiding the ranking applicants in the middle of the range. In particular, it will be important to determine if an applicant is disadvantaged by choosing a referee who is completing more than one report in that round. It would also be interesting to track the ranking provided by referees who complete referee reports over a number of years, provided this meets the ethical requirements regarding the identity of the referees.

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University of South Australia
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Mawson Lakes SA 5095
Email: robert.lawrence@unisa.edu.au

UNIVERSITY OF SOUTH AUSTRALIA

ACADEMIC REFEREE CONFIDENTIAL REPORT 2000

APPLICANT DETAILS:

APPLICANT FAMILY NAME: _____

APPLICANT OTHER NAME(S): _____

REFEREE DETAILS:

REFEREE FULL NAME
(Please include title, i.e. Prof, Dr, etc): _____

School/Department: _____

University or Organisation _____

Position: _____

The applicant named above has nominated you as a referee in support of an application for an Australian Postgraduate Research Award with stipend or University of South Australia Postgraduate Research Award.

Please complete the sections below and post or fax the form to:

Scholarships Officer
Research Services
University of South Australia
The Levels Campus
MAWSON LAKES SA 5095

Facsimile: (+618) 8302 3921

by Friday 29 October 1999

REFEREES SHOULD COMPLETE ALL SECTIONS (A, B, C, D & E)

SECTION A: KNOWLEDGE OF THE APPLICANT

QUESTION 1

How long have you had experience of the applicant?

	0–3 months	3-6 months	6-12 months	1-2 years	>2 years
Prior to undergraduate study	☐	☐	☐	☐	☐
During undergraduate study (including honours)	☐	☐	☐	☐	☐
During postgraduate study	☐	☐	☐	☐	☐
Since completing undergraduate study (excluding postgraduate study)	☐	☐	☐	☐	☐

QUESTION 2

In what capacities have you known the applicant?

☐ Lecturer
☐ Course coordinator
☐ Head of School/Department
☐ Dean of Faculty/Division
☐ Masters (Coursework) supervisor
☐ Research degree supervisor
☐ Examiner of his/her thesis
☐ Other (please specify)

_____

QUESTION 3

Your knowledge of the applicant is:

☐ Very Good ☐ Good ☐ Adequate ☐ Poor/Limited

ACADEMIC REFEREE CONFIDENTIAL REPORT 2000

APPLICANT DETAILS:

APPLICANT FAMILY NAME:

APPLICANT OTHER NAME(S): _____

SECTION B: OVERALL ACADEMIC PERFORMANCE OF THE APPLICANT

QUESTION 4

Has the applicant already obtained an actual Australian honours result?

If '**NO**' proceed to Question 5
If '**YES**' please complete the rest of this question

What level of honours was achieved?

☐ Honours 1 ☐ Honours 2A ☐ Honours 2B ☐ Honours 3 ☐ Other ☐ Unsure

Since obtaining the honours result, has the applicant demonstrated research performance above the level indicated by the honours outcome?

If '**NO**' proceed to Question 7
If '**YES**' what level of honours equivalence do you consider has been achieved by the applicant?

☐ Honours 1 ☐ Honours 2A ☐ Honours 2B ☐ Honours 3 ☐ Other ☐ Unsure

Please attach a case explaining how you have assessed honours equivalence for this applicant.

Please continue to Question 7

QUESTION 5

Is the applicant expected to obtain an honours degree or result for undergraduate study at an Australian university this year?

If '**NO**' proceed to Question 6
If '**YES**' please complete the rest of this question.

Please indicate the level of honours that you expect the applicant to achieve this year:

☐ Honours 1 ☐ Honours 2A ☐ Honours 2B ☐ Honours 3 ☐ Other ☐ Unsure

QUESTION 6

Does the applicant have an undergraduate qualification from an international university?

If '**NO**' proceed to Question 7
If '**YES**', what level, in the Australian system, would you assess the applicant's performance to be equivalent?

☐ Honours 1 ☐ Honours 2A ☐ Honours 2B ☐ Honours 3 ☐ Other ☐ Unsure

QUESTION 7

How many students have you known completing the same degree as the applicant throughout your career?

☐

Please indicate your ranking of the applicant relative to other students:

☐ Best ☐ Second Best ☐ Top 1% ☐ Top 2% ☐ Top 5% ☐ Top 10% ☐ Top 20% ☐ Other ☐ Unsure

ACADEMIC REFEREE CONFIDENTIAL REPORT 2000

APPLICANT DETAILS:

APPLICANT FAMILY NAME: _____

APPLICANT OTHER NAME(S): _____

QUESTION 8

Are you familiar with the applicant's performance during relevant postgraduate study?

NO - proceed to Question 9
YES – continue to answer this question

Course of Study

☐ Masters by Research
☐ Masters by Coursework
☐ Postgraduate Diploma
☐ Other, please specify _____

In the year the applicant finished this degree, how many other students completed the same degree? (If the applicant has completed more than one postgraduate degree, please answer these questions for the degree in which the applicant performed best/better)

☐

Amongst this group, indicate the ranking of the applicant relative to other students (i.e. best student = 1, second best = 2, equal first of two = 2, etc)

☐

How many students do you know well enough to compare with the applicant who have completed the same postgraduate degree?

☐

Amongst this group, indicate the ranking of the applicant relative to other students (i.e. best student = 1, second best = 2, equal first of two = 2, etc)

☐

Please indicate your assessment of the applicant's performance in this degree in terms of equivalence to honours in the Australian system

☐ First Class Honours ☐ Class 2A Honours ☐ Other ☐ Unsure

Please include a statement justifying your rationale for your assessment of honours equivalence. You should state if previous study, work experience or a relevant publication record were used in your assessment. (Please attach a separate sheet of paper if more space is required)

SECTION C: RESEARCH POTENTIAL OF THE APPLICANT

QUESTION 9

How many applicants have requested that you complete a confidential referee report form for this University in the current round of APA scholarship applications?
(If you complete another form subsequently, further clarification may be required for this question)

☐

Amongst this group, indicate the ranking of the applicant relative to other students (i.e. best student = 1, second best = 2, equal first of two = 2, etc)

☐

ACADEMIC REFEREE CONFIDENTIAL REPORT 2000

APPLICANT DETAILS:

APPLICANT FAMILY NAME: _____

APPLICANT OTHER NAME(S): _____

QUESTION 10

How many of the applicants referred to in Question 9 have not yet commenced a research degree?

QUESTION 11

How many research degree students have you supervised? (Please include those whom you currently supervise, those who have completed and those who failed to complete.)

QUESTION 12

Please add the number of applicants in Question 10 to the number of students in Question 11.

Amongst this group, indicate the ranking of the applicant relative to other students (i.e. best student = 1, second best = 2, equal first of two = 2, etc)

Please DO NOT use percentages as this will make your result invalid

SECTION D: ASPECTS OF RESEARCH POTENTIAL

QUESTION 13

Amongst this group in Question 12, please score the applicant on a scale of 1-10 (in which 10 is the best score) relative to other students commencing a research degree in terms of each of the following aspects of research potential:

- **Creative Ability:** *ability to develop original ideas or approaches without prompting*
- **Initiative:** *ability to embark on new ideas or approaches without prompting*
- **Motivation to complete a research degree**
- **Ability to keep to a schedule**
- **Perseverance:** *ability to work in difficult circumstances*
- **Critical Ability:** *ability to appraise and analyse information and arguments*
- **Communication skills in field of study**

SECTION E: EXPLANATORY COMMENTS

The ranking for this scholarship application is based largely on your answers in Sections C and D. If you wish to elaborate on your answers you may comment below or attach a separate sheet.

If your answers in Sections C and D are ambiguous or inconsistent, the assessment of this referee report may depend entirely on your written comments.

Comments:

REFEREE'S SIGNATURE: _____ Date: _____

This form is currently available in Electronic Version for PC's using Word 6.0 or greater.
If you would like a copy of this form forwarded electronically to you, please email: Elfriede.Zwick@unisa.edu.au

Referees who use the electronic version should print the completed form, sign it and send it to Research Services either by facsimile (+618) 8302 3921 or mail.

POSTGRADUATE LEARNING STYLES AND ENABLING PRACTICES: A MULTICULTURAL ACTION RESEARCH STUDY

Gina Wisker
Anglia Polytechnic University
Cambridge

Introduction

Working with groups of Israeli postgraduate students undertaking study in the context of a UK award, this research aims:

- to find out about research students' approaches to and conceptions of learning, particularly research-as-learning
- to recognise specific moments in research which might be of difficulty for students because of potential mismatches between approaches and hoped for outcomes
- institutionally, and individually, to develop supportive programmes and facilitative/supervisory relationships aim to better enable students to identify problems and dissonances themselves and to take control over choosing the right kinds of methods to enable their outcomes.

Anglia Polytechnic University has a long-term relationship with colleagues in Israel, offering BA & MA programmes in education. In 1997 the first group of students began to put PhD proposals together. The experience of working with this cohort produced both awareness of potential dissonance between students' methods and intended outcomes, and some insights into how we might use parts of the research training to help students pinpoint and overcome such potential dissonance alongside other development. Our insights led to the development of action research, reported here.

Research with Israeli postgraduate students is contextualised within definitions of levels and outcomes sought for postgraduate qualifications as defined by Winter (1999/2000)(based on a survey of practitioners to which I also contributed) and the QAA (Quality Assurance Agency) (1998).

Winter et al. (1999/2000) identified problems with PhD theses. Reading back from these, we wished to help identify learning and research strategies, plans and behaviours which could lead to such problems, share these with the students, and move towards encouraging and enabling students to better overcome potential problems through their own methods. Problems at postgraduate level which emerge in the final thesis are:

1) Lack of intellectual grasp:

- failure to follow up and evaluate alternative lines of argument
- apparent unawareness of the limitations of the work undertaken
- description rather than theoretical knowledge.

2) Lack of coherence:

- lack of focus, stated aim, tightly managed structure or coherent argument
- pursuit of originality at the expense of control over the material

3) Poor engagement with the literature.

4) Lack of originality:

- encyclopaedic knowledge but no 'personal spark'

5) Lack of generalisability.

- no discussion of how findings are applicable to other situations and doesn't move beyond questions and findings to making suggestions.

6) Methodological weaknesses.

7) Poor presentation.

Avoiding these problems in the final PhD thesis is a major aim of practice arising from this action research. It is hoped that, as part of the collaborative process and in their work, students will interpret, use and own the results of the research, and use research insights and their own insights to underpin sound research practices. Early facilitative dialogues with the Israeli PhD students (1997:131 students) and scrutiny of the first drafts of their PhD proposals revealed approaches to research as learning seeming to lead to a choice of research methods which could prove problematic in enabling achievement of intended outcomes. Two distinct kinds of dissonance between approach and outcomes were spotted and later confirmed by our research. One, a mismatch between a largely accumulative approach and a transformational aim could produce lack of focus and excess of data over interpretation. Alternatively, a negative, post-modern approach (Hodges, 1995) was perceived. This disorganised relativism, in which everything seems valid and related, can prevent students from determining a selective and coherent route through their methods, materials, results, data and so hinder their ultimately writing up a well-organised thesis. It was considered that some elements of the research could pose problems at certain stages in students' work when:

- making links between accumulation of large amounts of quantitative data and its analysis and interpretation
- making connections between information gained from data, and transformative outcomes
- identifying and solving problems, and making creative leaps and links
- selectively using the information and ideas gained and developed from the research to feed into change and development.

Both course team members and the research degrees committee receiving PhD proposals pointed out that such dissonance could produce severe difficulties in managing and interpreting the data purposefully, overcoming problems, coming to any coherent conclusions, and making recommendations for change based on conclusions. The Israeli students were highly motivated, dedicated to effecting positive change in their social and educational contexts within Israel, and often well placed through their work to effect such change (Wisker, 1999b). It was decided to help students help themselves to resolve dissonance though becoming partners in the action research. This involved: (a) further developing our programmes in order to better enable the

learning and research of cohorts of Israeli postgraduate students, (b) informing further work with other postgraduate students based on resulting good practice. 'The programme' is taken to mean the full variety of materials and activities.

Programme: research training & development—Israeli cohorts.

Prior to registration for the PhD.

Stage 1 (Israel/Cyprus)—3 days:

- title and outline of proposed research needed in advance plus information about students' previous learning
- pre-proposal training—organising clarifying and planning outcomes, the research process itself and its strategies i.e. students research areas, outcomes, the shape of the research, methods, time
- •draft proposal—students complete the Reflections on Learning Inventory (RoLI) and the Research-as-Learning questionnaire.

Stage 1a (UK)—2 weeks:

- methods training and refinement, clarification of proposals refinement, concentration on full experience with quantitative and qualitative research vehicles, simulations based on own data form RoLI and Research-as-Learning
- early supervisory dialogues, nominal group technique evaluations of programme, focus group discussions about learning development.

Stage 2 (Israel)—3 days:

- writing progress reports or in some cases transfer documents
- capturing development alterations innovations blockages
- taped supervisory dialogues.

Stage (Israel)—3 days:

- writing up and preparing for the viva—workshops on the process and individual meetings with tutors to clarify the processes of writing and the viva, supervisory dialogues explaining the research work and findings so far, mock vivas analysed
- supervisory dialogues, mock vivas taped
- final questionnaire reviewing kinds of research undertaken, blockage and development moments—the processes.

International Students

The students in our Israeli cohorts (1997: 31 students, 1998: 50, 1999: 14) comprise Jewish, Romanian, Russian, Arab and an American, all Israeli. They have the experience of studying within different contexts and learning paradigms to UK based students (Wisker,1999b), themselves a culturally diverse group. However, all are required to fulfil the requirements of the European research paradigms within which Anglia students study. Cultural inflections to the students' study and to our research need to be fully identified and taken into account.

Our work with international postgraduates indicates a need to recognise and develop supportive supervisory practices in relation to (culturally inflected) learning styles and

expectations without undermining their aims and outcomes. We need to ensure that suggestions of development are not merely products of a different cultural context (the facilitators'/supervisors') rather than necessary to effective research.

Our work with the Israeli students (1997:1 and 1998:2) was informed by research into a broad range of international undergraduates' experiences of UK and Australian teaching and learning methods and expectations. Several studies (Landbeck & Mugler, 1994; Bloor & Bloor, 1991; Todd, 1996) suggest that while international students are aware of the different kinds of learning activities they will be involved in and different learning demands to be made of them in this new learning environment, that nonetheless, lack of prior experience of tutor-student relationships and work in small groups, for example, could hamper their learning.

Samuelowicz (1987) found that only 28% of international students at the University of Queensland were familiar with tutorials in any form and only 18% with group discussion. International students often have different expectations of the tutor-student relationship, different views of knowledge construction. Ballard (1991) indicates a continuum of student attitudes and learning behaviours ranging from conservation of knowledge (and reproduction) to extending, which encourages questioning and problem solving, creativity. At the far end of this is "the speculative approach; which is particularly characteristic of postgraduate students" (Todd, 1996, p.4).

When moving to work in a different knowledge culture, students at all levels could experience a mismatch between expectations, learning paradigms and their previous learning behaviours. These are potentially exacerbated when the transition is from undergraduate to postgraduate work, which is in itself an enormous leap requiring much less dependence upon authorities and given information and more upon long term independent study, highly coherent methods and planning, risk taking and speculation, problem solving abilities and strategies. These learning behaviours might well be new to many students undertaking postgraduate study for the first time, and for international students, any difficulties experienced with making the leap between levels of study could well be compounded by cultural dissonance or initial confusion. For some students, the level of language ability is also an issue. In our 1999-2000 work with undergraduates and with postgraduates alike we have collated comments from students on the necessity to translate what they hear and read, analyse, think complexly and approach problems, move towards understanding, and then translate back into English. Something complex could be lost in this process.

One of the absolutely crucial processes, enabled by facilitative/supervisory dialogues in our work with the Israeli PhD students, has been that of matching understanding with the students. This ensures that as far as possible, at each stage, language barriers are eased in terms of their prevention of student communication of complex ideas and facilitator/supervisor understanding and enabling interventions.

Our Israeli students are professionals with experience and status often holding senior posts in educational management (Deans, Head teachers, a local education minister and so on). They are making transitions which are cultural, between levels of learning, into and through research, and back into the role of student. All this needs to be taken into account when working with them.

Harris (1995) notes, “it is probably that the experience of being an overseas student itself encourages a cautious serialist approach to learning”. This approach might manifest itself in the desire for very clear guidelines, very straightforward research questions and methods. And sometimes this could lead to accumulative approaches over meaning oriented approaches.

Postgraduate students

At postgraduate level, one potential problem is that dissonant approaches could encourage a lower level of study, a more accumulative or surface orientation than that aimed at by the student. Students might, alternatively, err on the side of caution and safety and not be creative or imaginative enough to take intellectual risks; an essential element of the postgraduate undertaking.

Philips and Pugh (1994), Asplund and O'Donoghue (1994), Brown and Atkins (1988), Lowenthal and Wason (1977), Wason (1974) comment on supervisory guidance issues with postgraduates. For international students in particular, different levels of dependency and need are also significant factors. Australian sources (Ballard & Clanchy, 1984; Ginsberg, 1992) indicate that Asian students and other international students are often dissatisfied with their Australian postgraduate studies because they need better study skills and introduction to culturally inflected learning behaviours in order to benefit more fully.

Students are individuals; responsiveness to individual differences in learning and need at postgraduate level should inform supervisory practices. In concentrating on the learning of our diverse Israeli postgraduates, we wished to develop supportive, developmental supervisory practices and programmes to better enable their learning and that of postgraduate students generally.

Methodology

We aimed for a combination of quantitative and qualitative research methods in an action research format. Quantitative data helps to identify the range and extent of learning conceptions, approaches and practices, while qualitative data is produced as part of the learning process itself. Our research activities are intertwined with our facilitative/supervisory practices and developmental, methodological support programmes which involve students reflectively in considering their own learning and research development. Entwistle and Entwistle (1992, p. 6) suggest:

> …the combination of findings from inventory surveys with those from rigorous qualitative analysis of interviews ensures that the conclusions are soundly based on multiple methods and complementary research paradigms.

Overall we aimed to:

1. identify divisions and potential difficulties in the relation between postgraduate' conceptions of research and their research strategies
2. share understanding of potential dissonance and difficulties with the students, and the potential which various methods of research have to produce different kinds of research outcomes and outputs. This would enable students to reflect on and develop appropriate strategies to manage difficulties, solve problems, create and move towards realising their aims and outcomes

3. acquire experience and information about successful strategies of support and development programmes, and of facilitative/ supervisory relations and dialogues, to feed into programmes and practices with postgraduate students generally.

Developing the action research

1. Figure 1 indicates the cyclical shape of the research, findings from one stage feeding into changes and developments in another. Students in both Israeli cohorts (1998, 1999) have been involved as partners in the research, contributing to both development of the study and the enabling strategies arising from its early findings. Research vehicles used have at all stages been shared with the students, who have been asked to reflect on the information they provide and the implications for their own work. Because questionnaire results have been anonymised and tabulated there is no way that individuals can be identified in the results.

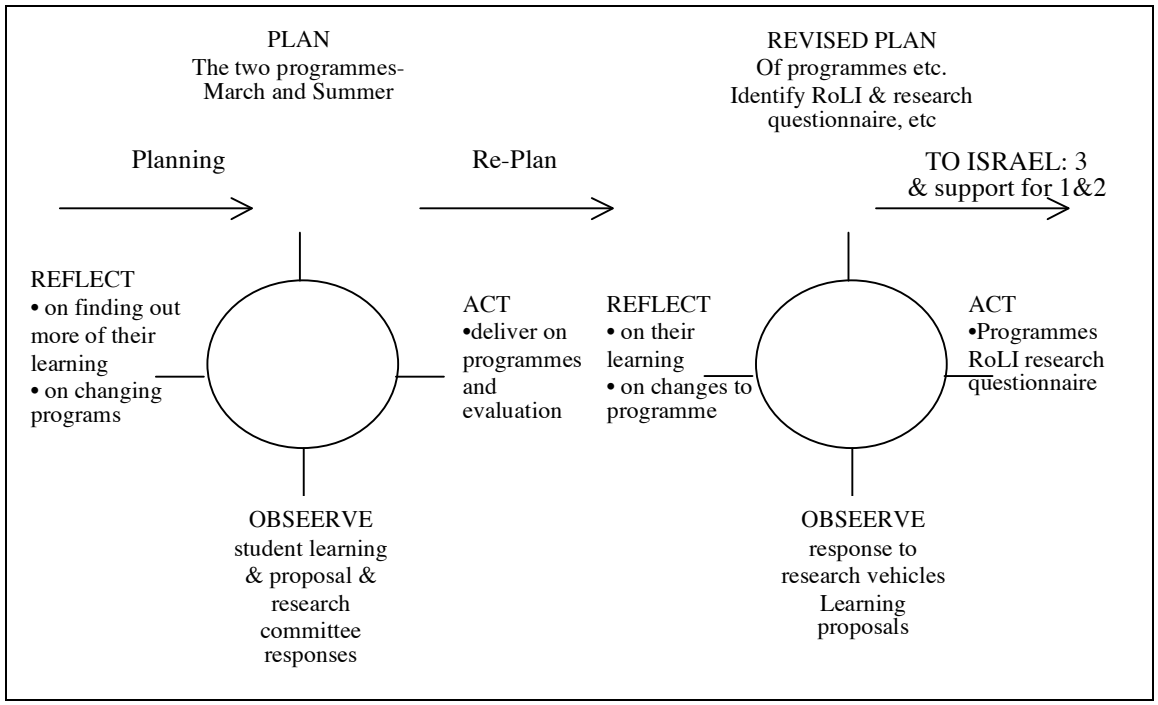

Figure 1: Action research cycle in relation to the Israeli PhD students

All focus groups and interview data is strictly confidential. Vehicles include:

2. The Reflections on Learning Inventory (Meyer & Boulton-Lewis, 1997). This culturally sensitive questionnaire explores students' approaches to, motivation for, conceptions of and styles of learning. Hitherto, its use has concentrated largely on mainly non-European undergraduate students and student teachers (undergraduate and in-service) studying for awards offered in largely European based Higher Education. Our use of this inventory was based on its phenomenographical potential and cultural sensitivity.
3. The Research-as-Learning Questionnaire is a short set of questions causing participants to identify conceptions of and approaches to research.

4. Planned activities on the developmental/supportive three stage programme for research students which engage students, are evaluated and fed back to them for further individual and programme development. These involve use of interactive materials, workshops, informative inputs on methods and methodology, proposal development workshops, simulations in the planning, handling and analysing of data, progress report development, simulations in vivas. These activities aim to enable students to engage with the different stages of developing a proposal, conducting the research and analysing and interpreting data and findings, drawing conclusions and writing up effectively, and finally defending the thesis in a viva.
5. Focus group interviews concentrating on reflecting on (i) the process of the proposal research and thesis, (ii) the effectiveness of the programme on students' development. These cause reflection, ownership of the learning and sharing of good practice.
6. Individual facilitative/supervisory interviews (sometimes multiple interviews) at each of the three stages.

Sample and Methods involved

The samples on which this research is based are the Israeli cohorts 1998 (50) and 1999 (14) undertaking postgraduate study at Anglia. Methods involved:

1. Administration of and collection of data from completion of the RoLI—Israeli PhD students 1998,1999.
2. Administration of and collection of data from completion of the Research-as-learning questionnaire—Israeli PhD groups.
3. Organising and management of the results from:

- follow up focus group interviews and facilitative activities with the Israeli PhD groups 1998,1999
- facilitative/supervisory dialogues with Israeli students at all three stages of their development, using the 1997 cohort (31), 1998 (50) and 1999 (14).

The Reflections on Learning Inventory was used to elicit information about students:

- knowing when learning has occurred (being able to recall information, relate it, integrate it, know intuitively, and not knowing)
- experience of learning (as a form of secular enjoyment, personal growth, and moral duty)
- influences on learning (the examples of others—of which parents are a special case)
- conceptions of learning (learning as accumulating facts and seeing things differently)
- • intended outcomes (advancement, change).

The Research-as-Learning questionnaire was developed to augment the RoLI, provide explicit information and encourage reflection on the higher level of learning activity involved in undertaking postgraduate research. Following a presentation from Angela Brew at Anglia, late 1997, of her work on postgraduate learning, the questionnaire items were developed. The Research-as-Learning questionnaire was trialled on a small

number of UK-based research students (6) and then used with the cohort of Israeli PhD students in March 1998. It has not undergone any extensive statistical testing, but instead provides qualitative and reflective information used to inform focus groups and individual interviews. The questionnaire provides information about, and draws links between the conceptions of what research is considered to be (beliefs, hopes, aims) and the practices or styles and strategies of research. An assumption underlying its use is that there could be some discrepancy between aims and practices (transformative aims and accumulative practices in particular), or at least, that understanding the relationships between aims and practices could aid the closing of any gaps between research strategies and vehicles used—students' research methods—and the results and aims driving the research itself.

These two vehicles (the RoLI and Research-as-Learning questionnaire) were administered and analysed (using SPSS) in the context of ongoing postgraduate training programmes at Anglia. Focus group work and individual interviews have been taped and analysed using NVivo, which enables the recognition of responses in thematic categories identified by an initial reading, listening, transcribing and analysis of interview data.

Analysis

Early initial analyses of data and frequencies of response from these differently originated postgraduate groups (Israeli 2: 1998, 3: 1999) were examined and later comparisons were made to seek information related to culturally inflected conceptions of learning, and common issues and difficulties in stages of research.

Findings

The results identified divisions and discrepancies in postgraduate students' conceptions of and approaches to their research, some of which are possibly culturally inflected. Concentration on the implications of the findings has encouraged, in the postgraduate students, reflection on and (it is hoped) a move towards coping with some of the potential problems arising from discrepancies in the process of research, both initially at design and proposal level, and (it is further to be hoped) beyond.

Questions 1, 2 and 8 relate to accumulative conceptions of learning, seeing learning as tracking down and identifying logical links, categories, right answers and facts.

Question 1 ‘Research is searching for right answers, and methods enable you to find them (if they exist)’ suggests a very fixed view of the world and a highly positivistic accumulative version of what research is (See Table 1). Students were not happy to describe their research in this way or to rule it out either (33.3% said it *describes* or *clearly describes* my research, 58.8% said it *sometimes did, not often*), preferring Question 2: "research is finding out, categorising and labelling—fixing the world to know it" = 47% and most popularly, Question 8: "research tracks down and explains the links between causes and effects" = 86% decided that this *clearly describes* or *describes* my view (44 out of 50).

Students also saw research as transformative and creative. Forty-nine students out of fifty decided that the statement, Question 6 "research leads to change and improvement—to moving boundaries" either *clearly describes* (64.7%) or *describes* (31.4%) their research and 80% (42 students) thought that Question 9: "research is a creative and original activity which creates something new", *clearly describes* = 62.7%, or *describes* = 19.6% their work. (See Figure 2.)

Table 1: Research-as-Learning questionnaire Part 1

	Does not describe my view		2		3		4		Clearly describes my view	
	Count	%	Count	%	Count	%	Count	%	Count	%
1. Research is searching for right answers and methods enable you to find them (they exist)	4	7.8	13	25.5	17	33.3	8	15.7	9	17.6
2. Research is finding out, categorising and label-fixing the world to know it.	4	7.8	8	15.7	15	29.4	17	33.3	7	13.7
3. Research is philosophical exploration of ideas and construction/ perceptions of the world	8	15.7	10	19.6	14	27.5	14	27.5	5	9.8
4. Research grows out of… reflective & subjective and emotional responses…	11	21.6	8	15.7	14	27.5	13	25.5	5	9.8
5. Research is speculative exploration of ideas, institutions, suspicions	13	25.5	13	25.5	10	19.6	9	17.6	6	11.8
6. Research leads to change & improvement to moving boundaries	-	-	1	2.0	1	2.0	16	31.4	33	64.7
7. Research discovers, shows links between movements people, thoughts, processes…	2	3.9	-	-	6	11.8	12	23.5	31	60.8
8. Research tracks down and explains the links between causes and effects	-	-	1	2.0	6	11.8	16	31.4	28	54.9
9. Research is a creative and original activity which creates something new	-	-	3	5.9	6	11.8	10	19.6	32	62.7

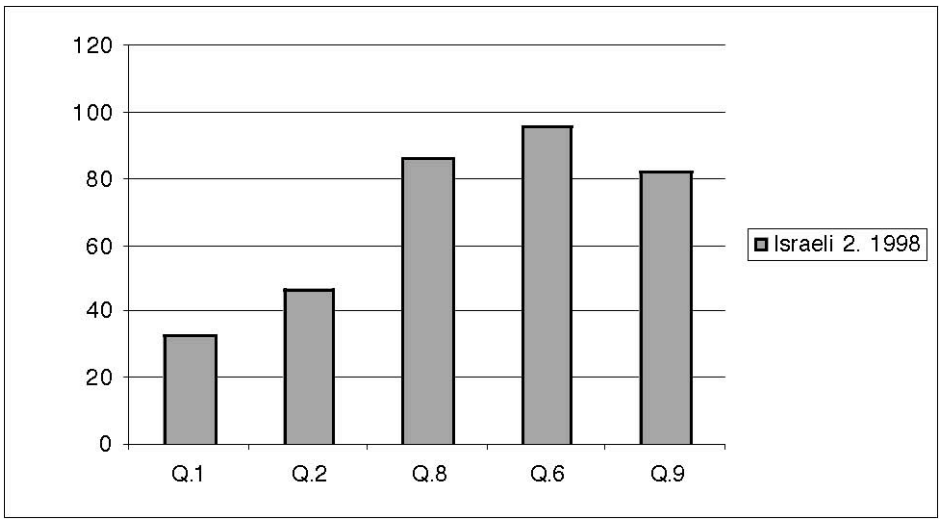

Figure 2: Research-as-Learning questionnaire (a) Part 1

Looking at Part 2 of the questionnaire which asked students to answer: "my research is about or concerned with" and aggregating the scores of *clearly describes* and *describes* again, students felt Question 4 that research was about experimenting = 66.7%. Question 2 exploring = 68.7% and Question 8, being creative = 62.7%. Question 1, 58% also felt that it was concerned with describing and 49% with "right answers". (See Table 2 and Figure 3.)

Here, again, then, there was an interesting relationship between students feeling that research was about exploration and creation, leading to change, and often adopting an accumulation approach which invested in causal links and categorising. There is then, in their work, a sense of exploration without the subjectivity and metaphorical leaps. Students scored very low on Part 1, Question 5 "research is speculative exploration of ideas, intuitions, suspicions..." 29.4% saying it *described* or *clearly described* their research, 51% saying it *did not* or *definitely did not* describe their work.

Table 2: Research-as-Learning questionnaire Part 2

	Does not describe my approach		2		3		4		Clearly describes my approach	
	Count	%	Count	%	Count	%	Count	%	Count	%
1. Describing	5	10.0	6	12	10	20.0	15	30.0	14	28.0
2. Exploring	4	7.8	3	5.9	9	17.6	16	31.4	19	37.3
3. Right Answers	2	3.9	9	17.6	15	29.4	18	35.3	7	13.7
4. Experimenting	8	15.7	3	5.9	6	11.8	16	31.4	18	35.3
5. Prediction	9	17.6	7	13.7	8	15.7	16	31.4	11	21.6
6. Weaving, Interrelating	3	5.9	12	23.5	8	15.7	13	25.5	15	29.4
7. Metaphorical links/leaps	20	39.2	14	27.5	8	15.7	5	9.8	6	11.8
8. Being Creative	7	13.7	8	15.7	4	7.8	10	19.6	22	43.1

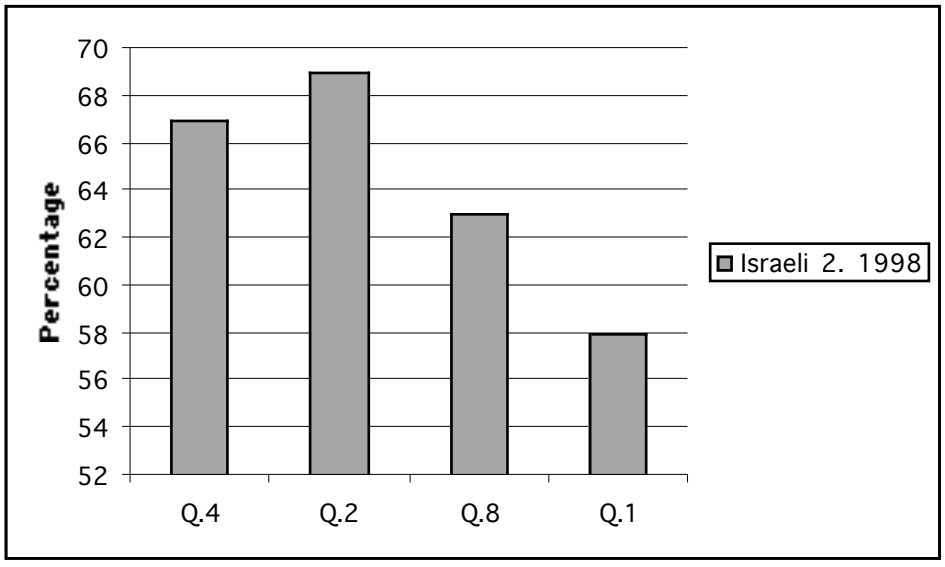

Figure 3: Research-as-learning questionnaire (b) Part 2

I felt that it would be very useful to learn which students in particular were or were not choosing the accumulation conceptions of learning and the transformative conceptions, especially at the ends of the scale, and whether in extreme cases there might be students saying research was about metaphorical leaps and subjective responses, who then took accumulation conceptions and approaches. This information was kept confidential but informed directional comments in supervisory dialogues.

Initial findings: RoLI: Israeli 2 (1998) cohort

In a context in which the achievement of a PhD leads to an increase of one third of salary for (mostly) mid-career professionals, 72.7% *definitely agreed* to Question 93 ("learning allows you to personally advance yourself"), and 72.7% *definitely agreed* with Question 36 ("learning gives you power to advance yourself"), while 75.8% *definitely agreed* with Question 34 ("when I am learning I feel pleased with myself"), 66.7% with Question 6 ("when I am learning I feel it is a rewarding experience") and 57.6% *definitely agree* with Question 63 ("when I am learning I feel that I am experiencing growth"). They are self motivated and extrinsically motivated at the same time—seeking change and advancement and gaining personal satisfaction from this, so that 99% *agreed* or *definitely agreed* with Question 73 ("my learning has developed as a result of choosing my own way"), and the same score but with different proportions on the *agree* and *definitely agree* scales, 99% said "learning enables you to become more powerful" Question 75. The students are power and change motivated.

A motivation to learn which involves the search for self advancement and power (improvement of professional status) which might be at odds with the awareness of the complexity and long term nature of involvement in research (and sacrifices etc) was pointed out by one of the students during focus group discussions, summer 1998.

The response rates to these questions are formed (unless otherwise indicated) by adding together scores of 5 *definitely agree* and 4 *agree*.

These students neither emulate others' examples, nor feel they are fulfilling obligations. Involvement in questionnaire completion, data analysis discussions, and focus group discussions as part of an initial training/ development programme has encouraged students to focus themselves on the gaps between their aims and their methods. This could enable them to take a more reflective approach, likely to be more open to change, more able to accommodate and respond to the ‘surprises’ and ‘creative’ elements of PhD research as well as any clashes in approaches and aims met during research.

Individuals and groups

Further analysis of the results from the RoLI has focused on comparing groups or subsets of scores to identify, in particular, students who take an accumulative approach and yet seek transformation, and students who are particularly motivated by duty.

A small group of students were found to score highly in both categories of accumulation and transformation.

I categorised sub sets of the RoLI questionnaire, including sub sets which have undergone very rigorous testing, identified by Meyer, and others which I have identified myself. The latter group is not rigorously tested and so should not be relied

on for accurate statistical information. However, they do yield some fascinating information which can feed into our understanding of the students' approaches to learning and research and the difficulties they are having in relation to the discrepancy between an accumulation orientation and a transformational orientation.

Looking at the numbers of students who choose accumulation/ fact/ recall conceptions of and approaches to learning **but** aim for a 'self change' as 'world change' transformation, we collected together students who scored high on the distribution as follows either in all these areas (A B C E F I) or several of them (See Figure 4).

Category 1 students

A accumulation
B recall
C understanding based on memory
E factual detail
F increase in knowledge
I knowledge discrete and factual
D duty
(These categories defined by Meyer and Boulton-Lewis (1997))

In our Israeli samples 1998 and 1999, we sought to discover those who scored highly both on accumulative approaches and transformative/change categories (changing the self, feeling uplifted etc., and changing the world rather than a holistic view of knowledge transforming understanding), that is:

X motivation—uplift, seeing differently and changing the self
Z control etc. These questions are about power and control and making things happen (These categories I have defined)
P owning the learning
Q holistic and ordered

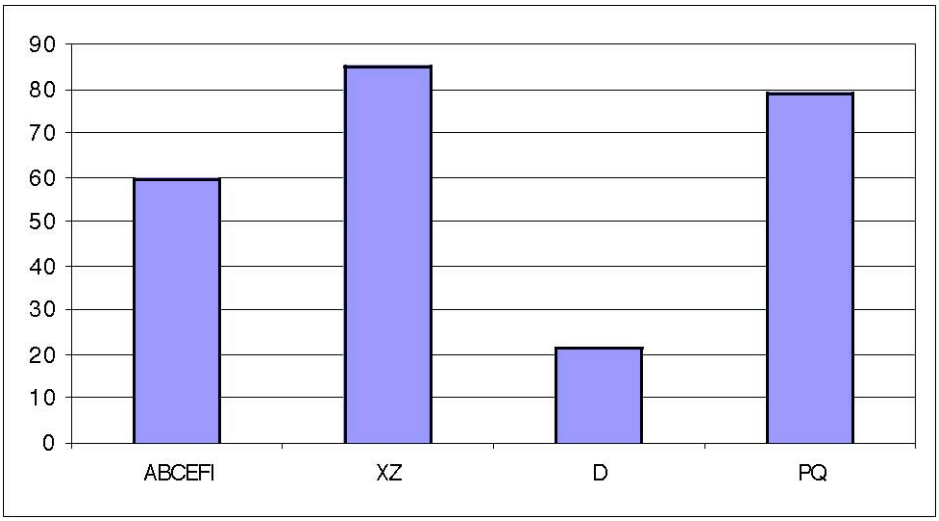

Figure 4: Results of RoLI (Categories by score)

Individual students

Because of the desire to help students move on in their research, it was useful to look at individual students whose scores reflected clashes along the accumulation/ transformation axis.

Six students scored high on a matched combination of ABCEFI and also X and six scored highly on ABCEFI and Z. There was an overlap of three students who appeared in both of these groups. Only one student scored highly on ABCEFI and D, i.e. took an accumulative approach and was inspired by duty.

Those students who score highly on ABCEFI and X could be said to be motivated by personal growth, and depending upon research strategies which lead to increase in knowledge and accumulation of facts. Speculation about this combination could lead in several directions. Since acquiring a PhD does lead in Israel to a salary increase of approximately one third of salary, this might be a very extrinsic motivation recognising the power and satisfaction accruing to salary increase and status increase, and/or it might be a very self motivated response which shows students gaining deep personal growth satisfaction from achieving a successful research project—or a combination of both of these.

Several, (often the same individuals) scored high in the combination ABCEFI and Z, which involved personal empowerment and effective change. Several individuals scoring high in this combination were actually researching issues concerned with, e.g., effecting change in Arab/Israeli relations in terms of education. They are clearly change motivated and (as their proposals testify) ethically engaged, concerned to understand deep seated issues and to try and change behaviours and attitudes to ensure smooth, productive relations. In both 1998 and 1999 groups, most of the students with these potentially dissonant scores were Arab Israelis. Arab Israelis are schooled rather differently from the Jewish students, and overall represent a much smaller proportion of HE students. These politically delicate issues need to be further explored elsewhere.

It was felt to be important for these students themselves to consider whether approaches and methods, leading to accumulation of large amounts of factual data **could** be dissonant with transformational aims, and how to overcome this potential dissonance.

Some of our findings were sadly reinforced when the research degrees committee met, and (unaware of the research, deciding on the coherence and quality of the proposals) was unable to agree the registration of any one of the students in these overlapping categories in the1998 cohort. Each has had to rewrite and re-submit their proposals. Advice and support at the re-submission stage was carried out largely by my colleague, the programme leader, and myself (November 1998), informed by the action research findings. Subsequently all but two have re-submitted and been accepted to proceed with their research. This is very sound proof that spotting such a disjunction early in the development process and working closely with these students to enable them to see and consider how to overcome such a disjunction could well affect their success. At least it alerts future students to problems arising from colleagues taking this particular set of approaches to learning.

Initial findings: focus groups Israeli: 2 (1998)

Focus groups took place on the last full day of the two-week PhD programme Summer 1998, following sessions on research strategies, quantitative and qualitative methods for collecting and analysing data. They intended to gather data about students' learning strategies and to act as part of the taught programme involving students in considering

the use, analysis and interpretation of research vehicles and activities (in this case focus groups and questionnaire data analysis). It also required them to later reflect on their own learning—because the data was about themselves as a group.

Some recognise the prompting aims of the focus group questions:

> there are some questions in the questionnaire about thinking in another way, like growing, philosophising, speculation, gambling, and the research develops through this different thinking...(Student S)

and Student M:

> I think that most of the questions here are dealing with the conception of learning, to widen your borders, to grow in suspicions, changing things, processes, all these are conceptions of learning and thinking.

In group (B) there is more of a tendency to see learning in an accumulative frame so:

> learning for me is... learning is a process of increasing one's knowledge. Learning is to think rationally about something. (Student L)

but also

> learning for me is a process... it's something that (make me) feel pleased with myself, it gives me the power to advance... It's rational... It's something I can connect between what I know before, what I felt, and how I combine it with a new thing... a new experience, a new knowledge, a new feeling. (Student F)

An unexpected response emerged—the difficulty of showing links using qualitative methods. The group felt more secure with quantitative methods:

> If they want to use qualitative methods, how can they make the links? How can we show links? If we are making a quantitative sort of research, we can show the links through statistical methods, but if we are doing qualitative work, how can we show links? This belief must lead to a quantitative sort of research. (Student F)

Involvement in questionnaire completion and data analysis discussions, and focus group discussions as part of an initial training/development programme has encouraged focus on gaps between aims and methods and a more reflective approach open to change and able to accommodate and respond to the 'surprises' and 'creative' elements of PhD research as well as any clashes in approach and aims.

Israeli 3: 1999—results

The third cohort of Israeli students has benefited from the research and from the experiences of their predecessors. They are a smaller group (14), so we have been more able to work with each individual, and the level of their English is significantly higher than the two previous groups. These are results of 'selection decisions' based on working with the earlier groups. This third cohort experienced the same programme, improved by the comments of their predecessors, and also worked on their own data.

Results of RoLI 1999

Initial analysis of the RoLI data for the third cohort, 1999, shows some of the same difficulties and dissonances spotted with the earlier cohorts i.e. a tendency among a (decreased number, given the selection process) of students to take an accumulation over a meaning orientation approach but still seek transformative outcomes.

This chart shows students taking ABCDEFI (accumulative/memory) approaches or PQ (meaning oriented approaches) D indicates motivation and particularly duty, while XY indicates transformative aims.

The research-as-learning questionnaire indicated students more likely to be creative and take risks than their predecessors, but still tending to see their own research as being based on largely accumulative approaches.

1. The main informing idea throughout the programme and in focus groups was to be explicit with this group of students about findings from previous cohorts, their experiences to date, and the findings from data based upon their own responses.
2. Student ownership of problems, methods, and possible method changes were encouraged in an increase of facilitative workshops with small groups over informative didactic input.
3. There was a concentration on development of supervisory/facilitative interview styles which should elicit and steer rather than inform and prescribe. This last area of work is still in the development stage, but some early responses are reported, below.

Dialogues with facilitators and supervisors

As a practitioner, supervisor, facilitator of programmes as well as a researcher, I have been concerned that the hunches based upon experience should lead to action research and that the cycle should be continued, information fed back to students from the action research, and fed back to ourselves as staff involved in the programme and the process. This is with the express intent of developing strategies and practices, refining good practice, innovating, in order to better support and enable the students' research work. In relation to the Israeli students the three-stage programme has been fully developed now, each new stage added on as the first cohort progressed.

While the interactive handouts in sessions feed into individual and group work, much of the in-depth shaping, clarifying and ownership work goes on in the supervisory/facilitative dialogues. It must be remembered that, except in a few cases, the supervisory/facilitative dialogue is not between the student and their supervisor but the programme facilitators who are less tied up in the subject area under study and more concerned with the structures, strategies, processes and clarifications so less likely to get side-tracked into sharing discussions about subjects as intellectual equals in the subject, more likely to have to seek some basic insights into the knowledge base from which the research derives.

Evaluations from cohorts 1, 2, & 3, show students have in the past indicated the importance and benefit from supervisory dialogues:

> There was harmony between the lecturer and the student - they discuss the method perfectly
>
> The individual sessions with tutors were very useful and important for developing my proposal. It demanded from me to think again about the issues which seemed clear at the beginning

They wanted more personalised sessions with the tutors.

To some extent, we felt the need as tutors to avoid being 'mother hens', encouraging dependence through individual tutorials—but in retrospect this was possibly a mistake. Our work in the programme for stage 2 and 3 was influenced by these students' responses so that the ratio of group to individual sessions was altered and significant, carefully structured, individual sessions developed. These encouraged both clarification **and** ownership from the students.

Study of developmental supervisory dialogues reveals that different kinds of interaction are necessary at different stages in a student's project, and at different stages in a single dialogue. Viewed holistically, dialogues often run through a variety of interactions, some informing, some eliciting**.** Our assumptions are that the variety is necessary for the development of the project discussion. It is very important that students are clearly aware of requirements, dates, rules and so on, but it is also essential for their work as largely independent learners that they are fully involved, creative partners, in the inception, clarification, development, progression, reshaping and interpretation of data. One of the initial thoughts we have had about the use of these supervisory dialogues is that for ownership, responsibility and for the project to be the student's own, it is preferable to have a high number of eliciting interactions which gradually shape into the student taking control.

Supervisory questioning themes were divided into eight intervention categories, developing and drawing from John Heron's 'six category intervention analysis' (1975).

didactic	tension relieving/social
prescriptive	eliciting
informative	supporting
confronting	summarising

To these were added student response themes (perceived by us):

seeking external feedback	student pleasing supervisor
information giving	student relating external to internal
Information seeking	student taking control
working out through talk	tentative-provisional thinking
student define ideas	uncertainty (of reaching PhD)
student developing ideas	unclear end result
student judgement re: needs	clear idea of the project as PhD

These categories are still in early stages of development and derive from a mixture of working with John Heron's categories, and listening to the supervisory/facilitative dialogues on tape after being fully involved as one of three staff members, in their development. Our own involvement and the shape of the dialogues has been gradually informed by reflecting and focusing our experiences as a staff team, discussing what does and does not seem to work with which student at which stage. The three staff members also have quite different kinds of style in interactions and the mixture of:

- different staff styles;
- different student styles—what works with one does not work with another;
- different student needs;

- different student proposals
- PhD development, context -which stage students are at and specific needs at each stage;
- the overall shape and flow of the supervision/facilitative interview;

all affect kinds of dialogues and specific effectiveness in enabling students to be well informed, to internalise for themselves directions and links involved in their own work and to take decisions about how to proceed with their research.

The analysis of dialogues reveals both a shape to the overall interview and specific themes. As a result of these initial explorations into the shape and effectiveness of the supervisory dialogues, we feel we can learn about how to handle specific development moments and needs, and how to better enable students to take informed responsibility for the development of their own work. The most useful kinds of dialogues seem to take place in interviews where tutor and student can match their cognitive processes and move forwards, and which leave the student suggesting developments and work which they will undertake for themselves. Dialogues at all three stages of the programme i.e. proposals, progress reports and of the completed or nearly completed PhD concentrate on different elements of the work and will take an overall shape depending on the ways in which students respond, and their specific needs—for information, for clarification, for refining, and so on. In each dialogue, we have studied, at whatever stage, a kind of matching and understanding takes place and a movement is discernible through all or some of the major elements we have perceived i.e. issues and practices of conceptualisation, methods, interpretation, expression and presentation.

A good dialogue is mutually rewarding and leads to productive, directed, useful, owned work.

Analysis of elements of a dialogue[1]

Analysing early dialogues with new PhD students who are shaping their proposals yields quite different kinds of interaction, and the gender of the supervisor and student is also a factor which will need to be explored through further work. One interaction between females produces a great deal of agreement, support and clarification. Interestingly, these interactions have been cross coded by the computer programme which recognised a direct correlation between 'support' as the tutor category and 'tentative provisional thinking' as the student category. This dialogue took place in the first stage of the programme, before the formal proposal and registration of the PhD. There has been one long dialogue establishing the area of research already. The Student is **B** and the supervisor **A.**

A (*supporting and clarifying)* Yes, you have been doing it, so this builds on what you have been doing because it's a very feminist issue. I mean the whole cultural difference and prejudice that might attach to it is a feminist issue when feminists go into investigate difference. But it is also a feminist issue to be thinking about women's bodies and space and the values of it and the curtailments of women's bodies, expression...

[1] Taped, transcribed and thematically analysed using NVivo

B (*supporting and shaping.)* Yes, it's a gender issue. Women cannot perform everywhere. The woman's body is the woman. The body consists the woman and many many things about it and there is the Blacks and the minors and the Hispanics women so you are not only Black or Hispanic you are a minor and then you are a woman and then you are making something different with your body, you're making sport as well. You are a woman and female bodies that make sport like- challenges this border.

A (*supporting*) yes and they have of course gender testing....

B (*student defining ideas)* Yes of course and the testing if you are a woman...

A *(Prescriptive)* when you actually write this proposal in full which isn't until the summer you will need to spend some time exploring and clarifying some of the areas that are currently doubtful for you and explaining feminist methodology and the methods that you will be using and then also the method of deep enquiry and what it will lead to.

B (*student developing ideas/ seeking external feedback)* and should these because like it's like fitting this, it's not male issue and it's not male research.

The interaction is being shaped and can move from overlapping sentences and agreements to a suggestion which the student then analyses in the context of the discussion, in this instance gendered bodies power, space, sport.

Outcomes

Research into postgraduate learning conceptions, approaches and strategies inform our understanding of potential dissonance between outcome and method, and difficulties which could arise in the process and progress of research. These insights feed into ongoing developmental work with students, including both workshop programmes and supervisory/facilitative dialogues aiming to enable students to develop coherent, methodologically sound and appropriate, manageable, research projects and to proceed with these to successful completion and achievement of outcomes, the right PhD level. Cultural inflections in this research have both provided a certain context to and understanding of the students' research processes, and have been drawn upon in the modifications and developments of our own programmes and dialogues. Findings, experience and developments with the Israeli cohorts relate to their cultural context, and engage with the demands of an UK based PhD.

Although culturally inflected—with regards to motivation of duty, a largely positivistic quantitative research based set of prior learning experiences, and transformational aims—the two moments and areas of potential difficulty for postgraduates which this research has highlighted are broadly generic. There are generalisable elements of our findings (in relation to dissonances) and our work (programmes, dialogues) which can also feed into good practice with all postgraduate students and can be usefully shared with postgraduates so that they can themselves take responsibility for and ownership of successful research projects.

Theoretical and Educational Significance

Research studies on undergraduate students have proven that conceptions of approaches to, motivation and perceptions of learning can usefully inform learning and teaching practices. They can feed into strategies and practices which enable students to engage with learning in meaningful ways, more likely to lead to ownership success. In focusing on postgraduate students, this study seeks to identify similar links between

learning conceptions and success or dissonance in the research as learning. In an action research framework, through sharing this understanding and experience with the students themselves, it also seeks to empower and enable students to overcome potential difficulties in the development of their research, to develop the appropriate methods and interpret and their data, and work toward achieving their outcomes, and write this up successfully. The first few students from cohort 1 are currently completing and their evaluative responses will be sought in order to continue to build on and refine our support processes. It is also hoped that insights gained from the research will prove useful to supervisors, facilitators and other postgraduate students.

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CONGRUENT AND INCONGRUENT VIEWS OF POSTGRADUATE SUPERVISION

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Introduction

Postgraduate research is a fundamental part of higher education. It contributes to the research profile of a university, consolidates international research links, provides a training ground for future researchers, and extends the boundaries of knowledge. Whilst there is some valuable practical resource material to support the training of postgraduate supervisors, most of the more formal studies of postgraduate supervision rely on anecdotal and case material (for example, Phillips & Pugh, 1994; Salmon, 1992).

Postgraduate supervision is first and foremost about teaching and the facilitation of learning of research students (Conrad, 1999). Yet there has been even less research from the standpoint of it being fundamentally a pedagogical engagement between the student and the supervisor nor, more particularly, of it being essentially about a dynamic relationship between people. This is manifest in the apparent lack of interest in the diversity of supervisory relationships, and the unique qualities of different supervisory relationships at the expense of a burgeoning interest in quality assurance measures and training for supervisors in the more generic aspects of supervising processes (Conrad, 1999). This paper reports on a small scale pilot project conducted into postgraduate supervision relationships to investigate the congruence or incongruence between student-supervisor pairs' perceptions of their relationship during the early stages of candidature.

The literature on the supervisory relationship has documented, since at least a decade ago, concerns about the quality of supervision (Powles, 1988), with a substantial proportion of students reporting difficulties with their supervision arrangements (Willcoxson, 1994). The success of higher degree candidature is clearly dependent on a range of variables but relies largely on the quality and appropriateness of supervision (Willcoxson, 1994). Other types of variation that are influential include differences in academic cultures (Becher, 1989), the variation in research practices in different discipline areas (Bruce, 1994), and differences in the management of postgraduate supervision across different departments, for example with the selection of the topic (Parry and Hayden, 1994). As well, the variations in perceptions of the role of supervisors can be critical in explaining different outcomes of supervision (Moses, 1992).

But perhaps most importantly, the quality of postgraduate supervision is influenced by, not the variations themselves, but the degree to which the two participants in the supervision relationship have congruent conceptions of supervision within their specific context. Phillips and Pugh (1994) recognised this, highlighting that "where the aims of the different groups involved with the PhD are not congruent, it is not too big a step to realize that certain conflicts are inherent in the system" (Phillips & Pugh, 1994, p.29).

Matching supervisor and student

The concept of matching supervisor and student appears in the literature outlining procedures to improve supervisory practice (for example, the SERC guidelines, cited in Zuber-Skerritt, 1992) but often without details on how this might occur and what qualities or characteristics need to be matched. Recently one university in New South Wales has published a booklet to assist students prior to their enrolment to match their own research interests with the expertise of available supervisors (Osmond, 1999). Whilst useful at a practical level, this does little to determine whether the supervisor and student would have congruent views of supervision. In an effort to pin down the notion of what makes a good match, other studies have looked at matching the cognitive styles of both supervisors and students (Armstrong, 1997) and the influence of supervisor dependency factors (Kam, 1997).

The research discussed in this paper invited participants to describe their perceptions of supervision, through both interview and surveys, in order to establish whether supervisor and student perceptions of the supervision relationship could be compared and whether the degree of congruence between them might be related to the strength and success of the relationship.

Probing the human relationship of postgraduate supervision

In endeavouring to build up a picture of the experiences of those involved in postgraduate research supervision, this study used a combination of methods to gather data, primarily based on phenomenographic methodology. Phenomenography originally grew out of research into students' experience of learning (Marton & Saljo, 1984) but has emerged and been widely used as a research tool in studying learning and teaching in higher education. Much of the research carried out under the banner of phenomenography in the 1980's examined ways in which students learn particular concepts (Marton & Pang, 1999) rather than examining the pedagogical relationship between student and lecturer. While more recent research studies investigating teaching and learning from the perspective of participants' conceptions have provided useful frameworks and methods for exploring congruence (Trigwell & Prosser, 1996; Prosser & Trigwell, 1997), there is little evidence of this type of research in postgraduate supervision.

In this study, because phenomenography is based on the concept that people relate to the world in qualitatively different ways, it is an appropriate methodology to develop an understanding about what is substantially a human relationship. The methodology is perhaps more appropriately called hermeneutic phenomenography which acknowledges that "meaning must necessarily always be based on interpretation, provided the interpreter and object of interpretation are considered part of the same hermeneutic circle of understanding" (Hasselgren & Beach, 1997, p.198). The first author and primary researcher for this study works alongside both the postgraduate research students and their supervisors, and therefore has a deep understanding of the process of supervision and is part of their 'circle of understanding'.

Project method

Postgraduate supervisors and their research students were invited to participate as a dyad, as this research relied on the pairing of a supervisor with his/her student. Seven dyads were selected, providing a total of 14 participants. The participants came from the areas of environmental studies, agriculture, finance, and social science. The participant group was gender-balanced, and there was one international student from a non-English speaking background and two supervisors from non-English speaking backgrounds.

In order to probe participants' conceptions of supervision, in-depth interviews were conducted at two distinct stages during the first 6 months of candidature and two questionnaires were administered during the first interview. The first questionnaire provides a five-point scale to rate the importance of the functions of supervisors (Moses, 1992). The second questionnaire, the Role Perception Rating Scale (CELTS, 1994, adapted from Moses, 1992), provides contrasting statements about people's roles with a five-point scale to measure degree of agreement. These questionnaires aim to clarify conceptions related to the actual process of supervision.

All interviews were taped and transcribed into note form by the chief researcher. After analysis of the comments in the interviews, a procedure was developed by the chief researcher to categorise the views of the participants, based on a model distinguishing between different perceptions. Both the chief researcher and a research assistant separately and independently analysed the interviews in terms of this model. This process confirmed the reliability of the categories of description. Any discrepancies, which were only slight, were discussed together and resolved.

Categorising the interview data

In attempting to categorise the responses, reference was made to relevant literature, but although a range of terms appear in the literature on postgraduate supervision, it was clear that previous attempts to classify the roles of a supervisor did not match the roles as described in this research project. For example, Brown and Atkin (1988) listed fourteen possible roles for a supervisor over the course of supervision. These roles are perhaps now a little dated and include, for example, the possible role of 'guru'. During this research project, when asked to describe their perceptions of the role of supervisor, both supervisors and students used a wide variety of terms, such as mentor, director, intellectual catalyst, partner and sounding board, indicating variation even amongst this small group.

Recently, writers have attempted to define the role of supervisor in the currently popular management model and described the variety of roles as more akin to the diversity of roles a work manager plays (Vilkinas, 1998). However, the manager model does not do justice to the high level of intellectual commitment to the student and the topic that is evidenced in most supervisory relationships. The role of supervisor needs a level of personal engagement that is not usually required by a manager who co-ordinates and supervises from above. In manager models, the implication is that the manager can organise and construct the environment totally. What is also missing from this model is the complementary role the student plays. In many cases a postgraduate research student today is a mature professional person with a rich and diverse working background. Moreover, the aim of the postgraduate research experience is to progressively develop new knowledge in previously unchartered waters, and for the student to attain a level of expertise that is probably superior to the supervisor's in the specific topic area.

Much of the literature on postgraduate supervision also tends to describe the movement through the list of roles as a linear movement, indicating that at first the supervisor plays one role and then moves onto a different role until finally the relationship is more like a partnership (CELTS, 1994). However this description still does not seem to capture the complexity of the relationship, although there is no shortage of statements referring to the unique and complex relationship that develops between supervisor and student.

During the first round of interviews for this research, one of the supervisors pointed out that there are really three aspects to supervision: the intellectual relationship, the technical and operational aspects, and the personal relationship. After transcribing and analysing the responses from all the interviews, it emerged that this coincided with descriptions in the interviews. It was therefore adopted as a sufficiently meaningful structure for capturing the participants' views of this complex relationship. All relationships needed to be described according to these three aspects, but each relationship may be perceived differently on each aspect.

The different perceptions of the participants about the intellectual, operational and interpersonal aspects of the relationship were then analysed in order to establish the qualitatively different perspectives that each participant described. This analysis yielded three dominant perspectives for each aspect. It needs to be explicitly stated that, although each relationship was described in terms of more than one perspective, it was the dominant perspective implied or stated in the interview which determined the categorisation. It is also important to note that the sample for this research project was small, and so the categories may not hold for a larger sample. The process of data analysis thus yielded a model with the supervision relationship generally being described in terms of its three aspects, and each relationship being specifically depicted in terms of each participant's dominant perspective on these three aspects. This model is shown as Table 1.

Table 1: Model for describing postgraduate supervision relationships

	Intellectual aspects	**Operational aspects**	**Interpersonal aspects**
Dominant perspectives	facilitator	structured	mentor
	director	semi-structured	partner
	catalyst	unstructured	friend

The qualitatively different perspectives which participants described are outlined in the figures which follow.

Intellectual aspect of the relationship

Whilst all participants acknowledged the primary importance of this aspect of the supervisor/student relationship, they described it in different ways. Some words appeared regularly in the interview responses, regardless of the dominant perspective to this aspect—words such as 'guide, motivate, encourage, advise, explore'. However, despite some commonalities, it was clear from the interviews that there were distinctly

differently perspectives to the intellectual aspect of the relationship (See Table 2). These differences were not discipline-based.

Table 2: The intellectual aspect of supervision

Intellectual aspect	Explanation	Example comments from interviews
facilitator	The supervisor was described as not dictatorial, but providing support, advice and checking to see that the student was progressing well.	"If he gets stuck, I'll help him" (supervisor) and "my supervisor can guide me, but it is still my choice whether I decide to take his advice" (student).
director	The emphasis in this relationship is on direction with participation, and with close contact in the early stages. In one instance, the supervisor set very clear boundaries and required his students to work within those boundaries.	The role of the supervisor is to "see that they don't wander too far away" (supervisor).
catalyst	The emphasis in this role is on the relationship supporting the energy and motivation for the research, with a lesser focus in the early months on processes and rules. This role is based on developing a mutual rapport to enable free and open discussions.	Some students and their supervisors mentioned that 'passion' for the topic was paramount in their relationship. "You can't learn from a formula…need to adapt to students…have to have courage to innovate" (supervisor)

Operational aspect of the relationship

Most supervisors and students had clear procedures about contact (See Table 3), although these had not always been discussed explicitly between supervisor and student. Rather, it appeared they were describing a matching of work dynamic.

Table 3: The operational aspect of supervision

Operational aspect	Explanation	Example comments from interviews
structured	met regularly, which meant weekly or fortnightly, at set times	"we have regular weekly meetings…regular contact avoids misunderstanding" (student)
semi-structured	met on a fairly regular basis, but not prescribed times	"we meet regularly, if possible, but have long sessions at other times when needed…we opportunistically grab times" (student)
unstructured	had flexible arrangements for meeting and did not prescribe set times	"sessions are informal – no clear agenda – just evolving – we've never discussed operational parameters....my supervisor makes himself available when I need to talk" (student)

All students made use of email, fax and phone to keep in contact with their supervisors. All except one relationship had fairly established methods for keeping in contact and an understanding of what was expected for those meetings. In some cases there was a clear expectation from the supervisor that the student would either bring some written work or a verbal report on progress to the regular meeting. There was very close congruence between all dyads for this section, although there were variations between pairs. Sometimes this was a result of distance from the campus, or work commitments, but more often it was a direct result of the way the supervisor and student preferred to work. Although one student lived in Canberra, he made regular fortnightly visits to the campus to participate in postgraduate seminars and discussions with his supervisor, whereas another student who lived only 15 minutes from campus had very flexible and vague arrangements about contact. One student who worked in close vicinity to his supervisor and another member of the supervisory panel explained how he positioned himself in the tea room at morning tea time in order to catch one or the other to ask a question. One dyad had no set structure or explicit arrangement: the impetus was on the student to make contact when necessary and both were satisfied with that arrangement.

All supervisors indicated that if they had had no contact with their student for more than about three or four weeks, particularly in these early stages of candidature, they would follow up with the student to see if there was a problem. However all supervisors felt it was the responsibility of the students to make sure they kept in contact and this was echoed by the students. No-one complained about lack of access to their supervisors.

Interpersonal aspect of the relationship

This aspect of the relationship was clearly described by all participants (See Table 4), often in similar terms between supervisor and student.

Table 4: The interpersonal aspect of supervision

Interpersonal aspect	Explanation	Supporting comments from interviews
mentor	This perspective focussed on the professional aspects of the relationship and the desire to have some distance between each other. However there was a sense that the personal relationship needed to be comfortable and positive.	Supervisors were described as available, comfortable and supportive. "Our styles are compatible and communication is very easy" (student).
partner	This relationship was described as one in which both parties bring equal and special qualities to the research focus and the supervisor expects that the students will develop past the supervisor by halfway through the process.	" I don't think anyone coming into a PhD should be seen as lesser in intellectual capacity than the supervisor" (supervisor) "For me the relationship is about collaboration – we both bring different skills together on a shared problem" (student).
friend	One supervisor placed the relationship within the context of 'academic family' and likened it to supporting a foster child and sending him/her out into the world.	"You trust your supervisor to give you the right guidance and friends don't let you down" (student).

Several of the students and supervisors had known each other during previous coursework programs, which obviously helped them to establish their interpersonal relationships. However there was no consistency between these dyads in their description of this aspect of the relationship, and they in fact appear in all three categories.

Results

Stage 1 of research: results of interviews

The following figure depicts the results of the interview data analysis, showing the dominant perspective described by each participant about their relationship. The seven supervisors' perceptions are noted as 1A to 7A; the seven student's perceptions are noted as 1B to 7B. Where the supervisor-student dyad described the same dominant perspective, these are clustered on the figure, for example, as 4A-4B.

Table 5: Analysis of perceptions of supervision relationship

Intellectual aspect	Operational aspect	Interpersonal aspect
Facilitator 4A/4B 7A/7B	Structured 2A/2B 6A/6B 7A/7B	Mentor 2A/2B 4A/4B 5A/5B 7A/7B
Director 2A/2B	Semi-structured 1A 3A/3B 5A/5B	Partner 1A 3A/3B
Catalyst 1A/1B 3A/3B 5A/5B 6A/6B	Unstructured 1B 4A/4B	Friend 1B 6A/6B

This figure indicates that for 6 of the 7 dyads there is a high degree of congruence. The most disparate perceptions were expressed by Dyad 1A/1B, each describing the intellectual aspect of their relationship in the same terms, but expressing differences in emphasis in both the operational aspects and the interpersonal aspects of their relationship. The supervisor saw the relationship as a semi-structured partnership, whereas the student viewed it as a very unstructured relationship based on friendship. No two dyads showed exactly the same perspectives on all aspects of the relationship, which reflects the unique nature of each relationship. All participants expressed satisfaction with the supervisor/student relationship after the first round of interviews.

Stage 1 of research: results of the questionnaires

The two scales used in this research were developed by Moses (1992) and because of their wide currency have not been included in this paper. The wording on two questions (5 & 8) in the 'Functions of Supervisors' was changed slightly from the versions which appear in the CELTS (1994) publication. The two rating scales were used to tease out positions taken by both supervisor and student on issues that relate to supervision, and either to support or to refute the data from the interviews.

Participants were asked to fill in the questionnaire in the initial part of the interview, in order to allow for free and open discussion about their perceptions of the relationship.

Functions of supervisors

This questionnaire lists 17 functions of supervisors and requires participants to rate across 5 points the importance of each function. Despite the overall congruence from the interviews of most of the dyads, variations in interpretation of the supervisory relationship showed up more clearly in the questionnaires, and revolved around the nature of control in the relationship. For instance, the early part of the questionnaire on functions of supervisors relates to the decisions made about the choice and scope of research topic, the choice of theoretical framework for the research and the research

plan. 4 out of 7 supervisors believed it to be essential that the supervisor assist with the selection of the topic, whereas only 1 student considered it essential, 3 as important, 2 as not very important and 1 as not important at all. This disparity of views was repeated for the first four questions which all deal with the setting up and framing of the research topic. The other section that resulted in a similar disparity of views was the final question which related to assisting the student in general welfare matters. Generally the students rated this as not very important, whereas the supervisors gave it a higher importance level.

It is also interesting to note that question 8 showed quite a disparate view between supervisors and students. This question related to whether a supervisor should continue to supervise a student whose work was considered to be unsatisfactory. During the interviews several participants complained about that question and felt that it was too difficult an issue to assign a rating.

Role perception rating scale

This rating scale provides 11 pairs of diametrically opposed statements, allowing participants to choose a position between 1 and 5 on a continuum. The three sections relate to Topic/Course of study, Contact/Involvement and The Thesis. Responses which inform the data gathered from the interviews, have been mentioned here.

Question 3 provided supporting information for the interview data as it referred to whether the supervisor should 'direct the student in the development of…research and study' or whether the supervisor's role was to 'act mainly as a sounding board for the student's ideas and advice'. On the rating scale, supervisor 2A had indicated a preference for a more directive approach to the development of the research which was consistent with his response in the interview. His student also gave a similar response, whereas both supervisor and students from Dyad 4A/4B chose a strong preference for using the supervisor as a 'sounding board'. This was also supported in the interview.

Question 4 referred to the interpersonal perspective of the relationship. All participants chose rankings that indicated that personal relationships are an important aspect of a successful relationship and no-one chose rankings indicating that the relationship can be purely professional. However, the individual scores also supported the range of views expressed in the interviews about how close the personal relationship needed to be for successful supervision.

Question 9 related to how much responsibility the supervisor should have for the standard of the thesis. All dyads, except for 7A/7B, showed the supervisor indicating a direct responsibility, whereas students indicated a more advisory role for the supervisor. This is similar to the result from the *Functions of Supervisors* questionnaire, which also showed that students consider they should have more control over aspects of their research. This preference appeared also in the interviews, across the board and can not be ascribed to one particular perspective of supervision.

In conclusion, the results from both questionnaires added support and confirmed the views expressed in the interviews.

Stage 2 of the research: second round of interviews

The intention of the second round of interviews was to gauge the development of the relationship and to identify if there had been increased congruence or divergence in perceptions of the relationship. The same test-retest reliability processes employed during the first interview stage were used during the second round of interviews. The interview for Stage 2 again focused on perceptions of the relationship but also asked participants to describe any perceived changes in the relationship since the first round of interviews and to provide examples of perceived changes. It was considered unnecessary to ask participants to fill in the questionnaire again, so this second stage consisted of an interview only to monitor changes in the relationships. Of the 7 dyads, 5 indicated that the relationship was progressing well.

Of these 5, two in particular indicated a stronger convergence than had been indicated in the first round. The supervisor from Dyad 4A/4B indicated this convergence in his comments: "She's experienced and motivated—I'm not offering a lot because she's doing a lot by herself. I would like to be more involved but it wouldn't work... Making our meetings more informal, for example, over lunch, has improved the relationship. The relationship is moving closer together." This was echoed by the student who said, "I feel he's more on my side now. It's certainly not colleague level but it's moving that way."

Dyad 7A/7B had the only international student. His supervisor indicated in the second interview that he was pleased with the student's progress and it appeared he was deliberately encouraging the student to develop a more independent attitude to his research. The supervisor said, " I want to give him full control over what he wants to do. I'm not being too directive because he needs to be more independent." In the second interview, the student showed a remarkable difference in attitude to the way he viewed learning and research and he indicated that he now thought about things differently: "There is a big difference between what I said before and my thinking now….there are big changes in how I view supervision." The mentoring role adopted by his supervisor had resulted in the student developing a deeper understanding of the nature of postgraduate research within the Australian context.

The student in Dyad 6 was unavailable to participate in the second round of interviews but his supervisor indicated he was happy with the development of the relationship and the student's work.

The supervisor in Dyad 2 spoke in the second interview of the student's progress with her work, and referred to some recent illness she had suffered but said nothing to indicate any change in the relationship. However, the student gave a completely different version of events in the second interview. The problem that emerged was not directly related to the research being undertaken but concerned negotiations within the faculty for the student to take on a tutoring role. The student was keen to do this but felt the supervisor had not been supportive in the negotiations. In the first interview the student had said, " My supervisor's easy to talk to -he'll listen to you and if he can do something he will." By the second interview, that sense of an open and easy relationship had been lost and the student felt unsupported by her supervisor. It is interesting to note that, during the interviews, several of the students talked about "trusting" their supervisors. In this particular case, it was the loss of trust in the supervisor that caused the student great distress. This dyad had indicated a strong

congruence in their understanding of the relationship in the first interview and there had been no earlier indication of dissatisfaction.

Discussion: congruence or incongruence

Of the 7 dyads, 5 dyads showed congruence in the development of the supervisory relationship. Two of these in particular indicated a closer relationship by the time of the second interview than for the first interview. Of the two that may have shown divergence, one remains unclear because the student did not complete the second interview although the first round indicated there may have been emerging problems. The other dyad definitely showed signs of divergence in the relationship by the time of the second interview. However, for this dyad, there was a greater chance of the problem being sorted out in time as the matter was not directly related to the research topic but a peripheral problem.

Overall, it appeared that, despite the diversity of relationships, the congruence was a major factor in the success and progress of the relationship. Rifts that occurred later in the relationship were not able to be detected earlier, but had serious effects on the relationship. Of those that were successful and became even more congruent over the short time between interviews, it seems that a sensitivity to the student's needs was the most important factor. Of these two relationships, there was actually a marked diversity in the way these two relationships operated, so that no conclusions can be drawn about a single method of 'good practice'.

Because supervisors were approached first and asked to nominate a new student who may be willing to participate in this research, it could be argued that supervisors naturally selected students whom they felt would provide a positive spin on experiences and perceptions. However, in several cases, the students had not known the supervisor prior to their study and all students were in their initial months of candidature, so the particular relationship being examined in this research was new.

Because of the small number of participants in this small-scale research project, the results must be treated with caution, and certainly with acknowledgement that their generalisability is limited. However, the results indicate that further research on a larger scale may help develop this categorical schema for identifying perceptions of the supervisory relationship.

Conclusion

As these preliminary results seem to indicate, not only is supervision a complex and unique relationship, but there are many varieties of good supervision. If we want to measure postgraduate research student success in terms of completion rates and student satisfaction, then we should acknowledge the influence of good supervisory relationships on these outcomes. As has been cautioned, not all successful supervisory relationships will necessarily conform to the descriptions proposed in this small study, and would need to be tested with a larger participant pool. What is clear, however, is that in our efforts to define good quality supervision, we must be careful not to be too prescriptive about supervising processes and procedures. What needs to be improved are the processes for matching supervisor and student, with mechanisms such as checking points, put in place for changes to be made in a timely fashion within the first 12 months of candidature. By opening such a process to regular scrutiny and intervention in the first 12 months, then both supervisors and students would, within a

framework of good practice, be able to respond to each other's expectations, and develop shared meanings of supervision in order to forge more congruent and fruitful relationships.

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MORE THAN AN APPRENTICE MODEL: LEGITIMATE PERIPHERALPARTICIPATION (LPP) AND THE RESEARCH CONFERENCE FOR POSTGRADUATE STUDENTS

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The Context of the Conference

The Deakin University Postgraduate Association (DUPA) receives a funding subsidy from the Deakin University Research Office to deliver the annual research conference. One of the reasons that this funding is made available is that the Research Office believes this conference can give postgraduates an enriched research experience. One of the issues for DUPA, and the focus of this paper, is that of the format of this conference to provide the most appropriate support for postgraduate students.

Much of postgraduate work has been based on assumptions by supervisors that research students have come into research programs well versed in the conventions and protocols of what it means to be a research student (Zeegers, 2000b, p. 231). Yet a university-wide survey of postgraduate research students' perceptions of faculty support for their work suggested a number of areas in which the university was lacking. One of these was that of proper induction into the roles, requirements and rights of postgraduate students (Research Office, 1999).

We were concerned about the lack of systematic approaches to facilitate these students' operations on the multiplicity of levels required for their success as research students. The research of Barron and Hinton (1999) confirmed that a significant number of students was drawn to the notion of self-improvement and a commitment to educational principles with a desire to interact with other academics in different areas of interest. Being thus drawn was no guarantee, however, that such interaction would ultimately lead to satisfactory completion of postgraduate studies. Particularities of thesis production and dissemination would need to be learned and mastered first.

The annual postgraduate conference emerged as a mechanism by which we could engage much of what was problematic as far as our students were concerned. The conference would allow us to tackle these problems, initially as part of an induction into the research community and ultimately as part of making the transition from acolyte to master. We took the view that such a transition involved more than the sort of thing intended in his discussion paper by the Minister for Education, Training and

Youth Affairs (Kemp, 1999a) in his reference to government support for 'research and research training':

> Australia's capacity to generate new knowledge in fundamental to the strength and health of our society. It must underpin our economic growth and our capacity to effectively [sic] solve social problems (p. v).

Such a narrow view of postgraduate activities indicates a sort of *homo economicus* type of thinking identified by Pusey (1991, p. 1). The subsequent policy paper (Kemp, 1999b) took a similar line in its view that research 'as a key source of knowledge and new ideas is central to success in the global knowledge economy' (p. 1). The Council of Australian Postgraduate Associations' response has pointed up the implications of such limitations:

> …the core problem with the White Paper is the insistence on seeing research education as 'research training'. The poverty of this concept in grappling with the issues reduces the Government's policy to mere concern for student throughput. 'Training' does not capture the complexity of nurturing knowledges and practices that underpin and enable innovation. (Smith, 2000)

We also took it as meaning more than the sort of thing implied by our university itself in its guide to students (Deakin University, 1999a): "One of the most important functions of a university is to provide training in research", seen as "a unique responsibility" of universities (p. 1), and repeated in its various advice to potential examiners of types and levels of theses (Deakin University, 1999a; 1999b). The University advised that research degrees were "awarded on satisfactory completion of supervised, but independent research, which is described in a thesis" (p. 79). We saw that the number and range of things to be mastered by research students, from honours upwards, may indeed have culminated in a thesis upon which an award may have been based. We also saw that this sort of undertaking encompassed a number of ancillary skills and activities that, largely unacknowledged in the public statements surrounding research activities, nevertheless abound in the silences of taken-for-grantedness surrounding the discussion. A large aspect of the problem has been that postgraduate students have not been privy to what their supervisors and funding bodies knew existed in the silences. What we were trying to avoid was the trap of taken-for-grantedness that assumed a certain enculturation of the postgraduate student that did not necessarily exist. Neither did we want to assume that those more advanced in their projects had already been well and truly inducted, even if only through an osmosis process.

Our concern was not about academic results but about the ways in which postgraduate students could decode the university research student system. Ranson and Stewart (1994) point to learning as being a revelation of the connection between things which had previously been unrecognised, or opaque.

> Discovery is most likely to occur through experience, when people immerse themselves in the practice of activities so that their meaning becomes transparent. Once the working of a particular system has been revealed, it then becomes amenable to change, and it is the experience of change that provides the catalyst to learning (p. 168).

Examination of what is perhaps one of the most basic assumptions as to research student performance provides an insight. Computer literacy is a taken-for-granted aspect of the research student, where the ability to establish the physical parameters of the published form of the text generated in thesis writing is assumed, and with this the ability to use tabs, page set ups, styles, and so on. And computer literacy is not just word processing either. The successful research student needs to be able to manipulate the software associated with databases, such as EndNote; with statistical and qualitative analyses such as SPSS and NUD*IST; with data presentation, such as PowerPoint; with Web searches, such as Netscape, and so on. None of this is stated in, for example, the advice to examiners of a particular Doctoral program (Deakin University, 1999b):

> The thesis will be in the form of a folio of research work which has significant implications for educational practice. Candidates are required to present, develop and argue a position which they support by empirical study and locate in a clearly expressed understanding of the relevant research literature and an account of the relevant issues in educational policy and professional practice. (p. 83)

Such a brief statement would encapsulate a whole research culture going beyond the parameters of such a folio, and in the case of other research work, beyond the parameters of a thesis. Taken together with the implications of 'research training', it would also include cultural expectations of presentation of research papers, publication of these, and alternative forms of research presentations as well as the production of the folio or thesis.

Not all of this would be apparent to the postgraduate student, however, especially in the case of the newcomers' experience. Experienced supervisors being matched with inexperienced newcomers could exacerbate the situation of gaps developing between what the supervisor would already know, and what the postgraduate student would not. Failing to acknowledge such gaps first of all would mean that the stage would be set for any number of misunderstandings and second of all that nothing would be done to alleviate the situation.

Legitimate Peripheral Practice (LPP)

Once we had taken all of the above into account, we had moved beyond the initial conference planning stages. We had the somewhat ubiquitous model of the master-apprentice (Frankland, 1999) before us, but we felt that this was a model that would limit us somewhat in that we felt that the subjective position of the apprentice did not encapsulate the research progress that a research student makes. An apprenticeship

model would not necessarily present as a seamless master-acolyte relationship, and the issues of conferring legitimacy on the apprentice through the completion of training would present as perhaps more important than issues of what may be taught or learned. The model, moreover, has had a long history of exploitation of what has been described as 'a traditional form of control over the most valuable, least powerful workers' (Lave & Wenger, 1994, p. 64). It has also had serious implications for the status of the apprentice, most recently coming to the foreground in a number of court cases (Hemming, 2000, p. 6).

What we were looking for was a model that could be used to help us build a conceptual bridge to take the conference to a more productive level of engagement in the research culture by postgraduates. We did not see students as observers and imitators of experts and more successful postgraduate students brought in to instruct and inform. After all, Australia's postgraduate research students perform approximately 60% of the research done in universities (Smith, 2000), implying somewhat more than apprentice status. We had the mentoring model as well, with the concept of 'significant assistance' provided to the students "in a warm and nurturing environment' by 'a skilled and experienced mentor" (Long, 1996, p. 1). This model, though, for all of its benefits even over optimum long-term conditions, has produced its own shortcomings, not least of which is the sort of 'contrived collegiality' (Long, 1996, p. 8) that would have had to have been established in the necessarily short term over a long weekend.

What we turned to was Lave and Wenger's (1994) theory of Legitimate Peripheral Participation (LPP). Lave and Wenger made it quite clear that they were not concerned with any sort of distillation of the apprenticeship models, but with a decentred view of such a model. In such circumstances mastery within a given field would lie not with the master but within the community of which the master formed a part. Thus, a specialist field would contain a number of specialists and specialisms, and at a number of levels. There would be the journeymen, the senior apprentices, the particularly adept newcomers, as well as the masters themselves who would be on their own way to even more refined skill and art. Thus, LPP is concerned with the whole of the community that would develop in a given field where learning would be seen as access to practice, not just access to information or knowledge. The limitation of observation and mimicry is perhaps best seen in this context, as compared with concepts of communities of practice providing participation on a number of levels in the process of gaining full membership of such communities.

When we established the protocols for this conference we took deliberate steps beyond those normally associated with apprenticeships, mentoring and/or shadowing within a community of academic endeavour. One of us had already developed and trialled an LPP program with a group of undergraduates from across the five faculties, with a fair measure of success (Zeegers et al. 1999). We already had a community of practice. It

consisted of the student group drawn from five university faculties, ourselves as conference organisers, and a number of postgraduate student supervisors anxious to support the idea of this conference. We decided to build upon this, being quite specific about how to set about what it was that we wanted to achieve in the best interests of the membership of that community. More was needed than what we already had in the form of highly motivated students intensely involved in their own research processes and an excellent teaching program provided by the Faculties. We decided that that would be a mechanism for increasing the participation of postgraduates in expert performance and designed the program accordingly.

Lave and Wenger (1994) have taken the view of a community of practice as 'an intrinsic condition for the existence of knowledge' as it provided the very essence of what was necessary for members of that community to make sense not only of its existence but of the reasons for and the heritage associated with it. In that sense, "participation in the cultural practice in which any knowledge exists is an epistemological principle of learning" (p. 98). We had nothing in the way of systematically implemented academic research development on a University-wide basis. What was needed was a way to establish each student's participation in a successful university program on a multiplicity of levels, an "activity system about which the participants share understandings about what they're doing and what that means for their lives and for their communities" (p. 98). It was not enough for them to work on the basis of their supervisors' assumptions and applications, for even with the apprenticeship system, the learning that is done via other apprentices is not to be treated as an insignificant feature.

LPP learners are habituated to the practices of a group of skilled practitioners, and newcomers to this group move and are moved forward into their own full and legitimate participation over a period of time. This is done by means of a process that moves them through a series of activities based on knowledge imparted by those with expertise at various levels in the chosen field from the periphery through to centre stage activities with full and formal acknowledgment of skills and knowledge developed in the process. Lave and Wenger (1994) view the traditional apprenticeship systems of various cultures as manifesting the transformative possibilities of the newcomer to the master in a given field, but stress the importance of the development of the whole person rather than the transference of a body of knowledge from one person to another or others. They present the concept of peripherality as positive and dynamic (p. 37) in its being suggestive of access to sources of knowledge and understanding through growing involvement. We used this concept to inform our activities, allowing us therefore to concentrate on the more positive aspects of peripherality as opposed to negative aspects associated with marginalisation.

Method and Madness Theme

In deciding upon the theme(s), venues and activities of the conference, we looked at perhaps one of the most famous of all university students, Hamlet, and took the notion of method in his madness (*Hamlet*, Act ii, *Sc. 2*: "Though this be madness, yet there is method in it"—Polonius). Our research (Prince and Barron, 1999) had told us that students had real problems not with the substantive aspects of their research, but with such things as the systematic organisation of the project. We had, in effect, started at one end with the problem of method and methodology and proceeded to close the loop from that point. We did not engage with the content associated with any particular or identifiable subject discipline. Rather, we attempted to construct a means whereby participants would encounter the best practices involved with being a learner at whatever the level of research scholarship involved. It was much more to do with certain attitudes, behaviours and conditions of the research than it was about the knowledge to be acquired. We had the unequivocal support of our University Research Office, who provided major funding for the Conference, and a subsequent application to our student body umbrella organisation provided some extra funding to enable us to include honours students. This last was a group that we felt was in a no-man's-land situation as to support for their research activities. Thus, we began to close the loop by establishing research method and methodology for all levels above that of undergraduate.

Our focus was based on the issue of conferring the legitimacy of professional practice upon their research activities, which, as Lave and Wenger (1994, p. 92) argue, "is more important than the issue of providing teaching". The focus was not really about teaching after all; it was about providing the context in which learning could occur and in which the learner would be absorbed into at the same time as absorbing that context. We wanted to foreground aspects of postgraduate activity that had been taken for granted, that of the research culture that was so obvious to anybody in the know as far as this aspect of postgraduate life was concerned, but which was not necessarily so transparent as far as initiates to the system were concerned. We decided that we would concentrate our main efforts on easing postgraduate students via a staged process into their situations as postgraduate scholars within a community of university scholars. We designed a structure based on a model of multi-levelled research activity with a professorial/doctoral level at the top of a pyramid-shaped structure, the base of which was formed by the more numerous postgraduate non-presenter level. The following diagram is illustrative of this:

Figure 1: Model of LPP Characters

Working the Model

Professorial

"Scholars should be offered a choice of content that presents essential skills…and also ideas" (Prince and Barron, 1999, p. 6). Thus, we constructed a schedule to reflect the generic and educational stages of student development. On the first day, we based all activities on experienced practitioners in the field, but we also included professional practitioners in research-associated fields of Library, in the use of computer programs, and in the use of the conference room equipment. The professorial level was used to establish the tenor of the proceedings. The University's own professorial class (in which we included PhD Lecturers and tutors and Senior Lecturers) acted in the roles of scholars presenting papers on research methodology appropriate to the disciplines in which they were involved. The librarians who specialised in liaising with specific faculties made themselves available to give postgraduate students individual or group advice in making the best use of the library as a resource. At the same time, experts in a number of fields in computer software programs and technicians skilled in the use of technologically advanced equipment of the conference room gave hands-on sessions in those areas. The people that formed the elite group at the apex of the pyramid thus established an endpoint and a means of getting there in their presentations to the larger groupings of postgraduate students at various levels that followed them. The postgraduate students worked a mixed program of observation and hands-on practice in this way, with each session designed to give them the best advice on how to proceed with their research. On the one hand subjects in an audience, they were on the other objects of discussion and practice. This is illustrated in the following extract of schedule, the first day of the Conference program.

Keynote: The Brave New World of the Millennium Postgraduate: From Internet Possibilities to Real Life Jobs Dr AAA		
Arts Research: Qualitative Approaches Dr. BBB	Using PowerPoint to present your research	**Library Liaison** Concurrently: Science, Health & Behavioural Sciences, Arts, Education, Business & Law
	Fundamentally FirstClass	
Management research: current practice and future prospects Dr. EEE	Using the Conference Room Equipment	

Figure 2: Extract of Schedule, Day One

The blend of the observational and practical activities allowed us to present professorial and doctoral academics wrestling with the issues of research in relation to their disciplines and their own research work, realising for the students a context for learning through immersion in the number of activities on that day. By systematically exposing each student on the periphery to the scholars operating before them on the centre stage, we were able to present role models at the same time as those models were taking them through the protocols and processes relevant to their own particular disciplines. The dual positions of subject and object of all activities on that first day worked to make transparent a number of taken-forgranted issues regarding postgraduate students, as the title *Behind the Scenes of Educational Research* alone would suggest. This meant content being covered, but it also had the advantage of seeing that researcher's role in action, that of the mainstream professorial role being the focus of the postgraduate student role on the periphery. The role(s) of each was apparent, ensuring that each participant in the exercise was aware of the structure of the relationship. The relationships thus established were intentional rather than based on happenstance or even whimsy regarding the central and the peripheral characters. The systematic building of this relationship legitimised its existence and its activities in terms of Legitimate Peripheral Participation (Lave & Wenger, 1994, p. 92). We fed another loop into this setup in that we invited each postgraduate member of the conference to critique each session in terms of its effectiveness in supporting student research activities. In doing this we were attempting to reinforce the status of the students as legitimate participants in the exercise rather than as observers of what was happening on the centre stage.

Advanced Postgraduate

It was not until the next day that we began to introduce another level of characters on the postgraduate student scene. It was here that we introduced papers presented by

postgraduate students themselves, essentially works in progress or projects undertaken in conjunction with or in addition to their thesis and/or folio work. Thus we were displaying achievements by postgraduate students at a more advanced stage than those in the audience, but a stage which was less developed than that of the professorial/doctoral levels of the day before. We had set this up the previous day by leaving the judging of the poster competition to the end of the day, thereby illustrating alternatives for presentation of research. We merged the levels of characters here, incorporating one from the professorial level to conduct the judging from the postgraduate student levels, and to comment on this form of research presentation at the same time. We followed up the next morning with the Keynote address being given by a PhD student whose thesis had been submitted for examination, and who had therefore almost gone through to the top level of the pyramid model. An Associate Professor presented a session on qualitative methodology while two students presented on quantitative methodology. Experts also presented on appropriate software, to be followed later in the day by postgraduate presenters. The following excerpt from the schedule is a brief illustration:

Keynote: Negotiating the Minefield *Postgraduate*		
Methodological Questions: When? How? Why? *Ass Prof GGG*	Launching your own Web Page *Paid consultant*	Between *Mu* and *Nu*: Experimental Design Considerations: *Postgraduate student x 2*
What's Hidden from the Transcripts? *Postgraduate Student*	SPSS For Beginners *Paid consultant*	Earnings Management Practices *Postgraduate student*

Figure 3: Extract of Schedule, Day 2

Ferro (1993, p. 29) has discussed the importance of the supportive nature of the sorts of relationships developed in undertaking such activities as these, pointing to the need for establishing high trust levels, fostering an accepting atmosphere and creating positive self-awareness. Being postgraduate students ourselves, it was possible to indicate to each participant that we really were on their side, that there was no judgment involved in their handling of the life of scholarship upon which they had launched, and that problems arose to be overcome rather than otherwise. Much of the pre-conference efforts were directed towards establishing that sort of trust level, with no suggestion that anybody who wanted to present would not be able to do so. We encouraged each participant to present, in fact, we followed up each registration and/or request for information with telephone calls to suggest this. We accepted all papers, and advised on content, form and style when we were approached. We included a panel session devoted to such things as intermitting, falling behind schedule, solving the practical problems associated with postgraduate studies. We were able to refer specific problems as they arose to other students present at the Conference for immediate advice and assistance. We thus had students who had made a deliberate decision to be observers this time around,

to learn how to present for the next conference. We had others who had never presented their work before decide to test the waters with this conference, looking for feedback and critiques of their work to help them to master the conference presentation skills they felt they were lacking. Again, we fed a feedback loop into this day's activities, inviting critiques of presentations, just as we had the previous day. Students in the audience treated student presentations in the same way as they had those of the professorial and doctoral level, making no distinction as to perceived differences between the levels. In this way the postgraduates themselves were drawn onto the centre stage by others within the cohort, and in doing this the cohort was exercising academic skills that served to move them even further from the periphery as they acted out the supportive nature of the activity.

Beginner Postgraduate

It was on Day three that we set up the day with an Associate Professor to deliver the Keynote on the more salient aspects of research supervision, and followed up with a focus on Honours Students to round off the various foci on staged progress in the postgraduate field. After the keynote, all sessions were conducted by students themselves, with the professorial level virtually absent. Postgraduate students held the floor, conducted the conference proceedings and were generally very much in evidence. The conference protocols had thus effectually closed its own loops, tied up its own ends, and had finished on a student note. All participants in the audience were surveyed. Some aspects of the program were deemed by students to be more successful than others, and we had good data to help us to refine the program should we decide to conduct it in this format. All participants rated it in positive terms, as being *Good,* through to *Excellent*. None rated it below this, although *Fair* and *Unsatisfactory* were options open to them. The immediate results assured us of the success of the system as far as postgraduate students were concerned.

We did go further to close the loop, however, in terms of postgraduate students being involved in legitimate peripheral participation. The Education Faculty Graduate School offered to fund the publication of conference proceedings, and once again presenters were invited to submit their revised papers (because of the feedback that they had received as a result of their presenting) for inclusion. The result, entitled *A Research Snapshot* (Zeegers, 2000b) was produced. There was quite a range of papers, including those from professorial and doctoral level—Arts, Commerce, Education, Behavioural Sciences and Science and Technology; a range of levels—Honours, Masters, Doctoral; a range of situations—on campus, off campus, international, local.

The book indicates only part of what happened behind the scenes of this particular postgraduate conference exercise. This paper tells a more complete story. We

started with at one end with an idea to create as full and rich a postgraduate experience as possible. Planning, procedures and publication has allowed us to come out the other

with a successful, developed a model upon which to base similar undertakings in the future. It allowed us, for that long weekend, to work at "closing the circle and addressing major issues from getting started to finishing successfully within the overall context of a quality postgraduate research experience" (Liljegren, 2000).

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Paths, Phases, Juggling and Balancing Acts: How women academics understand their personal experience of postgraduate study

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Introduction

All postgraduate students face a challenging journey, but for those women postgraduate students who are also academics the journey can be especially daunting as they face multiple and sometimes contradictory roles. This paper shares a journey that began as a personal quest of one woman who was both an academic and a postgraduate student. It has broadened to be of interest to a wider circle of readers including postgraduate students, supervisors of postgraduate students and academics, all of whom are balancing their personal and professional roles. As the reader of this paper you will have the opportunity to engage with the voices of two of the participants in this research as they present a dialogue centred around one academic's experience of the path of postgraduate study.

You will meet Coralie, an academic beginning her PhD study who, knowing from her Masters experience that the journey to come would be long and fraught with difficulties and distractions, wondered if it was possible to balance her multiple roles and survive to complete her thesis. Setting out on a quest to answer this question Coralie adopted the familiar role of researcher and interviewed six colleagues, Ashley, Barbara, Jo, Juliana, Karen and Padma, who had either completed or were close to completing their postgraduate research. Subsequently, Barbara joined Coralie's research quest, and you will meet both Coralie and Barbara as co-authors of this paper.

The research framework supporting this quest combines particular understandings of the nature of research, the nature of knowledge, the purpose of research, the nature of the research design and the nature of the research process. Research within this framework explores individuals' understandings of their experience in the context of their everyday lives. It assumes these understandings are constructed and re-constructed through a process of storying—"human experience is basically storied experience…humans live out stories and are storytelling organisms" (Connelly & Clandinin, 1994, p.4046). Knowledge constructed through this process of storying stories is recognised as being situated, transient, partial and provisional; characterised by multiple voices, perspectives, truths and meanings. It demands a tolerance for paradox, contradiction and ambiguity. Such a research framework values transformation at a personal level, individual subjectivity and the researcher's voice. Research within this framework strives to be both ethical and accountable.

Barbara and Coralie begin their story, as all 'good' storytellers do, by setting the scene. They position the research in a gap in the existing postgraduate research literature and ground the method within the context of personal narratives. Using the format of a dialogue[2] Barbara and Coralie then draw out the aspects of Barbara's experience of a journey she conceptualised in three phases: being balanced, becoming unbalanced and re-

[2] In this paper the term dialogue is used more 'broadly' than it is in every day speech.

balancing. In the final section Barbara and Coralie explain how the 'balancing acts' shared in this research led them to develop a workshop manual that would enable other postgraduates, particularly those who are also academics, to explore and possibly re-story their concepts of the journey.

Contextualising the Stories

Today postgraduate research students in Australian universities are almost as likely to be female (45%) as male (55%) (DEETYA, 1997a). However, the completion rates for females are considerably lower. Male students make up approximately 85% of all students completing doctorates compared to only 15% for female students (Dasvarma, 1998). Among the diversity of women undertaking postgraduate study is one group of women experiencing increasing pressure to perform as researchers, while simultaneously negotiating a particularly complex personal and professional balance—part-time women postgraduate students who also hold full-time academic positions in our higher education institutions.

For women academics, particularly those in the 'new universities' (the former Colleges of Advanced Education), there is a growing pressure to prove themselves worthy as researchers. Despite the rhetoric that teaching excellence is equally valued, as Shelly Park has noted, it is (r)esearch that separates the (m)en from the boys…and the (w)omen (1996, 50). Val Roche (1996) for example, reported that lecturers from a new university participating in her study indicated that the pressure to do research, apply for grants and upgrade qualifications, had increased since the college had become a university. This means that, in order to gain permanency and/or promotion, women must maintain a research profile. Postgraduate research degrees have become a necessity not a luxury for most women academics (Probert, Ewer & Whiting, 1998).

The small number of women in the academy (34% of all full-time and fractional full-time staff) (DEETYA, 1997b); the concentration of women in part-time, contract and fractional positions (70.3% of fractional full-time staff, DEETYA, 1997b); coupled with the gendered culture of universities (Brooks, 1997; Burton, 1997; Thomas, 1996) results in what has been aptly described as a chilly climate for women (Bessant, 1998; Burton, 1997; Payne & Shoemark, 1995). As women academics negotiate their professional lives, they do so in an environment in which they are 'other'. This demands a constant monitoring of the institutional processes that serve to marginalise and contain women's contributions (Bagilhoe, 1993).

These academic women as students are almost invisible in the literature. "Most of the existing graduate literature ... is characterised by the presumption of a highly generalised 'student'... undeniably male, white and middle class" (Grant, 1996, 4). While some researchers have been concerned specifically with female postgraduate students' experiences, these experiences most often appear in the literature either quantified in statistics (Arthurson, 1996; Powles, 1986, 1987; White, 1996), generalised into categories or themes (Pietersen, 1997; Conrad, 1994; Moses, 1990, 1993; Salmon, 1992) or fragmented, decontextualised and depersonalised in anecdotes (Fleet, Holland & Leigh, 1999; Lenz, 1997; Vartuli, 1982).

Individual women as postgraduate students/academics have been offered few opportunities to tell and record their personal experience through stories. The additional opportunity to move the stories beyond description to analysis and interpretation of lived

experience has been concomitantly missed. Thus this detailed recording of the personal narratives of women postgraduates who are also full-time academics is particularly timely.

Accounts of any life experience are more than mere description. Personal narratives are a way of forging meaning into life. As we all must draw on the discourses available to us at any given time, personal narratives have the potential to reveal both the individual and collective nature of experience. To narrate a life experience is to tell a story and to create a story, in a way that is coherent to both the narrator and the audience. By appropriating, interpreting and retelling the past from the perspective of the present, the self constructs itself (Kerby, 1991).

A central factor in personal narratives as a way of understanding women balancing postgraduate study and academic work is that these personal narratives are by nature gendered narratives. Without engaging in an essentialist argument, it is apparent from the work of Gilligan (1982), Belenky et al., (1986) and Haug (1987), for example, that many women understand their lives in differing ways to that of men. Although it is crucial to recognise that there are a plurality of women's experiences, each of these experiences can tell us of the social, historical and cultural location of that woman and how she makes sense of the gendered discourse available to her.

Collecting the Stories

The project began with Coralie's research study[3] of six women academics (Ashley, Barbara, Jo, Juliana, Karen and Padma), each of whom had either successfully completed postgraduate study or were nearing the end of their time as a postgraduate student. The use of in-depth interviews and open-ended questions encouraged each participant to tell stories about her postgraduate experience. Each individual's story formed a personal narrative, a tale of her life during the period when she was balancing academic work and postgraduate study. Each of these narratives also has the potential to reveal the collective nature of the postgraduate experience. Stories offer this dual insight into experience through their qualities as mirrors and as windows.

Stories are mirrors.

In mirrors we see what we want to see.

What we see depends on our angle of repose and

The type of glass composing the mirror.

It changes each time we look

As the place we view from changes.

In a mirror we do not see a reflection of <u>the</u> self

In a mirror we see into <u>our</u> selves.

When we look into a story mirror

We see a story that is less than the actual life

Because it has been selectively reconstructed

[3] This research was supported by a University of Canberra Research Grant for New Staff.

From parts of the whole.
Chosen from the past, in the present
But missing the future.
The life is not yet over.

Stories are windows.
Through windows we see multiple vistas
Depending on where we are looking from,
And where we are looking to,
And what we focus on in between.
The size of the window
The material of its construction
And who constructed it
All affect what we see.

When we look through a story window
We can see more than a single life
Because we see the possibility of commonality and difference
Across the lives of others.
We can write collective stories
And others can see themselves in our stories.
And in seeing, the possibility of knowing
Different possibilities. Alternative futures.

(McCormack, 2000, unpublished)[4]

To highlight both the individual and collective nature of the experience of women academics/postgraduates participating in this research, the following section uses the format of a dialogue in which Barbara re-tells stories of her experience and Coralie draws out the collective aspects of Barbara's experience. That is, those aspects of Barbara's experience mirrored in the stories of Ashley, Jo, Juliana, Karen and Padma.

Barbara's re-telling is of a journey conceptualised in three phases: being balanced, becoming unbalanced and rebalancing.

[4] This 'poem' is drawn from Coralie's PhD research currently in the final writing phase.

Barbara's Postgraduate Journey

Phase 1: The Early Balanced Phase

BARBARA: When I started my uni study as a mature-aged student I felt I needed an undergraduate degree to continue the work I was doing in the community at a better level, to know a bit more about what I was doing and I never thought I'd go any further than that. But in another part of myself I'd always wanted to write a book. I just adore books. I'm very grateful to the people who put the time into writing good books and good books have fed me a lot. Then I found out that I could actually have that experience of writing a book by doing my PhD. So I actually stepped into postgraduate studies deliberately designing a postgraduate program in which there could be a book at the end of it. I thought 'Whoa you mean that people like Ann Oakley and Dale Spender—their beautiful books were actually their PhDs'. I thought, 'Well now, these two things can come together. I can see from my job I need to get this qualification and there's a helluva lot to learn and that passion I've had that maybe I too could write a book, all of this could come together'. So that was the passion—to think about now where's a book and a postgraduate study and that's how I moved into postgraduate study.

CORALIE: Passion was evident in all six narratives of the early stages. Particularly apparent was the fact that all of the women had harboured secret dreams to do a PhD and had suddenly found their dream beginning to come true. Although each of the women did evidence some doubt and uncertainty in this first phase the passion kept them going. Their passion was fuelled by the complementarity they found between their teaching and the topics they had chosen to research.

BARBARA: At the start everything was learning! Through my postgraduate work with [name of university] and through the women down there I could use almost everything I learned the next day in my own teaching and I was just going on in leaps and bounds. That was just terrific. Both postgraduate study and my academic role enriched each other greatly and I could see why universities wanted their academics to study at other institutions both at a content level and a process level, because becoming a student of other people made me think about that teaching/learning interface.

CORALIE: Each woman's passion was supported by a supervisor who helped her to build on the complementarity of her academic work and her postgraduate study to develop the research, as well as the teaching side, of her academic role. For Barbara's supervisors this meant emphasising the mentoring aspects of their role.

BARBARA: In the early stage my supervisor was also a mentor for me—I don't think that I saw that at the time, but she knew the doors that needed to be opened. For instance, she invited me to present on a panel at a conference—my first ever academic presentation. This was a safe challenge and began my awareness of that part of the academic role. She made sure that I attended an international conference in our area—again I would not have known the importance of this both for my PG studies and my academic career without this subtle mentoring.

I did know however, that for me the process of having the right people is very important, and trusting those people, developing a trust is really important. I seem to need to connect, to really feel I understand the other person to get the most out of them and to move on with them. It's sort of a level of trust that takes time. In the early phase my supervisor was

an inspiration as she had done it!—she had completed a PhD and was a full-time academic and had a family. So I felt that I could trust her in a deep sense as she had been there. I am sure that this was a crucial factor for me.

CORALIE: As well as the student having trust in the supervisor, the supervisor needs to trust the student. The supervisor needs to trust that the student left alone will keep working on her/his thesis. When a mutual trusting relationship is established there is a platform to build on if the balancing goes wrong.

It is interesting to note that family balancing was not mentioned in the stories of the early phase. The focus was on the study and its complementarity to academic life and the development of a relationship with supervisors. Not one of the women had planned to be an academic, indeed they are typical of what Elizabeth Deane, Nicola Lengkeek and Gar Jones call the 'accidental academic' (1996). For example, Jo came to academia by what she called a circuitous route. For Ashley it was a case of 'I didn't go out looking for the job it more or less found me' and for Karen it was 'just being in the right place at the right time'. The step into postgraduate study seems to have been an important facet in the development of the women's notion of themselves as 'real' academics with the learnings from postgraduate study and academic roles closely relating. Although this phase lasted varying periods of time, each woman's story revealed that eventually the balancing act became problematic.

Phase 2: Becoming Unbalanced

CORALIE: As the balance of the early phase became problematic for Barbara she found her sense of self as a 'real' academic began to unravel. As a postgraduate student she questioned her choice of topic, her methodology, and most intensely she questioned her ability to do the research. She wondered if indeed she was an imposter and not PhD material at all. As her self-doubt grew her questioning extended to her worth as both an academic and as a mother.

BARBARA: In the unbalanced phase, and it seemed to go on forever, not only did my thesis seem to get out of control, so did everything. It would be fair to say that I was 'unbalanced' in a very profound way.

Because I had not had a traditional path into PG study or into my academic career, I just did not know a lot of the everyday things about postgraduate research that I think you should know. So as the task became more complex, the lack of experience surfaced and I began to doubt myself and the research—'Am I PhD material? Can I really do this? Should I withdraw? Is this flawed research? Am I methodologically up the creek without a paddle?'

Issues in the faculty that I normally shrugged off now kept me awake at night. I became obsessed about responding to every memo and attending every meeting—some people in the Faculty didn't mind that at all, but my close colleagues acknowledged the load and encouraged me to re-balance. At home I was starting to feel that I was just a visitor and the irrational mother-guilt kicked in, in a big way.

As I was eligible for special study leave at that time that seemed the answer. So I took six months leave and for every day of every month of those six months I worked very hard,

but I was a mile away from an adequate PhD at the end! I knew I was a mile away—and I was really shattered. I felt that I couldn't come back to the university without having a full draft done because that had been my aim and I hadn't got near it—what sort of academic was I!

I could easily have dropped out at that point. That was the point at which I could have decided the problem was I was not PhD material, this was not a good study, I wasn't up to it—so drop out and accept that now.

CORALIE: Like Barbara, each woman also had significant memories of times in which her academic, study and personal lives were out of balance. As the balancing act became more problematic the complementarity of academic work and postgraduate research evident in the early phase was replaced by an acutely and personally felt sense of separation. This separation 'tore apart' each woman's world and led her to question the validity of self as an academic and as a PhD student. The edge seemed perilously close!

There was however, no single moment of revelation in which each woman's situation was resolved. Rather there was evidence that each woman began to recognise the need to continually monitor and balance the multiple loads. Each did so in a unique but personally functional way.

Phase 3: A Continuous Balancing Act

BARBARA: One of the most important things I did to re-balance was to reconceptualise my PhD as not a sprint but a marathon—and just that little metaphor moved me a lot. I had a marathon not like the ones that De Castella runs but like the ones Cliff Young runs from Melbourne to Sydney or Melbourne to Perth. That sort of marathon where you shuffle along but you know where you are going and you have to plan to rest on the way and you plan to eat on the way.

CORALIE: Most of the women spoke of the need to (re)construct their understandings of self in order to incorporate the challenges of the balancing act. Most were able to create an enabling metaphor or analogy to help with this reconstruction. Like Barbara, Padma used the notion of a marathon and talked about what she called pacing. For Karen, the idea of being a manager was what came to mind.

The women who did not forge a metaphor through which to understand their experience instead had a well-developed philosophy that could guide their re-balancing. Developing her personal philosophy to accommodate the demands of academic work and postgraduate study involved for Juliana thinking about time differently, thinking about leisure differently, and starting to work in a different way. She found that working to this new philosophy took time and practice.

Although each of the women did acknowledge and act on their understanding at a metaphoric level, at the same time they each took action on the small and daily level. For example, within their family life for example, the women told of small actions that made a difference—feeling OK about ordering takeaway food regularly; talking to their family about their needs; buying extra school uniforms to cut down the laundry; getting things typed. At work, they changed small things such as not attending every meeting every time;

taking time for coffee with a colleague; or cutting back on their community service. And as a student they found ways to work on that thesis.

BARBARA: The small actions I took at a daily level were crucial to me as well. For example I never tried to do anything on my PhD on a teaching day. I didn't even go to the library to check a reference because sure enough if I did there would be a nice book next to it that I'd want to get into. I actually got to this quite black and white situation where if it was Tuesday I was a hundred per cent teaching or administering and if someone wanted to see me on the Friday that was my research day and I just wasn't available. I did all of my PhD at home in my home study and I did all of my academic work in my office at the uni—and I literally kept two separate offices so that they wouldn't even contaminate each other.

I also learnt not to clear the decks because as our staff numbers had diminished and our student numbers increased, there was always too much to be done in a week. Instead I disciplined myself to keep to my research day at all costs. I said 'no' to committees, I said 'no' to community groups and I said 'no' to any new project. I kept telling myself that I was investing the time in my PhD and that the pay-off would be when it was finished—and that then I would take up new projects with joy—and indeed this paper is one of those promises coming to fruition.

CORALIE: Whether a woman put her emphasis on reconstructing the big picture or on the small actions of chipping away, or a combination of both, this rebalancing needed to be supported—by supervisors and other role models and by family, friends and colleagues. For Jo support from her husband and children and from her supervisor "made a huge difference". Ashley too found her family's support "so important". Juliana drew support from inspirational role models she had never met but had read about or watched or listened to. Barbara's narrative stressed the importance of having people to help you through the balancing act: colleagues who can help with ideas; a friend to keep you strong during times of particular stress; family members willing to negotiate roles and responsibilities; and most importantly, having supervisors you feel you can connect with, who you trust and who will support you as you struggle to balance.

BARBARA: At the time of Coralie's initial research I remember saying to her 'I've had a uniquely supported path through postgrad. I've had three bloody good women supervisors. You can quote that! I've had three really excellent women who have helped me design the best path in postgraduate research that they could possibly see, so I know that's a really special thing'. And my closest colleague who was also doing a PhD was a lifesaver—sometimes only those who know the intensity of the experience can give the bloody-minded advice you need .

CORALIE: It is apparent that the 'Continuous Balancing Act' at its best is a phase of active negotiation and renegotiation. Whether that negotiation is an internal personal process of conceptualising the journey in a more appropriate manner, or an external process of sitting down with 'significant others' and naming the problems, all of the women found that they had learnt to face the barriers as soon as they could name them. In this phase, motivation was reinvigorated as the end was in sight, and each woman told of labouring through to the end.

From Collecting Stories to Acting on Stories

Both Barbara's story and the stories of the other women suggested that for postgraduate students who are also academics:

- there is no right or wrong path to balancing life's demands
- there is no single path for all postgraduates
- they may change paths during their journey, and
- they will encounter dead ends, roundabouts and other curious paths.

Further the stories recorded in this research illuminated how essential it is to take the time to reflect on, rather than react only, to the challenges of postgraduate studies, academic life and family life. This led us to consider how we could make the stories available to other women postgraduate students—to give them the opportunity to reflect on and possibly re-story their experiences of the postgraduate journey. We recognised that although the stories were told as individual experiences they were in fact socially constructed and that when women recognised the social, cultural and gendered nature of their story different outcomes came into view. Therefore through a series of pilot workshops we have developed a workshop manual "The Balancing Act"[5] (McCormack & Pamphilon, 1998) that uses a narrative approach to enable such reflection.

To invite a person to share their story as a way of understanding that experience is not unusual —it is a strategy used by therapists for many decades. However the notion of storying that forms the basis for this workshop approach takes a particular view of storying. In the traditional modernist therapeutic story, the individual is seen as the centre of the issue—her story may be appropriate or problematic, functional or dysfunctional, however at the centre of most approaches is the belief that the individual must learn how to change her story to a better one. By locating the problem within the individual no account is taken of the discursive locations of that person and the impact of contradictory and competing discourses on the individual. A postmodern understanding of the issue allows a more complex awareness of the individual to emerge, and one that provides a constructive basis for groupwork[6].

The story/dialogue process is not a new approach for women's groups. Some readers will recognise parallels with the early conscious-raising groups of the 1970s and 1980s, however unlike those groups this process does not aim to find *the* truth. Rather, by inviting postgraduate women students to examine one case story of the postgraduate experience, we are offering them the opportunity to observe and/or become involved in the *process* of storying, as well as hearing the *outcomes* of that story. By a collective examination of a case story, participants will be better able to recognise the particular discourses that have enabled the story to be constituted in that way. It is hoped that they will therefore be in a better position to (re)story their own experience. The manual contains a range of stories that reflect the diversity of women postgraduate students and their diverse lives and challenges.

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[5] To purchase a copy of the workshop manual contact the Centre for the Enhancement of Learning, Teaching and Scholarship at the University of Canberra by phone:02 6201 5290 or fax:02 6201 5172 or email celtsuc@cts.canberra.edu.au

[6] A narrative approach to therapy is also used effectively for individuals—see for example the work of the Dulwich Centre, Adelaide.

We hope that our work supports both the women academics who are postgraduate students and the supervisors who walk beside them on the path[7]. It may be of value for a supervisor and student to use this paper as the basis for a discussion of the process issues within postgraduate study. As Estelle Phillips (1994) has argued, open communication between student and supervisor is a critical component of effective postgraduate supervision. Postgraduate student associations and academic development units could use the 'Balancing Act' workshop as part of orientation packages for research students or it could form the basis of groupwork between a number of peers.

Ultimately we hope that our work will encourage other women to explore how their own experience is shaped by social, cultural and gendered factors. Very few women speak of their postgraduate study as a singular heroic path of achievement, rather they speak of messy interconnected lives, of stops and starts, panics and pleasures. By joining in dialogue with others, we hope that more women are able to story and re-story their experience in a way that is empowering and enabling.

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[7] In this short paper we have not focused on questions such as 'Why (or how) does an unbalanced phase come about? We do hope however, that our work will stimulate readers to discuss such questions.

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Affective reflections: postgraduate students' feelings about their theses

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The literature on educational performance shows that affect plays a crucial role in learning. Affect influences students' motivations and goals for learning, how they feel about the learning process and the outcomes of their learning, and themselves as learners (Biggs, 1991). Models of self-regulation of learning in the literature recognise the central role that affect plays in effective learning (Pintrich & Schrauben, 1992; Schunk, 1994). However, student affect at postgraduate level has been largely ignored, although there is some anecdotal evidence suggesting its importance (Elphinstone & Schweitzer, 1998; Salmon, 1992). Negative affect can lead to a student withdrawing, avoiding undertaking research in the future, or advising prospective students against undertaking doctoral studies, thereby impacting on universities' reputation and student completion rates. Ignoring or undermining affective aspects of the process of producing a thesis can also severely damage the student-supervisor relationship and cause the student to abandon study altogether. According to Glatthorn (1998), some estimates indicate that only 40% of doctoral students finish their studies. He says, "Although dropping out is often caused by financial and work-related factors, the emotional stresses involved in completing the dissertation undoubtedly play an important role (Glatthorn, 1998, pp. 210).

Undertaking research leading to the completion of a doctoral thesis is the most challenging and difficult academic task any student is likely to undertake, as has been pointed out by a number of researchers (Cryer, 1996; Elphinstone & Schweitzer, 1998; Salmon, 1992). Doing a thesis is accompanied by strong affect which will impact on the process and outcomes. If the thesis topic has personal meaning for the student (as Salmon (1992) has stated it ideally should have), it is not surprising that students might feel very strongly about the process of producing the thesis and its impact on their lives. As Elphinstone and Schweitzer (1998, p. 53) point out, many students "have negative feelings and thoughts" due to feeling that they cannot or will not finish their thesis. Students report "burnout", being disorganised, frustrated, stressed, lonely, overloaded, or obsessed with their work (Cryer, 1996). It is also evident that these feelings ebb and flow at different stages of the thesis (Fitzpatrick, Secrist, & Wright, 1998; Glatthorn, 1998). In an effort, perhaps, to maintain some kind of control, students may project feelings onto the thesis by seeing it an entity in itself, as the quote below illustrates.

> ...the thesis behaved like a naughty child. At first it refused to accept that I could only attend to it part time.
>
> (a postgraduate student, Jocelyn, in Salmon (1992, p. 104))

There is a growing literature on many issues in doctoral studies such as problems that may arise, how to address these problems, and how supervisors may learn to supervise, but virtually all of these concerns centre on the cognitive and managerial aspects of the

thesis—while affective aspects remain relatively under-researched despite their importance to the process and outcomes of study.

In this paper, we report students' affective reflections associated with undertaking doctoral study. We present data based on student-generated metaphors to describe student views of their theses, student's selection of affective adjectives and interviews to describe the range and intensity of affect which they expressed in relation to their theses.

Methodology

As part of a larger study which addressed a number of aspects of postgraduate study, we invited 20 doctoral students from two universities in Perth in two major study areas (Sciences (n=14) and Humanities (n=6)), to participate in focus groups aimed at eliciting affective responses in regard to their theses. Students were of both genders (15 males, 5 females), and of ages ranging from the early twenties to the mid-forties.

We also held one-to-one interviews with 20 students (a few of whom also participated in the focus groups) from the same study areas (15 from Humanities and 5 from Science) and of the same age range as the focus group students. Twelve of these students were female and 5 were male.

Participation was voluntary, and the value of the focus groups (or interviews) in providing students with an opportunity to talk about their theses and to share experiences, was stressed. Participants were at different stages of their theses and were studying either part or full time.

Focus groups

Firstly, to assess how students regarded their theses, we asked participants to write or draw their response/s to the question, "What metaphors come to mind when you think of your thesis? People use metaphors to explain emotional states because they are *accessible* and *compact* and especially use them to convey intense emotions *(vividness)* (Fainsilber & Ortony, 1987; Ortony, 1975). Lubart and Getz (1997, p. 228) have said, "When we study the idea of ensembles of metaphors, we are bringing out the interplay of the organisation of knowledge with the organisation of affect". Thus, we expected that a metaphor could neatly encapsulate many emotional elements, providing insight into how our participants felt about their theses as well as being a model that parallels how something might be structured in memory.

Secondly, participants were given a list of 18 positive and negative adjectives that describe feelings. The list was adapted from Radloff and de la Harpe's modification of Zuckerman's Affect Adjective Checklist which is a well validated instrument widely used to measure anxiety (Radloff & de la Harpe, 1999; Zuckerman, 1960). Participants were asked to select those adjectives that described how they felt about their theses. They were then asked to choose a colour (from a range of 8 crayons) for each of the selected adjectives, and colour in different-sized segments of a blank circle (the Colour Wheel), representing the extent to which they experienced each feeling at that time. An example of a completed Colour wheel is shown in Figure 1.

Figure 1: Colour wheel

Lastly, participants were asked to discuss, elaborate or explain their metaphors and to add anything they wished in relation to their feelings about their theses.

Interviews

In the interviews, students were asked about their goals for undertaking postgraduate study, their writing strategies, any obstacles they were encountering and how they dealt with them, and their view of the student and supervisor roles and relationship, as well as about their feelings about undertaking postgraduate study and writing a thesis.

Analysis

Responses to the two focus group activities and to the interviews were analysed as follows:

Metaphors

Metaphors (written or drawn) were categorised according to major themes which the researchers considered were embodied in the metaphors. The validity of these categories was established by 4 students who had participated in the study and 7 students and supervisors who had not participated . These validators were asked to suggest what each metaphor might mean in terms of the major themes proposed by the researchers (and any other themes the validators thought were present).

Adjective Checklist and Colour wheel

The number and valence (positive or negative) of adjectives chosen was recorded, together with the intensity for each adjective (as represented by segment sizes of the colour wheel (in degrees), as a percentage of 360º). These data, combined into two scores—one for positive and one for negative adjectives—were analysed for any gender or area of study (Science or Humanities) differences.

Interviews

Only the data from interviews pertaining to affect are reported here. Responses to the question "How do you feel about doing a thesis?" were coded as positive or negative, and analysed using NUD*IST, a software package for qualitative data analysis.

Results and discussion

Students participated enthusiastically in the focus groups and a number requested further meetings. Our impressions were that they enjoyed talking about their feelings and found the session helpful.

In the focus group, 15 students were in their second year, and five students were in their third or fourth year of study. In the interview group, 11 students were in their first or second year, and nine in their third (or more) year, or had completed (after a maximum of 9 years). The composition of the focus and interview groups in terms of area of study and gender reflects the tendency for there to be more males in the Science areas and more females in the Humanities areas. Given the small sample number, the variables Gender and Area of Study are partially confounded and results need to be interpreted with this in mind.

Perceptions of the thesis

The 20 focus group participants generated 21 metaphors (6 participants were unable to generate metaphors). These metaphors were categorised according to six themes which emerged from the data, namely Uncertainty, Anticipation, Effort, Menace, Creation/growth and Orderliness. Table 1 shows the frequency with which the 11 validators endorsed the themes represented in each of the metaphors. Table 1 also shows the total number of metaphors representing each theme, and the number of metaphors suggested by participants who were in either their 2nd or 3rd/4th year of study (15 and 5 students, respectively). Metaphors were accepted as embodying a theme if endorsed by at least 40% (4) of the 11 validators.

Participants generated a range of creative metaphors. As predicted by the literature on metaphors and emotion which suggests that metaphors may encapsulate many emotions and ideas, all metaphors were endorsed as containing elements of more than one of the themes. Figure 2 shows examples of metaphors drawn by participants.

Based on data in Table 1 and Figure 2, each of the themes is discussed below in terms of feelings about the thesis.

Uncertainty

Uncertainty is a theme which, together with Anticipation, is reflected in most of the metaphors. For example, the tunnel with no light at the end or the billboard with no pathway to it, suggests that the participant has some idea of what the end result might be but does not know how to get there. Brown, McDowell and Race (1995) in their chapter, "Coping with Uncertainty" in postgraduate research, include aspects of uncertainty such as self-efficacy (can I do it?), whether the topic is worthwhile, and what to do next. Moreover, things often do not go as planned. Blaxter, Hughes and Tight (1996) list twenty things that can go wrong such as running out of time, being refused access to subjects, low response rates, losing references, and computer crashes. But the uncertainty seems to be more than this–it is intrinsic to the research process. Postgraduate research is expected to break new ground and be original, conceptually or methodologically. It is a creative and, therefore, uncertain exercise.

Table 1. Themes and their related metaphors for the whole group and two Year of study groups

Theme	Number of validators endorsing themes within metaphors				Number of metaphors (at least 40% endorsement)		
	10-11	8-9	6-7	5-4	2nd year (10 metaphors)	3rd/4th year (11 metaphors)	Total (21 metaphors)
Uncertainty	mist/fog, tunnel (with no light at end), path (with offshoots)	maze, billboard, junk drawer, pot luck dinner	building site, clouds, round in circles	runaway train, black hole, moving target, journey	8 80%*	7 63.6%	15
Anticipation Excitement	maze, jigsaw, journey	moving a rock from a cave, pot luck dinner	building site, billboard, opening a door	recipe, mist, clouds, junk drawer, path, perpetual motion	10 100%	4 36.4%	14
Effort	moving a rock from a cave	building site, perpetual motion, billboard, journey, opening a door	tunnel, jigsaw	recipe, opening a door, round in circles	9 90%	4 36.4%	13
Menace/ Helplessness	wolf in sheep's clothing, train		Jabba the Hut, black hole	tunnel, mist	2 20%	5 45.5%	7
Creation/ growth	building site, jigsaw	journey,	recipe, opening a door	perpetual motion, path	6 60%	1 9%	7
Orderliness		recipe	jigsaw		2 20%	0 0%	2

- *Percentage of total number of metaphors generated by the Year group

Anticipation

Anticipation is present in a number of the metaphors such as the jigsaw puzzle, the journey, the giant maze and the construction site. Anticipation may exist in terms of an end to effort, an outcome, and excitement about what may be discovered. It is probably the main contributor to positive feelings about research work.

Effort

The huge effort a thesis takes and its impact on participants is represented in metaphors such as rolling a stone from the mouth of the cave, perpetual motion, the marathon, and the megamaze. The idea of intensive effort and movement is also captured in Denicolo and Pope's (1994) reference to the postgraduate's 'journey'.

Menace

The sense of threat, of being overwhelmed or not in control, is reflected in many of the metaphors such as the runaway train, or the wolf in sheep's clothing. Similarly, the giant megamaze contains elements of both uncertainty, menace, and effort. In Figure 1, the thesis (the maze) towers over the tiny human who is uncertain about which path to take, and the prize—the completed thesis—can just be seen in the distance. In the case of Jabba the Hut, as the participant elaborated verbally, the creature is greedy and

insatiable, self-centred, unpredictable, and dangerous. The participant is a slave to such a creature: no matter how much effort is put into it, it is never enough, nothing proceeds smoothly, and, in fact, the participant him/herself may never be satisfied.

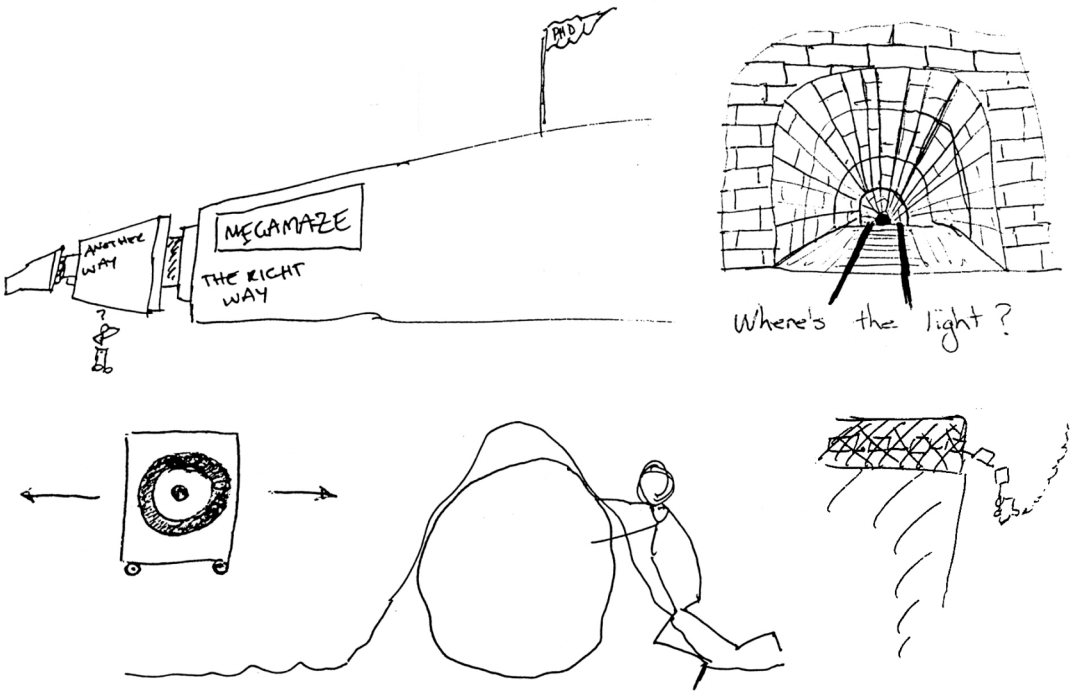

Figure 2. Drawings of metaphors expressing feelings about the thesis

Creation/growth

The sense of being creative is present in the vision of opening doors for others to pass through or constructing a building. Many researchers refer to the creative possibilities in PhD studies. For example, Elphinstone and Schweitzer (1998, p. 32) say "For many students, starting a research degree marks the beginning of a new sense of academic freedom, with potential for personal creativity and reflection".

Orderliness

Finally, a sense of organisation and orderliness necessary to the process of producing a thesis is suggested by a few metaphors such as recipe or jigsaw puzzle both of which were generated by participants from the Sciences.

The metaphors suggest that participants tend to anthropomorphise their thesis. They appear to perceive it as having a life of its own over which they have limited control. Exerting some control was seen by some participants as essential to their survival and the completion of their research. "Tidy your desk!" exhorts one participant, while others advise, "Make lists of where everything is on your computer", and "Don't let the work get out of hand".

Indications are that students at an earlier stage of their theses (second year) tend to be more uncertain, excited, perceive the thesis to be more effortful, and see their work more as an opportunity for creation than students in their third or fourth years. On the other hand, students at a more advanced stage (3/4 years) see a lot more menacing aspects to their theses than students in earlier stages.

Feelings about the thesis

Feelings are discussed, firstly, in relation to the data from the Adjective Checklist and Colour wheel activity and, secondly, in relation to the interview responses.

The range of affective responses to the 18 adjectives on the Affect Adjective Checklist and the representation of their intensities in terms of proportions of the Colour wheel are presented in Table 2.

Table 2. Mean number of affect adjectives selected and mean intensities of positive and negative feelings with standard deviations (in brackets) and associated p values for Gender and Area differences

	Mean number of adjectives selected	Intensity of adjectives (percentage of 360º)	
		positive	negative
Males	6.00 (1.22)	58.46 (27.74)	40.62 (26.07)
Females	7.50 (2.07)	75.50 (19.62)	23.83 (19.05)
Total	6.47 (1.60)	63.84 (25.50)	35.32 (24.20)
P value (male/female differences)	0.07	0.07	0.07
Science	6.00 (1.28)	56.92 (27.26)	42.08 (25.46)
Humanities	7.29 (1.98)	75.71 (20.89)	23.71 (20.43)
P value (Area differences)	0.08	0.06	0.05

*$p \leq 0.05$

The mean number of adjectives selected by participants was 6.47 (sd 1.60) with a range of 4 to 10. Female participants tended to select slightly more adjectives than did the male participants (7.50 and 6.00, respectively, p = .07). There was no difference between Science and Humanities (means were 6.00 and 7.29, respectively, p=0.08). Positive and negative adjectives were selected by all but two participants who selected only positive ones.

Intensity of emotion (that is, size of circle segments) was greater for positive than for negative emotions (63.84% and 35.32% respectively, p = .01). There were no significant gender differences in these intensities, but there was a tendency for female participants to express stronger positive emotions (intensity of 75.50% compared with

58.46% for males) and for male participants to express stronger negative emotions (intensity of 40.62% compared with 23.83% for females). There was a significant Area of study difference in intensity of negative emotion, with students from Science endorsing stronger negative emotions (23.71% compared with 42.08% for Humanities students).

In addition, there was no Year group difference in mean positive intensities between students in their second and students in their third/fourth year (60.33% and 61.60%, respectively), but there was a tendency for the students in the earlier stages of their theses to be less negative (32.2% compared with 37.60% for students in their third/fourth year). These data, together with the data from the metaphors indicate that there are differences in affect at different stages of the thesis: specifically, negative feelings increase from the first to the fourth year. The pattern of positive feelings over this period of time is not clear: the two sets of data do not support each other in regard to this question.

Table 3 shows the 7 adjectives rated with the highest intensity for the group as a whole, from most to least intense.

Table 3. Mean intensities of seven highest-rated feelings (as a percentage of 360º) by gender and study area and associated standard deviations (in brackets) and p values

Adjective	**Means**			**p value (gender difference)**
	Total	Male *n*=15	Female *n*=5	
Challenged	18.95 (13.85)	18.46 (16.44)	20.00 (8.85)	0.40
Excited	15.05 (8.28)	16.38 (9.65)	12.17 (4.75)	0.11
Uncertain	9.74 (12.20)	10.23 (12.19)	8.67 (14.36)	0.41
Organised	9.32 (11.27)	6.00 (8.31)	16.50 (15.06)	0.08
Inspired	9.16 (8.07)	6.38 (8.23)	15.17 (4.67)	0.00
Overloaded	6.84 (12.23)	6.54 (14.06)	7.50 (9.65)	0.43
Anxious	6.71 (11.74)	9.19 (13.88)	1.33 (3.27)	0.04

Participants showed ambivalent feelings about their thesis although positive feelings dominated. Participants expressed a range of emotions indicating the complexity of affect associated with postgraduate study. Male and female participants particularly endorsed being challenged and excited, but female participants were more inspired and less anxious than male participants. This finding appears to be counter-intuitive given findings on gender difference in confidence and anxiety related to learning.

The interview data revealed that, compared with the focus group data, there were more, and a greater range, of negative responses (56.25% of the 80 affective interview comments). Most comments related to feeling frustrated by lack of time, the amount of work and the fact that arrangements (for example, for data collection) did not proceed smoothly. Of the negative comments, 20% were about being overwhelmed or daunted by the enormity of the task, especially when it came to writing the thesis. This finding supports our interpretation of many of the metaphors generated by the focus groups as exhibiting an element of menace. Other feelings expressed most frequently were anxiety about how the work was proceeding and whether it was good enough, and feeling isolated. Individual participants used phrases such as 'soul-destroying,', wanting 'to give up', and feeling 'disenchanted', 'despair', and 'anger'. The impact on their lives is clear in the following quotes:

> I've thought about (giving up) tons, especially during the last month when the time pressures became more and more significant you almost become willing to throw away four and a half years…of effort if you don't feel that you can actually get though the process. (C)

> I feel I've lost almost ten years of my life and the kids were in that age group and things like that, so there's been some negative sides to it. Things that I could have done, would have done, spent more time with the kids. So there's those regrets. (J)

> I am thinking one day I am not going to have to do this and, I mean, I really wish that day was tomorrow and I find that saps me a bit….(A)

On the positive side, 16 (45.7%) of a total of 35 positive comments were about enjoying different aspects of thesis work such as writing, getting feedback from supervisors, creating something, debating, reading, meeting different people and doing one's own work. Other positive comments included being excited, happy and grateful as well as finding the work fun, interesting and satisfying. These feelings are captured in the following quotes:

> I really sit back and reflect on how lucky I am to have….been able to do something that I have really enjoyed…It has been the most satisfying experience of my professional life.(L)

> I felt so empowered, I felt 'I do know it!'.(W)

> I have also realised that the excitement and enthusiasm that you have at the beginning carries you through for two or three years(S)

In general, the picture that emerges from the interviews supports the findings from the focus groups. The same ambivalent feelings shown in the Colour wheel data are also evident in the interview responses. However, there is no discernable pattern of difference between study areas, year of study or gender in the interview comments.

Implications

It is important that students, supervisors, and universities administrators acknowledge the crucial role which affect plays in postgraduate research and address the issues surrounding the management of feelings throughout all stages of postgraduate study.

Students need special support to deal with the uncertainty associated with postgraduate study, as indicated by metaphors such as mist, the tunnel with no light at the end, and the maze. From our experience, some students apologise for being uncertain, especially about what they will do for their research, and also often expect their supervisors to provide answers and reduce uncertainty. It seems difficult for students to see their research as a joint process in which the supervisor is also creating ideas that are often, by the nature of original research, uncertain.

The role of other students in providing support is important, as indicated by comments of students in both the focus groups and interviews. Many students study part time and have little access to fellow students. Providing support for groups of students with similar interests can be helpful. At present, although support is available for students, it is usually not explicitly and directly for the purpose of providing emotional and social support. The authors run 'social seminars' for a group of students undertaking theses in educational psychology; another supervisor holds monthly breakfasts for her students. These meetings provide students with an opportunity to air feelings in a safe and informal setting.

Supervisors need to be aware of the ambivalent nature of students' towards their study feelings (data from the Colour Wheel reveals). Supervisors also need to be aware of differences in affect between students: differences which depend on gender, area of study, and stage of study. Students need help from supervisors to develop strategies to reduce the impact of negative feelings and enhance positive feelings in order to remain motivated to continue with their research. Being able to discuss feelings requires a close, personal relationship between supervisor and student, especially because some students may consider they are the only ones to feel negative, and that it would be unwise to admit to these feelings in case supervisors are offended or think the student weak or not capable of doctoral level work. Denicolo and Pope also refer to the contentious issue of the extent to which supervisors should provide support "during domestic, social or other professional crises which have been at least exacerbated if not stimulated by the M Phil/PhD process" (Denicolo & Pope, 1994, p. 126).

University administrators also need to recognise the impact of affect on students' work—both in terms of quality and completion rates—and to support staff and students in addressing feelings. Administrators at faculty and university levels need to recognise that managing affect and having a forum in which to discuss feelings and their impact on study is important for both students and supervisors. In addition, administrations need to be willing to provide the conditions to enable good supervisors to supervise well, to encourage student associations, and to provide meeting places and counselling services specifically for postgraduate students.

Staff development seminars, student workshops and support groups for students and supervisors need to go beyond concerns with practical, administrative and conceptual matters to include affective issues. In particular, these activities should focus on helping both students and supervisors to recognise the role of feelings in research and

offer strategies for managing the range of feelings students are likely to experience at different stages of postgraduate study.

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PEDAGOGIC CONTINUITY IN DOCTORAL SUPERVISION: PASSING ON, OR PASSING BY, OF INFORMATION SKILLS?

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Introduction

Pedagogic continuity is a process of enculturation, over time. It involves the passing down of habits, techniques, styles, routines and knowledge from supervisor to candidate. According to Delamont, Parry and Atkinson (1997, p. 535) pedagogic continuity 'is a key to understanding the inter-generational transmission of knowledge and skills, and the reproduction of academic habitus'.

This paper presents some preliminary findings of a PhD research project that investigates the concept of pedagogic continuity within the transmission of information literacy in doctoral supervision: a topic not previously explored in the literature. In particular the research presented in this paper focuses on the place of scholarly communication and information literacy in doctoral research in both off-campus and on-campus mode. In the context of this research information literacy was defined as 'the information literate person knows when they have a need for information; can identify information needed to address a given problem or issue; can find, evaluate and organise the needed information; and can use the information effectively to address the problem or issue' (adapted from: American Library Association Presidential Committee on Information Literacy: Final Report, 1989).

A questionnaire survey was used to gain an understanding of information literacy in the doctoral supervision process. A total of 1977 self-administered, pre-packaged questionnaires were sent to candidates and supervisors from four Australian universities that offered doctorates in both on and off-campus mode. The universities involved included multi-campus, regional and those situated in capital cities, including 'established' and 'newer' post-Dawkins institutions. The survey was undertaken in the period November 1999-February 2000 and included the DETYA categories of arts, humanities and social sciences; education; and sciences. All relevant candidates were surveyed plus a random sample of doctoral supervisors determined by the participating universities. A combined response rate of 21 per cent was achieved (n=405). Questions were asked regarding the doctoral supervisory process, scholarly communication, information literacy and the relationship of the library in those processes. Responses are

analysed and discussed. The findings indicate that pedagogic continuity could not be isolated from doctoral supervision, as it is interwoven into the fabric of the relationship. Recommendations for improving postgraduate pedagogy are proposed.

Pedagogical continuity: the master/apprenticeship relationship, and the effects of isolation

Delamont, Atkinson and Parry (1997, p. 329) discuss some of the differences between disciplines in doctoral research:

> Both science and social science PhD students experience pedagogic continuity, but of different, discipline-specific kinds. Each has advantages and disadvantages. The scientists are not isolated, and feel part of a team effort. Yet they have very little choice of topic and do not experience autonomy, or close affiliation with one supervisor. The social scientists experience isolation but do get to be autonomous, independent scholars and can feel themselves intimate intellectual heirs of the supervisors.

It was found that the isolation factor was exacerbated by studying in off-campus mode. The study found that 67 per cent of off-campus respondents (n=116) felt they were isolated from the research culture of their university. This compares with 36 per cent of on-campus respondents (n=54). On a discipline basis, for both on and off-campus candidates, only 39 per cent of science candidates (n=42) felt they were isolated compared with 62 per cent from the arts, humanities, and social sciences (n=73); and 57 per cent from education (n=55). The isolation figure rose to 81 per cent for off-campus arts, humanities and social sciences candidates (n=55). These figures reinforce the comments of Delamont, Atkinson and Parry (1997). One student, who had experienced both on and off-campus modes made the following comment:

> When I was fulltime on campus (and a scholarship holder) I think I was more involved—support groups—up coming conferences were talked about—current issues had a forum etc. As a non-scholarship off-campus student I think I've become invisible to all except my supervisors.

An arts candidate seemed to sum up many of the opinions of off-campus candidates by stating:

> I am a long way from my university. I am middle aged—a long time past my previous university experience. My fieldwork has been among almost non-literate people. I have come late to electronic media. I live in a rural city. The research culture of my university is light years away from the reality I live in.

One science PhD candidate appeared envious of what she was missing:

> Through being off-campus and hence isolated from day to day contact - things like discussion at morning tea, attendance at seminars, even incidental conversations in the corridor—I tend to not hear about changes, developments, new discoveries etc and miss the chance to participate - an exchange of ideas.

The problem of isolation for students, particularly those studying at a distance, is evident. On campus students (and supervisors) often have opportunities to be part of informal networks that are commonplace within the physical confines of the university. Networks such as these can assist in reducing some of the deficiencies in information literacy skills that candidates and supervisors admit to having. While technology has improved access to communication, especially for distance education, in reality there is no substitute for the serendipitous nature of discussions in the tea room or conversations in the corridor.

An important aspect in postgraduate pedagogy is not only the 'transference' of skills and knowledge from the supervisor to the candidate, but conversely, from the candidate to the supervisor. Quite clearly, the supervisor does not have a monopoly on the 'transference' of knowledge, and this issue was raised in the classic critique by Giblet (1992) on his doctoral supervisor's earlier paper entitled *Discipline and Discipleship* by Frow (1988).

Clearly there are positive and negative aspects of the process of pedagogic continuity. The danger lies with passing down old, outmoded or inward looking skills. In some disciplines, such as the natural sciences, some consider pedagogic continuity as a normal process of the master/apprentice model of doctoral supervision. In particular Frankland (1999, p. 9) states:

> The individualised and privatised aspects of the Master/apprentice model also lead to the reproduction over time of both bad and good supervisory practices. Until very recently the process of teaching supervisors how to supervise has not been the product of any formal training process but one of transmission down the generations of Masters and apprentices. This means poor practices can continue unquestioned because they are part of research culture and that innovations and improvements are not broadcast to other areas.

Similarly, Yeatman (1995, p. 9) argues "…the graduate student supervision relationship has been left to a traditional apprenticeship model, where the established 'master' inducts the new apprentice into the 'mysteries' of the craft". The negative aspect of pedagogic continuity in this model of doctoral supervision is clearly demonstrated by

Leder (1995, p. 5) who states that "the apprenticeship-like quality of many supervisor-student relationships the supervisor's research preferences and prejudices can constrain the scope, perspectives, methodology and directions of a student's work". At worst, this may lead to disillusionment and withdrawal of students. Grant and Graham (1999, p. 78) suggest that, "poor supervision may well perpetuate a cycle of poor supervision, particularly in institutional environments where no further training in the skills of research supervision is promoted".

Information literacy and pedagogic continuity in doctoral supervision

There is little doubt of the importance of information literacy in doctoral research. The study found 98 per cent of candidates (n=329), and 93 per cent of supervisors (n=62) thought that information literacy skills are an important part of doctoral studies. Computer skills and information literacy are inter-twined yet competency in the former may not always translate into competency in the latter. Access to online catalogues and databases from desktops became possible and then commonplace in the last decade. This has also allowed an interface to hundreds of library catalogues and databases globally. This electronic browsing enables serendipitous discoveries to be made and represents a source of intellectual empowerment for online researchers. The 1990s brought networked full-text databases; making not just abstracts but whole journal articles available to the desktops of researchers. This has been a boon to all students and academics with appropriate access, especially for research students studying off-campus. It has dramatically changed the way in which bibliographic searching is carried out as librarians rarely undertake searches for researchers. This however, has a number of implications for information literacy. According to Barry (1996, p. 1), "There is an implicit assumption in the media about the digital library, that it is unquestionably desirable for end users. That easier and quicker access to a wider range of information resources will be welcomed wholeheartedly. And that systems are easy to learn and use". The assumption ignores two crucial factors in information seeking: the complexity of the information-seeking process and the need to examine the digital library set within the context of end users' worlds (Barry, 1996, p.1). In this study, while 50 per cent of candidate respondents and 60 per cent of supervisor respondents felt that information seeking for their research had become easier, many candidates and supervisors placed caveats on their responses. For example:

> The electronic tools, especially the online databases, have made searching easier. But the vast amount of potentially useful literature found makes the task of evaluation and organisation more difficult.
>
> Some aspects have become easier in terms of acquiring greater familiarity with certain databases but other aspects have become more difficult in terms of

> wider accessing of material necessitated and also keeping abreast of growing volume of literature being published.
>
> It has become easier to access information but the sheer volume of information has increased such that it is easy to become overloaded.
>
> Some ways easier because of technology; some ways harder because higher expectations, greater volume, different types of media.
>
> Online has revolutionised—now quick and easy from desktop. Reinforces though, need for good searching strategies.

These comments are related to 'disintermediation' a term used to describe the diminishing role of the intermediary (i.e. a librarian) associated with the electronic information environment (Edwards, Day & Walton, 1996, p. 357). End user electronic database searching imposes more responsibility on researchers for constructing their own search strategies and accordingly exacts a higher price for strategies that are poorly planned (Simpson, 1998, p. 8). In other words, disintermediation may contribute to a reduction in the quality of material retrieved by academic researchers. Disintermediation may also lull both doctoral candidates and their supervisors into a false sense of security regarding their levels of information literacy (Macauley & Addie, 1999). This should not be understated.

Based on her study into academics' use of the digital library, Barry (1996, p. 3) says, "the bulk of information for research comes from personal collections and contacts with colleagues". The findings of the present study reinforced her conclusion as this comment demonstrates:

> Supervisors often have a personal collection of literature built up in the field of study that the candidate is in. This means that a lot of time spent looking for primary sources can be saved if you have access to this collection. This may also inhibit candidates from looking for new references and learning how to access other information resources.

Informal networks are central to the information-seeking methods of academics as the following comments emphasise: 'chatting to colleagues', 'information from colleagues', 'constant discussion with colleagues', 'regular interaction with a range of colleagues', 'the exchange of information with colleagues' were common responses from supervisors, but less so from the candidates surveyed. Established academics in particular have very rich information worlds and personal networks; a lot of information comes to them, they often do not have to go out and actively seek it (Barry, 1996, p. 3). Doctoral candidates normally do not have such an abundance of resources available to them, especially those studying at a distance. As Leder

(1995, p. 7) suggests, "the increasingly complex demands of technology and the continuously enlarging knowledge base are further challenges to be faced by supervisors as they advise their students about locating research databases".

It appears obvious that doctoral supervisors need to appreciate the information-seeking potential of using the available information technology, and utilise it in their own research as well as advising their doctoral candidates in its appropriate use. According to Squires (1998, p. 301), "supervisors will often need to train students in the use of specific techniques or arrange for them to attend suitable training programs". Recommendations from Squires' study on the use of IT-assisted information systems in academic research concluded that supervisors should adopt a number of practices. They should act as good IT role models for research students; be active in establishing training courses and workshops on the use of IT-assisted information systems; and practical advice on the application of IT-assisted information systems in individual students' research programs should form an integral part of research supervision sessions (Squires, 1998, p. 321). As can been seen from the survey responses, this is far from the case.

Responses from the survey indicated that the acquisition of information literacy skills for many supervisors and candidates is often realised using *ad hoc* methods. It was found that 45 per cent of both candidates and supervisors surveyed felt they had deficiencies in their information literacy skills. Words used to describe their approach to acquiring information literacy skills were 'hit and miss', 'by accident', 'trial and error', '*ad hoc*', 'word of mouth' and 'osmosis'. For example, only 32 per cent of supervisors and 49 per cent of candidates had undertaken formal library skills training. Consequently, this type of individualistic trial-and-error learning environment suggests that many academics may have had similar experiences during their doctoral candidature. This may lead to failure by supervisors to ensure information literacy skills are passed on to their students.

Osmosis appears to be an integral part of postgraduate pedagogy as these responses from candidates show:

> They [supervisors] assumed I have the required skills.
>
> It seemed to be expected that I knew how to do research and literature searches.

A comment from a supervisor reinforces this view:

> I tend to assume they are capable and knowledgeable already.

Doctoral supervision and information literacy: the supervisors' view

Supervisors, according to their comments, tend to 'encourage', 'direct' or 'guide' students rather than 'influence' them. They tend to play down the didactic approach to supervision as opposed to the views suggested by some candidates. Supervisors had the following comments:

> My approach is that the candidate is engaged on a journey of discovery and, as supervisor, I am there to guide the journey. Some wrong trails will be followed, but that is the nature of learning.

> I feel the supervisor should support and guide the candidate, to pursue the direction indicated by the candidate. At times (usually) this may require some modification/refinement of the candidate's original intensions or conceptions. The candidates should feel the research is 'their own' throughout. The supervisor has an important role in providing input and feedback.

> Given that it is the student's PhD, the student should play a strong role in planning and executing the research. Some students require more support than others - from self-sufficiency to strong moral and scientific support. I have had the full range.

At times though, it is not always easy to interpret some comments:

> I have always maintained a 'correct' and pastoral attitude to supervision of students at all levels. Since their research topics were suggested by me I have always accompanied their program with great personal scholarly interest and encouraged them…

> The pressure is on us now to get people through. Some deserve the degree but do need a firm hand. I am all for putting the decision-making in the candidate's hand but sometimes they just won't make any.

Another supervisor raised the issue of demarcation in relation to training of candidates:

> Certainly a supervisor is NOT responsible for [information literacy] deficiencies of a student. It is NOT a supervisor's job to provide training. It is a supervisor's job to diagnose deficiencies and to identify solutions.

The study found a range of views related to the transmission of information literacy skills from supervisors to candidates. According to candidates, some supervisors have excellent up-to-date information literacy skills and pass them on; some supervisors have information literacy skills that were good once; some supervisors have very inefficient skills; and some supervisors do not even attempt to pass on any skills.

Recommendations for improving postgraduate pedagogy

From the findings presented above it is suggested that a more rigorous procedure for selecting doctoral students is certainly required. It would appear that in some universities, sub-standard or inappropriate students are accepted for candidature. There may be a perception by some universities that to be a 'real' university, they must have a considerable number of higher degree by research students to enhance the status and reputation of their institution. It is even possible that too many students are being accepted into doctoral studies with universities possibly thinking more about the lucrative funding that is associated with such enrolments rather than the university's capacity to support the candidate.

It also appears that students and supervisors are often not matched in an acceptable manner. Common objections were:

> It has gradually dawned on me that my supervisor knows very little about my topic. I doubt that this is a unique experience, which makes the notion of supervisor as mentor rather ridiculous.
>
> I am the sole researcher in the particular field that I am working in within my department, and in addition I almost never communicate in any meaningful way with researchers from other departments.
>
> My supervisor has never contributed much to my literature review/data acquisition, as he is not particularly expert in my field of research.
>
> I have had two 'nominal' supervisors—neither with significant experience in my field of study.
>
> I'm involved in a newish field with no expertise in department.

And then there is the bewildering response: 'my university has no expertise in my field'.

The growing number of students embarking on doctoral studies places considerable pressures on the human resources available for supervision, with some inexperienced personnel appointed prematurely, or established supervisors being overburdened with supervisory duties (Leder, 1995, p. 7). It may be time for universities to say 'no' to possible candidates who do not clearly pass more rigorous selection procedures and for the selection process to be more inward looking. They may have to ask if the choice of university is going to be in the student's best interests. The requirements should include: a supervisor with an appropriate knowledge base in the discipline; a fair and equitable student/supervisor ratio; access to excellent library and information resources; and IT support, including equitable access for off-campus students. Perhaps prerequisites

expected from the students' should include demonstrated information literacy, a grounding in methodological options relevant to the proposed field of study and a basic knowledge of relevant literature.

Demonstration of the prerequisites could take the form of a research proposal to be submitted as part of the application process. For doctoral level study, a proposal of at least 5,000 words appears appropriate, including an introductory 'chapter', a review of relevant literature, and a methodology section. While the proposal is not expected to be an in-depth account, it should provide ample evidence of a prospective student's capabilities for research, including information literacy. The university's commitment to doctoral candidates is substantial (or should be); so one would ask why prospective students should not show a similar commitment when applying for candidature. A publication record could also be recognised as an acceptable prerequisite.

In the post-Dawkins era many Australian universities have directed effort and resources into the induction and training of new supervisors. An example is Zuber-Skerrett's successful workshops on postgraduate supervision. These initiatives are very positive contributions to doctoral pedagogy. Understandably though, as Kiley and Liljegren (1999, p. 64) state, "most supervisory training could be classified as 'on-the-job' and/or the replication of the supervisor's own experiences as a PhD student". The majority of the training has been focused on the neo-supervisor, whilst the 'experienced' supervisors continue supervising using their accumulated pedagogical knowledge. Training for supervisors may need to change focus, making use of the annual/half yearly candidate progress reviews currently being used in universities as a basis for targeting not only students who are under-performing, but also supervisors who may need some further training, including in information literacy. Even supervisors who were originally well trained may stop learning new skills and get out of touch. It also raises the issue of accreditation and re-accreditation for academics who supervise students. While accreditation is commonplace for numerous university courses, there is normally no accreditation required for those who teach coursework units or supervise research students. This brings us back to the central theme of this paper: is a PhD an adequate basis for the teaching and supervision of doctoral studies? Pedagogic continuity suggests this may not be the case in some situations. Without accreditation, and in many cases without formal teaching qualifications or formal supervisory training, academics (and candidates) 'don't know what they don't know'.

Conclusion

The aspect of pedagogic continuity cannot be isolated from doctoral supervision; it is interwoven, often invisibly, into the fabric of the relationship. Modification to postgraduate pedagogy is needed in some situations. This study has found the

information literacy skills of some candidates and supervisors are deficient in certain areas with disintermediation possibly contributing to the skills gap. In many cases information skills are passed on from supervisor to candidate; in other cases the task of educating candidates in information skills is passed by, leaving students to fend for themselves. Suggestions have been made to improve the standard and success of doctoral supervision, including more rigorous selection procedures for prospective students, more appropriate matching of candidates with supervisors, accreditation of supervisors, and the need for formal training in postgraduate pedagogy.

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ENHANCING EFFICACY BELIEFS IN INTERNATIONAL POSTGRADUATE STUDENTS: A PILOT STUDY

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Academic self-efficacy exerts a strong influence on students' motivation and persistence, and is associated with successful learning outcomes. However, recent research into the experiences of international students indicates that these students often report diminished confidence, or self-efficacy, for the academic tasks required of them when they pursue university study in Australia.

This presentation will describe a recent study into the efficacy beliefs for academic public speaking of a group of international postgraduate research students in science and engineering at the University of Adelaide. The study investigated the influence of pedagogical models' attributes on observers' self-efficacy by comparing changes in self- efficacy strength in two groups of students. One group observed an 'expert' seminar presentation given by a senior academic. The other group observed a seminar presentation given by an international student. While both presentations met basic criteria for academic public speaking, the 'expert' performance provided the observers with many more examples of excellent public speaking practice, including the use of native speaker academic English. Nevertheless, comparison between the groups showed a statistically significant greater gain in self-efficacy for academic public speaking in the group that watched the student performance.

These results suggest that teachers of international postgraduate students should select pedagogical models that share certain attributes, such as language proficiency and level of expertise, with their international students. This has implications for those of us who teach international research students and who wish to ensure that our students remain confident to write and speak about their research.

RESEARCH MANAGEMENT EDUCATION: THE NEED FOR A NATIONAL INITIATIVE

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Despite the internationally recognised high quality of Australian research, it is widely accepted that many researchers are not well prepared for the modern, commercially-

focussed workplace. Researchers are now expected to work and manage in an environment characterised by an intense focus on outcomes, both strategic and commercial. However, research management education is generally not available to support the required level communication and collaboration skills.

As a significant provider of funds for research centres and commercial R&D projects, the WA Department of Commerce and Trade was charged under the State's Science and Technology Policy with the task of providing short courses in Research Management. As a first step, the Department recently completed a significant market survey involving over 400 research personnel and over 100 research funders. The survey determined the level of demand for a Research Management Education (RME) program.

This paper will present the findings of the survey. The findings identify skills that researchers and funding partners view as lacking, and thus critical for early stage research management education to address. Further, the survey findings identify relative demand for 17 possible education areas such as "project management", "networking and collaborating with industry partners", and "understanding the commercialisation process".

The paper will also identify possible mechanisms to address this lack of research management education and participants' views on, and support for, development of a national RME program will be sought.

IMPLEMENTING STRATEGIES TO INCREASE WOMEN'S PARTICIPATION IN HIGHER RESEARCH DEGREES

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This project was designed to investigate strategies to increase the number of women undertaking higher research degrees. Women make up just under half of all enrolments at undergraduate level, decreasing to about one-third of enrolments in postgraduate research. The aims of the project were: to document and analyse participation rates of women in undergraduate and postgraduate degrees at Victoria University; to work with Faculties, Departments, Schools and Centres to develop strategies for improving women's participation in postgraduate research degrees; to implement and evaluate strategies; and to develop ongoing strategies for retention and recruitment.

Project methodology included: analysis of participation rates of women in undergraduate and postgraduate degrees at Victoria University; Faculty-based focus groups involving staff, postgraduate and undergraduate women; and surveys of current, completed and deferred postgraduate female students. A Project Reference Group was established at the beginning of the project that has representatives from each Faculty as well as other interested academics and staff.

Over eighty strategies were suggested by the participants as useful for increasing women's participation in higher research degrees. These were classified into five broad areas: undergraduate students, attracting new research students, retention of current students, helping staff who are also students, helping students who are also employed. The surveys conducted asked female students to prioritise these strategies, which reduced them to a more manageable number. A cycle of trial implementation, evaluation, review and planned implementation for later years began in late 1999 and will continue throughout 2000.

SUPERVISOR DEVELOPMENT FOR RESEARCH TRAINING IN AUSTRALIA: WEAVING THREADS IN A RESOURCE WEB

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The Research Training agenda presents a challenge for supervisors and supervisor development in Australian universities. A consortium from four universities has been meeting to develop a framework for supervision development for research training and we now invite other participants to join us. The session is planned in two parts. Part 1, before afternoon tea, is for anyone interested in a framework for supervision development for research training and an overview of the threads we have identified. Part 2 is for those who are interested in joining the consortium and contributing to a collaborative cross-institutional web of supervision development resources to be created in 2000-2001 . Part 1 begins with an invited representative from DETYA discussing the views of Research Training which underpinned the Green and White papers. Margot Pearson and Angela Brew will then present some approaches to a theoretical framework for understanding research training, drawing on their research and drawing out some threads for supervisor development.

Following afternoon tea, participants will work to identify the necessary threads to create a resource web for supervisor development.

The session will involve facilitated small group work and whole group discussion. The intention is to map the dimensions of the web and identify the resources which already exist and those which could be developed at individual universities and shared across the sector. There will be an emphasis on gauging the depth of interest by individual institutions in coming forward into the project. Individuals who are interested and able to make a commitment to institutional participation are encouraged to attend and contribute to the session.

CREATING CHANGE: STUDENT PARTNERSHIPS IN THE MANAGEMENT OF RESEARCH EDUCATION AT THE UNIVERSITY OF SYDNEY

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One of the various roles of the Sydney University Postgraduate Representative Association (SUPRA) is to monitor the quality of postgraduate education at the university and propose solutions to identified problems to the university management. Traditionally, and similar to much of the direction of the senior management, SUPRA has taken a top-down approach to quality initiatives. That is, we have proposed policies at a senior bureaucratic level, often to no apparent effect. Recently, however, SUPRA has initiated two programs which aim to create positive change from the bottom up, by actively involving postgraduate students in the management and improvement of quality in their departments and faculties.

This paper will discuss SUPRA's continuing departmental meetings program; and a new project for 2000 proposing the introduction of a structured first year PhD induction program in one or two smaller faculties. There are two major outcomes from these projects. Through the departmental meetings we are informing and empowering students to take independent action on their own behalf. In contrast, we hope to work collaboratively with students, postgraduate coordinators, heads of departments and faculty deans to design and implement a structured, year-long introduction to doctoral degrees. By taking a bottom-up approach, we are positioning ourselves and our members as partners in the management of the research environment. In the context of the White Paper's focus on increasing transparency and accountability, SUPRA believes that students, academics and administrators are all equal partners in the drive to maintain and improve the quality of research education.

DDOGS REPORT

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This workshop will provide an opportunity to discuss issues arising from the meeting of the Deans and Directors of Graduate studies held in Adelaide on Wednesday 12 April, 2000.

TALK IS CHEAP: DEREGULATION AND THE RHETORIC OF HIGHER EDUCATION FUNDING

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This paper examines the move towards the concept of a less regulated—even fully deregulated—model for university funding in Australia. This conceptual shift has been expressed at the federal level, and supported in one form or another by many Vice-Chancellors despairing of trying to run universities with insufficient funding in the context of (what they perceive to be) stringent regulatory requirements. While these regulatory measures do not extend to all areas of university activity—the provision of minimum resources for research students, for instance, is by and large not effectively linked to funding—the search for a solution to the impasse through the dismantling of the regulatory system is misguided and dangerous. This paper raises some questions about the wisdom of such a move, before moving on to examine the implications of the language used to justify such 'reforms' in debates over public spending on the education sector. It concludes with an assessment of the dangers inherent in accepting uncritically the terms in which funding debates are couched, leading to serious compromises in the quality of research training in Australian universities.

POSTGRADUATE WRITING TEXTBOOKS AND RESEARCH TRAINING: USEFUL TOOLS OR OUTMODED PROPS?

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The Education Minister David Kemp's recent White Paper on 'Higher Education Research and Research Training' (1999) argues for 'the dissemination and transfer of skill and knowledge from the university sector to the broader community' (p. 31) and

advocates 'research training' as needing to incorporate a broad range of high level, transferable skills including writing. However, it is widely acknowledged that explicit training in writing is very rarely available in postgraduate research degree programs. Students are most often left to fend for themselves in discovering, and then meeting, the expectations of their disciplines with respect to the conventional written texts they are required to produce.

Perhaps this is one reason why over the last decade there has been an explosion in accessible 'how to' textbooks related to writing theses and dissertations. In this paper I will report on a study which evaluates this research writing literature from the following perspectives:

- the relevance and scope of the works with respect to their teaching goals
- the scholarship, or lack of it, which informs the advice and information given
- the competing claims of discipline-specific and generic materials
- the effectiveness of different approaches to learning which underpin the teaching strategies

Finally I will raise questions about whether, and why, faculties suggest such textbooks as recommended reading and research students find them useful. Further, I shall ask whether, in fact, students' anxiety has become a market force which is effectively preventing experimentation in writing and solidifying outmoded attitudes to academic rigour.

SUPERVISION: WHAT LIES BEYOND TECHNICAL COMPETENCE?

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In this paper I will investigate the nature of postgraduate supervision. Much of the literature and research into supervision is aimed at establishing effective techniques and practices for supervisors, as well as ascertaining students views on the problems they face. Such research is important and necessary for us to understand the issues around supervision.

Yet in itself, surveys of student opinion and practical guides to supervisors do not necessarily capture the essence of supervision. To do this requires us to pose some deeper philosophical and pedagogical questions. My paper will draw on the research the University of Melbourne Postgraduate Association (UMPA) has conducted into

supervision, as well as the experience our advisers have of problems in this area. My aim is to show how important a philosophical and pedagogical foundation for our debate on supervision is. I hope to demonstrate this with reference to the research we are undertaking here at UMPA.

POSTGRADUATE SUPERVISION MEETINGS: 'SCAFFOLDING' STUDENTS' DEVELOPMENT AS RESEARCHERS

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Research supervision involves training students to master a complex process and produce a document reporting the research in a form acceptable within a particular discipline. Much of this training takes place in face-to-face meetings between the student and either one supervisor or a supervisory team. Little is known about how research students' learning is enhanced in such meetings, although some information is available on university students' face-to-face interactions with other kinds of academic staff, including writing tutors and language advisers. This paper presents work in progress using transcribed audio-taped data from supervision meetings in the field of agricultural science. The aim is to investigate to what extent the concept of scaffolding as described by Wood et al. (1976) can serve as an effective framework for analysing spoken interaction in supervision meetings. The components of this scaffolding process seem particularly relevant to supervision, as they include such elements as focusing the student on the task, frustration control and explication of a solution already partially executed by the student. The paper compares findings from meetings including students of English- speaking and non-English speaking backgrounds, and with single supervisors and supervisory teams. Preliminary results are presented showing how supervisors put into effect the various stages of Wood et al.'s (1976) scaffolding process by asking questions and making suggestions in a range of linguistic forms.

SURVIVAL SKILLS FOR LIFE BEYOND A SCIENCE PHD: PROVIDING A QUALITY POSTGRADUATE EXPERIENCE FOR WOMEN

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At the end of the 20th century women represent around half of Australia's science PhD students. Despite their obvious potential they do not move on to reach the highest levels in the scientific or general community. The reasons behind this are complex; the

research environment is not always conducive to the way in which women prefer to work (Science 260: 265-460, 1993) e.g. individual competitiveness versus teamwork; generation of new knowledge or commercial endpoints rather than working towards humanistic, social goals; the lack of family friendly environments. In addition, many PhD graduates (both male and female) are so focussed on narrow scientific questions they lack many basic "survival skills" which would enable them to have greater control over their lives and career options. There is a need within postgraduate programs for education in survival skills, with particular reference to the special needs and problems of women. Lower self- esteem has been identified as a key barrier for many women and thus all programs should aim to enhance this and to improve communication skills to facilitate women in forming strong and productive networks and being good advocates for themselves. Other skills might include supervision and mentoring of others, and obtaining and maintaining a career. Whilst many Australian Universities now provide Skills Development programs, I believe the needs of women postgraduates, in science especially, are not adequately addressed. Survival skills can provide a solid platform from which to launch a career in many arenas. Armed with such a portfolio of skills, scientifically educated women will be poised at the start of the 21st century to reach the highest levels.

MEETING WHAT ENDS?: CHALLENGES TO DOCTORAL EDUCATION IN AUSTRALIA

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Over the past two years the Australian government has shown increasing interest and intervention in the costs, quality and outcomes of doctoral programs, especially in its recent White Paper on research and research training. It occurs at a time when in Australia and overseas there is considerable change occurring within doctoral research training, and also debate about its nature and purposes. This is manifest in an increasing number and diversity of doctoral programs, an increasing number and diversity of doctoral students and in 'traditional' PhD programs being challenged to strengthen their relevance to industry, professions and government. It is important and timely to reflect on the nature and contexts of these changes and to ask how the policies and debates are *Meeting What Ends*? It is argued that the current policies appear not be informed by a sufficient understanding of the research and developments in doctorates, and that there is a need for more sustained research linked to the informed development of policy and practice in doctoral education.

NOT IN MY BACKYARD PLEASE: A STUDENT PERSPECTIVE ON THE RESEARCH WHITE PAPER

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The recently released White Paper on university research and research education Knowledge and Innovation puts heavy emphasis on the globalisation, concentration and commercialisation of university research. These policy imperatives come on top of large cuts to university budgets and an ensuing rationalisation of university staff and fields of study. It is argued that while this policy mix may seem sensible, from the vantage point of centralised policy administration, it ignores the perspective of research students. This mismatch is illustrated by the differential understandings of 'choice', a term which is interpreted one way under the market model driving higher education policy and another by a student in a particular geographic locality or a particular discipline area. It is further argued that in effect the policy aims of the White Paper will reduce effective student choice by reducing the:

- number of research students
- diversity of the cohort of research students
- diversity of institutions in which research studies can be conducted
- time they spend studying
- fields in which research studies can be undertaken
- diversity of research studies on offer
- geographic locations in which research studies can be undertaken
- number of staff capable of providing research studies (and the areas in which they can supervise, and
- types of research that will be accepted by research studies providers.

These outcomes will in turn produce effects contrary to the stated goal of the White Paper, to ensure that Australia 'keeps pace with global revolution in knowledge production' by undermining diversity both in university research and amongst the cohort of research graduates.

STILL THE HALF OPEN DOOR? WOMEN AND RESEARCH DEGREES IN EDUCATION

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The Faculty of Education UNISA was identified as failing to maintain equity in student enrolments because the high proportion of women in undergraduate awards was reversed when the research degree enrolment was considered. As a response the Faculty commissioned a study to investigate the experience, motivation and incentives for women students to enrol in research degrees. The study involved existing students and potential students from the three education sectors - schools, adult education and university. The research included an investigation of the views and practices of senior personnel from the employment institutions, viz. DETE, ISB and the CEO, in terms of the career paths offered for employees who have research degrees. This paper reports on the results of the research and offers some suggestions for the further development of research degrees within Faculties of Education.

WALKING ON A RACKETY BRIDGE: NEGOTIATING SUPERVISION

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Good supervision is central to successful graduate research, yet it is a pedagogy which is poorly understood. It differs from other forms of teaching and learning in higher education in its peculiarly intense and negotiated character, as well as in its requirements for a skilful blend of pedagogical and personal relationship skills. These differences arise because supervision is not only concerned with the production of a good thesis, but also with the transformation of undergraduate student into independent researcher. This transformation is effected through a working relationship between the student and an "expert" researcher.

In the first section of the paper, I map supervision as a complex and unstable process. To do this, I draw on current literature and wide experience of working with both supervisors and graduate students. I show there is much more to this pedagogy than institutional guidelines for supervision would indicate. In the second section, I tentatively analyse some fragments of supervision ‘talk’ including supervision meeting

transcripts and post-meeting reflections by student and supervisor. In doing this, I will explore the micro-processes of supervision so as to better understand this distinctive pedagogy. Finally, I will speculate about what the map and the analysis suggest for the kinds of academic development that might usefully be offered to students and supervisors. I propose that the metaphor of supervision being like "walking on a rackety bridge" might be useful in academic development in that, while it suggests the pleasures and the risks of the process, it also points to the need for both situational attentiveness and a flexible posture.

THE EXPERIENCE OF HONOURS AT FLINDERS UNIVERSITY: PERSPECTIVES OF STUDENTS AND COORDINATORS

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The Honours year is a significant transition stage for students in terms of work demands and expectations. The Honours year tests their initiative, independence and self discipline as well as their potential for postgraduate study.

We sought to explore the experience of Honours at Flinders University in 1999 from the perspectives of both students and coordinators. Issues explored by questionnaire and interview were the perception of the Honours degree, supervision, support, information, problems encountered, employment, likelihood of postgraduate study. These were analysed by gender, age, Faculty and nature of enrolment.

The students (178 of 441 enrolled returned questionnaires) cited many worthwhile aspects of Honours study (eg. intellectual stimulation, research opportunity, fulfilment, and job opportunities). Half wanted to pursue further study. About half had encountered difficulties, reporting lack of confidence, stress and time management and outside commitments (women were more restricted by these). Seventy- two percent reported that their supervision was very good or excellent. The most common problems were unclear expectations, accessibility and poor communication.

Honours coordinators (27 out of 32 responded) had a different perspective from the students. They reported a greater range of student problems and in some cases stated that resources were available where the students reported that they were lacking. At interview, they indicated that it was a privilege to be involved with the Honours students but many challenges were faced.

POSTGRADUATE RESEARCH TEACHING AND LEARNING IN MANAGEMENT

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This paper draws on findings from a review of teaching PhD and Master of Business students in the School of Management at RMIT. It focuses on issues and implications associated with expressed needs of research candidates for increased flexibility in the form and content of a postgraduate research program. The strengths identified were Learner and Community Centredness, while key areas for change were Learning Experiences and Assessment. There appears to be a need to clarify role expectations and enhance communication and feedback between candidates and supervisors and to facilitate improved networking between candidates using similar methods or with related research questions. The final product submitted for assessment may also need to be varied to include a range of ways of presenting a Projects as well as new ways of representing data other than those used in traditional written Theses. This paper seeks to revisit a basic question: What is 'good' research in this discipline or field, who says so and why?

GETTING STARTED: PREPARING STUDENTS FOR POSTGRADUATE STUDY

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The paper is in two parts. The first part addresses crucial issues facing the wide variety of students now entering postgraduate studies in Australian universities, most significantly the change in culture, from undergraduate to postgraduate study, from work to postgraduate study after a long absence and for international students. Other issues considered include: the experience of doing research and of handling original data; reading, writing and presenting in the disciplines; relationships with supervisors and other academics and their expectations of graduate students. The second part suggests some areas in which solutions to the problems raised in the first part may be found. One important area lies in good preparation and induction for graduate studies. The paper argues that the most effective preparation is done in a discipline-specific context, and that this preparation should be followed up by continuing academic support in particular areas such as research, critical analysis and writing according to the expectations of the discipline.

ENSURING QUALITY IN POSTGRADUATE RESEARCH BY DEVELOPING A MANUAL FOR POSTGRADUATE SUPERVISION

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Quality assurance in postgraduate supervision in higher education has been a concern for some time. The inadequacy of supervision, high dropout rates, low completion rates and a number of other concerns have prompted the approach which led to this project and this paper.

Within the South African Higher Education system, the technikon sub-system has recently by virtue of the Higher Education Act been compelled to do research and consequently to supervise MTech and DTech students. Traditionally the technikons, which evolved from the colleges for advanced technical education, employed staff who were very capable craftsmen, but who did not have higher academic qualifications or research experience. Their main functions were teaching and training. With the amendments to the Act, technikons were placed in a dilemma situation. Suddenly they were put on the fast track to become "technological universities". Most of the teaching staff did not have the qualifications or the capacity to supervise postgraduate students. Staff recruitment and development was seriously affected by this.

It was against this background that the National Research Foundation (NRF) in South Africa requested the author to facilitate a series of workshops on Postgraduate Supervision and Training. A series of ten workshops has been completed in the past eighteen months. The workshops gave rise to a need to develop a manual on postgraduate supervision.

In this paper the background to the problem, the interventions via workshops and the process of the development of a manual for postgraduate supervision will be described and critically analysed.

THE APPLICATION OF EXIT QUESTIONNAIRES TO IMPROVE THE PRACTICE OF POSTGRADUATE SUPERVISION

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Traditionally the skills needed to be an effective supervisor of postgraduate students were developed through on-the-job training. This was usually done by acting as a co-

supervisor with an experienced supervisor and being mentored in the art of supervision.

Multiple demands on supervisors and a range of other factors which will be discussed in more detail in the paper, have made this practice more difficult and in many cases impossible.

This paper deals with an attempt to improve the effectiveness of postgraduate supervision in two MPhil programmes (Higher Education and Education and Training for Lifelong Learning) at the University of Stellenbosch by utilising an extensive exit questionnaire. The questionnaire was designed after a review of current literature on postgraduate supervision and combining this with twenty years of experience in postgraduate supervision.

The **purpose** of the 'exit questionnaire' is to enable the supervisor (in this case the author of this paper) to gather information about the students' experience of the supervisory process, to identify problem areas and to seek constructive solutions for the benefit of future students.

The 'exit questionnaire' was applied to two PhD and ten MPhil-students who graduated in the past year. The information obtained from the feedback enabled the supervisor to identify factors which contributed to successful completion of the thesis, as well as obstacles, to identify likes and dislikes and to illicit suggestions for the improvement of supervisory practice. The results of the feedback received on the "exit questionnaire" will be discussed in the paper and recommendations for improved supervisory practice will be made.

STUDENTS' CONCEPTIONS OF RESEARCH: WHAT ARE THEY?

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with

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The presenters in this workshop aim to discuss with participants preliminary work on:

- what students conceive 'research' to be

- how those conceptions might reflect the conceptions considered to be held by their institutions, and
- how any mismatching of conceptions might impede a research student's progress.

The presenters will first outline the initial findings they have as a result of working postgraduate students in a small pilot study and then invite participants to further develop these findings based on their own experience as students, supervisors, examiners, student support staff, policy makers and postgraduate administrators.

THE SUPERVISORY RELATIONSHIP AS A FEATURE OF A QUALITY POSTGRADUATE EXPERIENCE

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The present investigation focuses on the nature and extent to which the human, interactive element is an important factor in the provision of quality of postgraduate supervision. It focuses on the supervisory relationship as a contributor to the dimensions of student learning, and personal and professional growth as well as the efficient output of the doctoral thesis. It explores the notion that for maximum student benefit from higher degree studies, supervision must take cognisance of the interpersonal supervisory relationship together with competent academic guidance and suitable organisational skills. Teaching and learning theories founded within a humanistic education framework, and particularly pertaining to adult education informed this study.

Qualitative and quantitative methodologies were used. A rating scale completed by over 300 PhD candidates in a range of university departments facilitated subtle discrimination between aspects of the interpersonal supervisory interaction. Emergent data were collected through semi structured student interviews.

The results indicated PhD students' substantial need for quality human interaction in supervision, in terms of supervisor approachability, personal and professional support, guidance and intellectual challenge. The extent of this need in each of the interpersonal dimensions was found to vary with the student's learning style, the gender-age configuration for the supervisory dyad, the stage of candidature, the university department, as well as the student's perceived aim for undertaking the degree.

AN ARITHMETIC APPROACH TO USING REFEREE REPORTS IN THE RANKING OF RESEARCH DEGREE SCHOLARSHIP APPLICATIONS

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Referee reports are one of the main tools used in the ranking of scholarship applications. Scores provided can easily be more a measure of the audacity of the referees or of their desire for a student to obtain a scholarship than of the academic performance or research potential of the applicant. A new method has been tried with the aim of producing an objective measure of an applicant's academic merit. Referees are required to indicate the combined number of applicants known in the current round and the number of research degree students they have supervised. From this combined sample they are to provide a numerical ranking of the applicant in question. A committee determines a score from the figures provided. The resulting distribution of scores appears to reflect the quality of the applicants, rather than being merely a numerical artefact. The resulting distribution indicates that this tool very useful in distinguishing scholarship applicants with the highest academic merit.

SILENT ISSUES IN SUCCESS FOR INTERNATIONAL POSTGRADUATE STUDENTS

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In a research project currently underway, a group of seven International students discusses what it means to succeed in an Australian research university. Using a qualitative methodology, Memory-work, the students raise issues that affect success but have received little public attention: the high cost of competition; the weight of responsibility towards family, colleagues and workplaces at home; the types of experiences that engender self-doubt and confidence; motivation in the face of failure; and perceptions and experiences of academic validation in a foreign culture. Many of these issues are hidden, despite the fact that most students experience them.

Some of the students participating in the study are offering a round table discussion with the aim of raising some of the silent but powerful factors in achieving academic success. Students, supervisors and administrators could gain from an open discussion of these factors. Those attending may want to add to the hidden factors during the discussion session.

PATHS, PHASES, JUGGLING AND BALANCING ACTS: HOW WOMEN ACADEMICS UNDERSTAND THEIR PERSONAL EXPERIENCE OF POSTGRADUATE STUDY

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Although we have begun to acknowledge the central importance of the process and experience of postgraduate study, there has been little acknowledgment of the complexity of this task for women postgraduate students who are also academics. All academics are experiencing pressures related to accountability and appraisal, excellence, effectiveness and efficiency. But for women academics these pressures are likely to be intensified when the role of student is added to an already crowded professional and personal life.

In this paper stories revealed in interviews with six female Australian academics highlight the nature of the interactions between their roles as academic, postgraduate student and those in other life spheres, and their strategies for managing these interactions. By alerting others concerned with the quality of postgraduate education to the problems and possibilities for balancing multiple role responsibilities in today's higher education context these insights contribute to our growing understandings in two areas: the postgraduate research experience and conceptions of academic work.

CAN THE WRITING OF THESES AND RESEARCH PAPERS BE TAUGHT GENERICALLY? SUPPORTING SELF-HELP IN POSTGRADUATES

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When writer's block strikes, postgraduates frequently seek help from a language and learning or study skills adviser or join a generic thesis writing course or workshop in an academic advisory centre. In this paper I examine the issues which are routinely brought to such workshops offered in the Advisory Centre for University Education (ACUE). I then discuss the theoretical basis and practical applications of genre analysis in the teaching of thesis writing to heterogeneous student groups. Evaluation comments collected from students who have attended these workshops over a number of years demonstrate the positive outcomes of genre analysis as a self-help language learning tool. They also highlight some limitations of teaching students in mixed groupings, which is often necessary to make ends meet. In contrast, I draw on our experience in providing such workshops which are integrated into the programs of specific faculties or departments. In conclusion I suggest that gaining the necessary literacy skills for communicating their research findings in theses and research papers must be an integral part of the students' research training, if the quality of their postgraduate experience is to be assured.

ENHANCING SUPERVISORS' AWARENESS OF VARIATION IN SUPERVISION: THE REFLECTIVE SUPERVISOR INTERVIEW

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New doctoral supervisors have tended to see supervision in relation to their experiences as research students, repeating their own supervisor's approaches or reacting against them, with limited awareness of different ways of being a supervisor. The changing postgraduate research context requires greater awareness and flexibility for an increasingly diverse range of students and contexts. This presentation describes a supervisor development program in which one aim was to enhance supervisors' awareness of variation in supervision. The program included workshops, a supervisor forum and a reflective interview task. Participants who completed a further reflective task were able to claim formal credit towards a Graduate Certificate in Higher Education Teaching and Learning.

The design of the program and the interview task were underpinned by two themes: critical reflection and phenomenographic ideas about awareness of variation and learning. In between workshops, program participants interviewed an experienced supervisor, then reflecting on the interview in relation to both their own experiences and an article on the "delicate balance" in supervision (Delamont, Parry & Atkinson, 1998). Participants were provided with guided questions for reflection and then debriefed and compared their reflections with a colleague from a different discipline. Participant evaluations of the interview task suggested that almost all found it useful and many found that it highlighted aspects of variation in supervision that they had not previously considered. This presentation will give an overview of the program and task, outline the evaluation findings including the range of learning outcomes described by participants and draw out wider implications for supervisor development.

PEDAGOGIC CONTINUITY IN DOCTORAL SUPERVISION: PASSING ON, OR PASSING BY, OF INFORMATION SKILLS?

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Pedagogic continuity is a process of enculturation, over time. It involves the passing down of habits, techniques, styles, routines and knowledge from supervisor to candidate. This paper presents some preliminary findings of a research project that investigates the concept of pedagogic continuity within the transmission of information literacy in doctoral supervision. In particular the research presented in this paper focuses on the place of scholarly communication and information literacy in doctoral research in both off-campus and on-campus mode. A questionnaire survey was used to gain an understanding of information literacy in the doctoral supervision process. Responses from 400 doctoral candidates and supervisors from the DETYA categories of arts, humanities and social sciences; education; and sciences, from four Australian universities are analyzed and discussed. The findings indicate that pedagogic continuity could not be isolated from doctoral supervision, as it is interwoven into the fabric of the relationship. Recommendations for improving postgraduate pedagogy are proposed.

CONGRUENT AND INCONGRUENT VIEWS OF POSTGRADUATE SUPERVISION

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Postgraduate supervision is fundamentally a pedagogical engagement between the student and the supervisor and therefore essentially about a relationship between

people. If a student and supervisor have different perceptions about that relationship there is potential for conflict and unsatisfactory relationship. This paper reports on research conducted into postgraduate supervision relationships to investigate the congruence or incongruence between student-supervisor dyads' perceptions of their relationship during the early stages of candidature.

The results, although based on a small sample, highlight the diversity and range of perceptions about supervision, with congruence being shown between dyads in good relationships. The results also indicate considerable difference from one dyad to the next, supporting the view that there is no single best types of relationship between supervisors and students.

THE ASSESSMENT OF RESEARCH THESES: WHAT ARE THE EXAMINERS LOOKING FOR?

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The aim of this project was to map the processes of judgment used as experienced examiners assess postgraduate research theses. Nightingale (1984) Hansford and Maxwell (1993), Pitkethly and Prosser (1995), Ballard (1996) and Johnston (1997) analysed examiners' comments in their reports. However, research to date has not looked at the processes which lead to the formal examiners' reports. The description and analysis of that process is essential to gain an understanding of what examiners are looking for in a thesis, and to make an interpretation of what they write in their final reports. Attempts by earlier researchers to deconstruct examiners' reports should be matched by a more direct approach to the issue, ie by asking examiners what they believe themselves to be doing when they read a thesis, that is, taking a phenomenographic approach. A sample of 20 experienced examiners (defined as having examined at least five research theses in the last ten years) were interviewed. Clear trends have emerged with regard to a number of issues, including: what examiners themselves expect to get out of the exercise; the criteria used by examiners; the early point at which examiners make critical judgments; the influence of previously published work; their attitude to theses from NESB students; and their relationship with the other examiner(s).

Experience with the pilot study indicates that this approach yields useful information relevant to longer-term project goals.

QUALITY IN POSTGRADUATE RESEARCH IN A DEVOLVED SETTING: MAKING ENDS MEET

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This paper addresses issues around quality of post-graduate research in the Faculty of Humanities and Social Sciences (FHSS) at Victoria University of Wellington (VUW). Currently the university operates under a relatively devolved structure and the four faculties have a great deal of autonomy in dealing with a variety of functions that had previously been administered from the centre. This has a number of implications for quality of post-graduate research in FHSS. After looking at definitions of what is meant by "quality" in this situation and factors that are associated with it, the paper explores issues that have needed to be worked through over the past two years in a climate of increasing economic stringency. Discussion of strategies for making ends meet that involves the staff, the students, processes and procedures as well as money are outlined.

Quality Enhancement in Doctoral Education: A Case Study of Macquarie GSM

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Governments play an important role in providing an appropriate national framework and structure for the development of doctoral education. Nevertheless ultimate responsibility for quality supervision processes lies with institutions, in particular with their units of activity and their policies and processes (DETYA, 1999c). This paper presents a case study of recent developments in the quality enhancement of doctoral supervision in one of Australia's premier graduate schools of management, the Macquarie Graduate School of Management (MGSM). In doing so it looks at three areas in particular: (1) the introduction of a code of practice in doctoral supervision; (2) communication, induction, and acculturation processes between students, staff and the MGSM; and, (3) supervision quality including the selection, development and training of supervisors. MGSM currently enrolls a significant proportion of Australia's doctoral students in management and quality enhancement of the doctoral experience is a key priority. The paper concludes by highlighting key issues for future development.

SELF-ESTEEM ENHANCEMENT AND CAPACITY BUILDING IN THE SUPERVISION OF MASTERS STUDENTS

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The paper is based on empirical research with a population of fourteen students who have been undertaking a Master' coursework program, at the University of Zululand, Durban—Umlazi Campus, in the Department of Educational Planning and Administration. Data collected through consultations with students; in addition to through questionnaires administered, form part of this paper. The author of the paper, who is one of the supervisors of the students, also trains in Self-Esteem Enhancement outside the university. (This last point is important to mention because it stimulated the interest of the author to undertake the research.)

The paper first explores and critically reviews the concept of self-esteem. Self- esteem is often defined as self-confidence, as a favourable opinion or appreciation of self, as how one values oneself. Maslow (1970:45) for example argues that "'all people in our society…have a desire for astable evaluation of themselves, for self-respect, or self-esteem and for esteem of others." To Maslow, not only is self-esteem important, esteem by others is too. Coopersmith (1967:4-5) sees self-esteem as the evaluation which an individual makes and customarily maintains with regard to himself…an attitude of approval or disapproval—the extent to which the individual believes himself capable, significant, successful, and worthy" Coopersmith further suggests three features of self-esteem. First: the overall evaluation one has of himself, second, he points out that self-evaluation may be different across different areas and argues that self-esteem, though reflected in ones behaviour, may not be consciously available to the subject, namely the subject may reflect high or low esteem, but may not consciously be aware.

The paper then posits, in a similar vein as Coopersmith, that while self-esteem can be defined as self-regard, it is not a constant, it varies with each person from area to area, and within each area at different times. Students may value themselves highly as students, but may have low self-esteem as researchers in a project, or may have their esteem fluctuating within different situations in the process of undertaking their research. The writer argues that holding students in esteem, even when they lose theirs, is essential in supervision. Put differently, successful supervision of students not only requires students to enhance their esteem when they lose it, supervises need to do likewise. The paper points out that enhancing self-esteem is not only critical in building students' capacity to manage research, it is important in guiding them to proactively do so. Furthermore, self -esteem has role in students managing their relationships with the supervisor, and with themselves. Operating from this premise,

the author monitored each student's experiences of their work, especially those experiences in which students struggled as they studied. Some of these were low marks earned from assignments or presentations, others were being asked to rewrite chapters for dissertations several times. The paper reports on experiences of loss of self-esteem of students around different aspects of their work, such as mini-dissertations, assignments and presentations in class.

As a framework to measure students' self esteem, the author used a model of the Self-Esteem Enhancement Programme, by Brown and Whiten (1981). The author in her training of self-esteem enhancement uses this model, as well. Guided by this, the writer of the paper, facilitated the surfacing of beliefs, stereotypes, judgements, etc which students had about research or themselves as researchers, and which induced or contributed to low self-esteem. Exercises to enhance self-esteem were pursued, during different consultations with individual students or smaller groups of students.

Based on observations of the students' esteem of themselves, and on her observed students' needs, the author together with colleagues, discuss how they identified and designed programmes to build student capacity to undertake their research. She also mentions her perceived impact of self-esteem enhancement on students' openness to undertaking their Research, especially when it was difficult to do so. The writer, finally, draws lessons from her involvement in the programme and makes some recommendations for consideration by other supervisors.

FLEXIBLE POSTGRADUATE RESEARCH SUPERVISION IN AN OPEN SYSTEM

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Not only has the total number of PhD students in Australia increased significantly in recent years, but they are now a diverse group who can be researching and studying for part of all of the time on or off-campus, within Australia or overseas. Postgraduate education in Australia is an open and complex system where postgraduate research students move around a wider world than one campus, a world which includes the ‘virtual’ campus and a growing network of knowledge institutions in addition to universities. There is a trend to flexible patterns of attendance and supervisory structures, a trend dictated by postgraduate research students’ individual needs, research and career interests, and the availability of specialist expertise and research opportunities. This paper examines the growth of an increasingly open system, and

explores emerging practice for negotiating and managing flexible supervisory interaction, creating effective open research learning environments, and ensuring accountability ad support. A concluding discussion raises some issues for future directions.

AFFECTIVE REFLECTIONS: POSTGRADUATE STUDENTS' FEELINGS ABOUT THEIR THESES

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A major concern for universities is the completion rates of doctoral students. The literature on self-regulation of learning suggests that a crucial factor in determining whether these rates are satisfactory or not is how students feel about their theses. Such feelings mediate students' motivation and their willingness to persevere and work consistently to complete their studies within the time limit. Anecdotal reports in the literature and informal discussion with students suggest that how a student accomplishes this depends on how a student feels about his/her thesis: whether, despite the anxieties, uncertainties and obstacles, his/her work has enough emotional rewards for the student to wish to continue as a researcher. In this paper we present findings from a study on how postgraduate students feel about their theses, based on data from a combination of qualitative and quantitative methodologies. Twenty students from two major discipline areas participated in the study. Student perceptions of their theses in the form of metaphors were characterised by six main themes – Uncertainty, Anticipation, Effort, Menace, Creation/growth and Orderliness. Feelings about the thesis, represented by a colour wheel were predominantly positive. Implications of the findings for students, supervisors and university administrators are discussed.

FACILITATING POSTGRADUATE INTERACTIVITY IN THE ELECTRONIC CHANNEL

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The School of Design at Curtin University of Technology in Western Australia has developed a large and fairly sophisticated website for the (asynchronous) distance delivery of the Master of Design coursework program. This site is now providing foundation units in research methodologies for the on- and off-campus students on all postgraduate study programs, including MA and PhD by Research. The electronic environment is a potential aid to independent learning through the facility for discussion and personal knowledge building among students and between tutors and students. Interactivity among students —and between staff and students—is an essential feature of the collective building of knowledge that graduate education seeks to foster. Specifically, there is need to investigate ways in which group process skills (that are known techniques in face-to-face interaction) may be adapted for effective translation into the electronic environment.

Borrowing from a range of facilitation strategies, a pilot project recently carried out had some success in applying the Interactive Meetings Model (Doyle and Straus, 1976; Hogan, 1990). An electronic workshop took place on an existing class email list over two weeks. A number of 'ground rules' were set by the facilitator and participants were asked to access their email list once per day and spend time thinking and contributing to each task. 'Dot voting' among other processes adapted well and 'energisers' also seem to be key players in the electronic environment. This presentation will summarise the above process and outcomes (with illustrations) and attempt to extrapolate useful directions for further research in this area.

INTERNATIONAL CORPORATE FINANCE AT POSTGRADUATE(MBA) LEVEL A GENDER DIFFERENCE PERSPECTIVE

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The aim of this action research is to find out whether there is a statistical difference between males and females performance in International Corporate Finance (FIN 504), a mathematical related subject at postgraduate(MBA) level. The subjects were from Charles Sturt University (Wagga Campus) enrolled in the Autumn session of year 1999 and the mode of teaching was through distance education with teacher-students

teaching learning process through emails, communications through telephones, assignments and end of semester examination. It was quality teaching performance because overall, the students average grade was above the cut-off 75% grade and under the category of distinction with an overall 100% pass rate.

It was found that there is no gender difference in performance at postgraduate (MBA) level in International Corporate Finance(FIN 504) during the autumn session of 1999 and one can be 95% confident about the results. It is classified as quality performance because of the overall score of above 75% (distinction category) and a 100% pass rate in this subject through distance mode education at Charles Sturt University(Wagga Campus) in the State of New South Wales (Australia).

THE FIRST YEAR POSTGRADUATE EXPERIENCE: THE EXPECTATIONS AND THE REALITY

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Effective postgraduate orientation and induction programs are currently being assessed at the University of Melbourne for their impact on retention and completion rates, and student satisfaction.

Emphasis has recently been placed on the importance of generic skills programs for research postgraduate students, particularly in the completion phase. However, there has been little emphasis and analysis undertaken on the experiences of students in their first year of postgraduate study. Postgraduates face a variety of transition issues ranging from moving from undergraduate study or full-time employment into full-time research, juggling study with work and/or family responsibilities, and commencing a research degree after an extended study break.

The University of Melbourne's Postgraduate Association and the School of Graduate Studies are currently undertaking both qualitative and quantitative studies into the expectations and realities experienced by first year postgraduates. Particular attention will be paid to the differences between coursework and research postgraduates and to the experiences of women and international postgraduates.

It is hoped that through this study the University will gain greater understanding of the key issues affecting first year research postgraduates and establish measures for improving the quality of first year inductions and orientations programs at all levels

SIX NURSES' VIEW ON THEIR POSTGRADUATE EXPERIENCE

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An increasing number of nurses are entering higher degrees in nursing. Whereas there are many papers published on the evaluation of undergraduate nursing courses, little has been written on the use of higher degree knowledge in nursing practice. If the aim of postgraduate study is to produce educated, motivated, innovative nurses, it is important to explore whether this aim is being met and to what extent there is a relationship between research training and practice. 'Making ends meet' necessitates an ongoing relationship between universities and industry where needs, both professional and financial, are being addressed. A qualitative study examined the experiences of six nurses who had completed a Master of Nursing. The nurses revealed their perceptions regarding the factors that both facilitated and inhibited their ability to use their Master of Nursing knowledge in their particular practice area. It is evident that there are benefits of higher degree study at both a professional and a personal level for this group of nurses. The participants claimed that research skills gained during the Master of Nursing are crucial to improving practice as it means that nurses are educated both to utilise the research of others and to initiate research in their area of practice. However, resources to support research were minimal for most participants. Issues raised in this paper present a challenge for universities and health-care organisations to provide better support for nurses to undertake research and further postgraduate studies.

ADMINISTRATIVE STRUCTURES FOR HIGHER NON-FACULTY RESEARCH DEGREES

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Research degrees such as the PhD degree are usually a University degree and not administered by a Faculty. This calls for a supra-Faculty type of structure to administer and over-see the degree. Typically, this could be a School of Graduate Studies, with or without a Dean as Chair. Universities in this part of the world are not consistent in the type of structure they have. One format is to have such a School with representation from all supervisors of Doctorate degrees, as well as representatives from the Postgraduate student body. Day-to-day work would be handled by an executive, with it

and the School itself being responsible for reporting to the highest Academic Forum in the University.

Such a structure need not create too much extra administrative work and would provide for:

- the sharing of good practice across the University for supervision and examination of research degrees, thus upholding quality etc
- involvement of external supervisors in the relevant administrative processes
- the provision of input to the University of new ideas relevant to research degrees. A case for such a structure will be made.

INVESTING IN OUR FUTURE: ASSISTING BEGINNING POSTGRADUATE STUDENTS TO CONCEPTUALISE AN EVALUATION RESEARCH PROJECT

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This is an interactive workshop which focuses on techniques which can be used to assist beginning research students to conceptualise the planning and preparation of evaluation research projects using qualitative techniques.

In the workshop, four themes will be explored. These are:

- *notions of research* (using metaphors of research as journey and research as culture; appreciating ethical considerations in human research)
- *concept development* (setting a context for an evaluation through analysis of the problem, need, innovation and outcome of the research)
- *application of the 'Vee heuristic'* (assisting students to appreciate the balance between the conceptual and methodological aspects of an evaluation, using the research event as the fulcrum)
- *reflection on methods of data collection* (encouraging flexibility and innovation in the selection of evaluation methods).

Participants will have the opportunity to engage in, reflect upon and discuss these approaches which the presenters have used in a number of contexts with beginning research students. This workshop will be of interest to those working in higher education or those who have the responsibility for inducting research

VALUE-ADDING TO POSTGRADUATE RESEARCH TRAINING IN THE SCIENCES

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For several years industry has publicly complained that Universities are not producing postgraduate researchers, especially in the sciences, that meet its requirements. More recently the federal government has focussed on the deficiencies of doctoral graduates in Australia. The Research and Research Training Management Plan outlined in the White Paper (*Knowledge and Innovation: A policy statement on research and research training)* together with the new system of auditing research in Universities which it outlines, will require a set of performance indicators for postgraduate research training.

This paper will examine the political context in which the focus on value-adding for postgraduate research training in the sciences in Australia has sharpened in the last few years. It will explore how Universities can value-add, while still achieving optimum completion times and outcomes. It will also assess whether models of postgraduate training in Cooperative Research Centres and the Deans and Directors of Graduate Studies' statement on skills development for research students offer any guidance to Universities as they come to terms with the requirements for research training outlined in the White Paper.

POSTGRADUATE LEARNING STYLES AND ENABLING PRACTICES : A MULTICULTURAL ACTION RESEARCH STUDY

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Research carried out with postgraduate students has yielded information about their conceptions of and approaches to research which provides useful insights to inform and underpin the development of supportive programmes and supervisory practices. This paper reports the findings of ongoing action research into the learning and research-as-learning of two cohorts of Israeli PhD students and a group of UK born PhD students.

MORE THAN AN APPRENTICE MODEL: LEGITIMATE PERIPHERAL PARTICIPATION (LPP) AND THE RESEARCH CONFERENCE FOR POSTGRADUATE STUDENTS

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With the various proposals surrounding government policy on the position of postgraduate research students in Australia, there has developed a sense of urgency about the efforts of organisations to apply positive and constructive measures to issues of particular interest to the postgraduate research community. This paper examines an instance of an established postgraduate student association's conduct of a national research firstly to stimulate new, and secondly to support current, research endeavours of its constituents. A university wide survey of postgraduate research students' perceptions of faculty support for their work suggested a number of areas in which the university was lacking. We were concerned about the lack of systematic approaches within this community of students as a whole to facilitate these students' operations on the multiplicity of levels required for their success as research students. The conference aimed to tackle these levels, initially as part of an induction into the research community and ultimately as part of making the transition from acolyte to master.

The activity was informed in large part by Lave and Wenger's theory of Legitimate Peripheral Participation (LPP). It was a deliberate attempt to take steps beyond those normally associated with mentoring and/or shadowing within a community of academic endeavour. One of us had already developed and trialled an LPP program with a group of undergraduates from across the five faculties, with a fair measure of success (Zeegers, 1999). We already had a community of practice consisting of the student group drawn from five university faculties, ourselves as Executive Committee Member and Executive Officer respectively, and a number of Postgraduate Student Supervisors anxious to support the idea of this conference.

We had nothing in the way of systematically implemented academic research development on a University-wide basis; we had been relying very much on some sort of osmosis process through which postgraduate research students would learn to negotiate the ways of the academic. What was needed was a way to establish each student's actual participation in a successful university program on a multiplicity of levels, an 'activity system about which the participants share understandings about what they're doing and what that means for their lives and for their communities' (Lave and Wenger, p. 98). It was not enough for them to work on the basis of their supervisors' assumptions and applications.

LOOSE ENDS

From past experience it seemed to the Conference Program Committee that there are some issues in postgraduate research which seem to elude resolution at the conference. This may be because research on the topic is inadequate or conflicting; or because the problem arises from a current political debate and can only be resolved within that contact; or because it is an emerging issues and we do not yet have a good enough fix on the problem to develop a solution. The 'Loose Ends' sessions were an opportunity to discuss some of these issues. Each session had a 'Provocateur' and the rest was up to the participants. Following are the abstracts for each session and notes of the discussion.

Supervisor development for research training in Australia: Weaving threads in a resource web

David Boud, Assoc Dean (Research), Faculty of Education, UTS
Angela Brew, Acting Director, ITL, University of Sydney
Mairéad Browne, Dean, University Graduate School, UTS
Jo McKenzie, Senior Lecturer, CLT, UTS
Margot Pearson, Director, CEDAM, ANU
Rod Wissler, Director of Postgraduate Research Studies, QUT

Abstract

A new emphasis on the quality of postgraduate research supervision is required in light of the Commonwealth Government's White Paper "Knowledge and Innovation". Most universities possess some resources for supervision quality enhancement but continuing funding limitations and the inherent development costs make it prohibitively expensive for a single institution to create a full range of materials. A Consortium from four universities—ANU, QUT, the University of Sydney, UTS—has been working to develop a conceptual framework for supervision development activities and to identify strategies for sharing the tasks of designing and implementing development activities in the individual institutions. The Consortium has had many expressions of support from colleagues in other universities who have been aware of the discussions. There have been requests for the Consortium to be open to wider membership. Consequently, the Consortium decided to present its ideas in this session and to invite other universities to join.

The session was presented in two parts, introduced by Rod Wissler and chaired by David Boud. Part 1 provided a background and framework for supervision development for research practice and an overview of the components we perceive to be necessary for supervisor development.

Discussion

Jenni Gordon from DETYA was invited to provide a background context for session by discussing the views of research training which underpinned the Green and White papers. She re-iterated the DETYA view, expressed earlier that day, that universities had a key role in research training. Supervisory arrangements would come under increasing attention as institutions sought to assist students to gain a broader range of

research skills and complete their research degrees in a timely way. Specifically addressing the issue of supervisor development, she commented that:

> I am confident that those of you involved in delivering development programmes for supervisors will be busy as institutions strive to ensure that all staff with supervisory responsibilities are adequately prepared.

It was evident that the government would expect institutions to demonstrate the quality of their supervisory and student support environments, and justify the trust that students had placed in them. The consortium was described as an exciting approach to supervision development and, it seemed, one which was very relevant to the current research training agenda.

Margot Pearson and Angela Brew then presented some approaches to a theoretical framework for understanding supervision development, describing supervision as situated in communities of research practice. A cognitive apprenticeship model was introduced as a way of understanding postgraduate research. Within this model, supervision included situated practices of negotiation, coaching, mentoring and encouraging critical reflection while students engage in the productive practice of their research. Supervision development would therefore need to include a focus on developing relevant skills and strategies, but also on developing supervisors' and coordinators' understandings and awareness of a range of critical issues and practices. Angela Brew's finding that experienced researchers differ in their conceptions of research and scholarship suggested that supervisors need to develop an awareness of their own conceptions and of the range of conceptions of their students and other members of their research communities.

These approaches to understanding supervision and supervision development suggested a framework for supervisor development which was represented by Margot Pearson in the form of a preliminary course outline. This described a range of desired learning outcomes for supervisors and supervisor coordinators including: greater self-awareness of own conceptions of research and supervisory practice, contextualised by critical engagement with salient and emergent issues in own field of research; understanding of what constitutes a productive research learning environment; enhanced understanding and leadership skills for the facilitation of learning in one-to-one and group settings and the leadership and management of research groups and postgraduate research programs; appreciation of a range of good practice approaches to supervision and evaluation of research and learning outcomes; understanding of supervision pedagogy; familiarity with flexible approaches to supervision in an open context; enhanced competency in interactional and communication skills and in IT mediated communication strategies; up to date knowledge of the expectations of stakeholder groups such as employers and professional networks and associations.

Loose ends

The Loose Ends session included two components. Firstly, participants engaged in small group discussion about the usefulness of the frameworks offered in the earlier session, basing their discussion around the course outline as a preliminary description of the focus and types of resources that the consortium would seek to source or develop. Participants reinforced the need for consortium resources to focus on developing collaborative supervision within communities of research practice in the

current and changing context, as well as on developing individual supervisors and supervision co-ordinators. A range of further issues were raised, including evaluation of supervision, the potential for discipline-specific resources and student diversity.

Mairéad Browne concluded the session by addressing participants on the nature of the consortium proposal and what was required of potential future partners. Although the Consortium anticipates the need for further discussion around the commitment and benefits for individual members of a widened Consortium, at this stage it was proposed that membership involve a commitment of cash and at least one supervision development resource in any format (Web-based, video, film, print etc.).

Resources to be brought to the Consortium will need to be built on a sound theoretical framework, based on conceptual and empirical work around supervision and the nature of research practice, education and training. Resources would be evaluated by a panel of group members against criteria relating to the quality of the resource and potential for use across a range of institutions relative to an identified need. The intention is to share resources between Consortium members on a free or at-cost basis. It is not expected that individual members would contribute all of their institutional supervision development resources - just one self-contained, discrete resource which could be used in a variety of settings across the Consortium. Institutions unable to provide a suitable resource would have the opportunity to contribute in other ways, e.g. with cash, infrastructure support and so on.

The gateway to the Consortium resources will be a Web site or portal. The conceptualisation of the site will need development but it was proposed that it perform a range of functions, for example: providing links to electronic resources held in member institutions and on Web sites around the world; giving access to the repertoire of Consortium resources provided by members or developed by the Consortium; provide reviews of resources on specific topics and aspects of supervision; providing details of contacts, arrangements and costs for securing resources. The portal will also feature papers, reports, articles contributed by members for the benefits of other members.

The session concluded by inviting participants to express their interest in receiving further information and submitting an expression of interest from their institution. It was stressed that expressions of interest would need to come from institutions, and would most likely involve collaboration between members of the DDOGS group, the Directors of academic development units and people in similar positions who were able to commit resources and ensure that consortium benefits were shared throughout their institutions.

A considerable number of participants expressed initial interest in the consortium. Further information can be obtained from any of the session presenters.

When is a PhD not a tome?

Provocateur: Ian North

Abstract

The model of the PhD as a substantial monograph has dominated postgraduate research in Australia for many decades. Is this model adequate for the future development of research? What is the best way for students in 'new' areas of research (e.g. the visual and performing arts) to present their research? What are the implication of the 'thesis.com' revolution for the traditional tome?

Discussion

The focus of discussion was on a 'thesis' which is composed of some form of visual or performance art, as well as a written component. There was no disagreement that such a thesis is a genuine example of qualitative research, the issue is the examination/evaluation of the thesis. Some of the concerns expressed were:

- What is the nature of the written component? Is it sufficient that it be a commentary on, or explanation of the artifact, or should the written component be more of a theoretical discussion of the topic? At what level should the discussion be pitched–at the same level as a traditional thesis?
- There seems to be broad acceptance of these theses at the Masters level but very few institutions award a PhD for this form of research. Is this because of a lack of confidence that this work is of a doctoral level?
- What counts as 'publication' is often problematic. For example, a CD-ROM or a web-site can include both an artifact and a written commentary, but do they have the necessary level of permanency and accessibility to be considered a publication. These forms of publication often do not quality for DETYA Research Quantum funds.
- Institutions which allow non-traditional theses often find it difficult to explain to students, in advance, what is expected of the 'thesis'–creating the danger of later disagreement between what the student thought he/she was doing and the expectations of the institution. Institutions also find it difficult to explain to examiners what they are required to examine.

The discussion at this Loose End was useful as a starting point, but there is a real need for a comprehensive survey of practices across the institutions to allow for the development of consistent policies.

Research training management plans

Provocateurs: David Liljegren and Janet Dibb-Smith

Abstract

The Government's new policy related to postgraduate research training calls on universities to develop Research Training Management Plans for their postgraduate students. What are the issues related to the development of such plans? What will be the defining features of acceptable RRTMPs? How does a university or a faculty/school go about developing such a plan? Do we have examples of good practice in this area?

Discussion

The Directors and Deans of Graduate Studies (DDOGS) meeting the previous day noted that little time is available to develop Research and Research Training Management Plans (RRTMPs) and to integrate them with other institutional plans. Particularly as the White Paper expects a University-wide approach to research and research training.

There was discussion on whether a RRTMP should be a Management plan or a bit of propaganda (like the Quality document of the mid-1990's). Advice form several DDOGS was to avoid making over-ambitious claims as universities will be held accountable for claims/targets in the RRTMP. It was also suggested that universities should avoid the temptation to submit lengthy documents (or appendices).

The *Education Profile* Guidelines list nine core elements, including how to reconcile existing Research and Research Training Management Plans with 'Research Education' or 'Research Training.'

Issues raised during the discussion included:

- Curtin is looking at a broad definition of research training from Honours to Post-doctoral
- given concerns about value of PREQ, it was suggested that all universities use the opportunity to say it is not supported
- Murdoch suggested that it is not possible to prepare a useful working RRTMP in 15 pages – one should be a working document (longer) and the Education Profile submission should be the 'Executive Summary'. The Plan will broadly follow the Education Profile outline
- University of South Australia—PREQ only a small part of quality assurance e.g. induction, structured programs and other measures. Where does this 'instrument' fit into the funding environment?
- AVCC seems silent—but should leaders in postgraduate studies propose appropriate alternatives?
- DEYTA has no capability to conduct rigorous analyses therefore they will be likely to assess a university's achievements in terms of processes and whether projected outcomes achieved
- self-accrediting organisations (e.g. a university) to be audited in terms of its processes
- How are universities going to tackle the question of research active members of staff? DVCR group discussed this and agreed that they couldn't really give a list of all active researchers.
- Should Plans give definition and examples of quality? How will they demonstrate quality? Newer institutions will look at the percentage of Doctorates on University staff
- the internal consistency of the document is important—e.g. if discussing Higher Degree (HD) student load, then it is important that Human Resources decisions and funding policies are consistent of areas of strength

- Are institutions to list all staff in University so a potential HD student can look and choose? What databases are useful? Of all HD students? Of all supervisors?
- most information wanted by potential research students (can) be secured off the Web—identifying areas of strength and staff contracts but this information is not checked now for quality but could be
- What kinds of comparisons would be useful for the international context? e.g. AusAid continuing improvement framework where universities can identify what they are doing well and will continue and what they haven't done well, so can improve (e.g, McKinnon performance indicators). Mentoring and reporting of AusAid students are very rigorous—much more so than for other (HD) students. Suggested that the model could be extended to other HD students, but there are real resources implications
- there were question regarding how to measure trends appropriately. Institutions are likely to identify indicators than show them off in best light. Should universities collaborate to drive an appropriate framework?
- What should be the relationship between Nos. 3 and 9 in the Guidelines—the demonstration of alignment between area of research strength and areas of research concentration? It is important to stress that such an analysis needs to be done at a discipline level given the different balances that are appropriate.
- institutions can demonstrate supporting areas of strength by allocating load, setting aside scholarships etc
- Higher Education policy is currently defined by what it won't do, not by what it will do—e.g. vouchers set aside until more politically opportune time
- CAPA is concerned about the split between APA(I) and APA—between ARC and DETYA. CAPA is keen to get the ARC involved and suggest that the ARC look at the plans (Plans under this outline now very useful to ARC)
- universities have had Research Management Plans for many years, written for the university
- •the agenda is not just research training, but research activity and quality in research management.

Truth in advertising postgraduate education

Provocateur: Helen Kavanagh

Abstract

With the increase in the number of students enrolling in postgraduate education (research and coursework) and the dramatic developments with regard to international postgraduate students, where do universities stand with regard to advertising courses in ways which not only attract students, but live up to the promises made explicitly or implicitly? During this Loose End there will be an opportunity to discuss the pros and cons of advertising and the risks to students, universities and staff where advertising is 'less than truthful'

Discussion

Universities are engaging, more and more, in commercial activities, including selling educational services. This brings them under the aegis of the Trade Practices Act. Overseas students and coursework postgraduate students can pay up to $40,000 for their award, and there is a perceived level of discontent with some university practices. A spirited discussion ensued about Quality Assurance mechanisms, accountability, and the notion of students as 'consumers'. Several students were outspoken about misleading advertising and aggressive, recruitment strategies at their universities - they were invited by David Myton, the editor of the new postgraduate forum section of Campus Review to submit articles—something for us all to look forward to! Some student associations have already been in contact with the Australian Consumer and Competition Commission (ACCC) which administers the Trade Practices Act. A paper has been given on the topic by Alan Fels, the Commission's chair, this and other articles are available from the University of Adelaide's Postgraduate Students Association web site: http://www.adelaide.edu.au/PGSA/

Evaluating the postgraduate experience

Provocateur: Terry Evans

Abstract

The debate on the PREQ has challenged us to think about appropriate ways to evaluate postgraduate supervision. While not wishing to re-run the PREQ debate, this Loose End will challenge participants to think about the evaluation of various aspects (not just supervision) of the postgraduate experience. For whose benefit is the evaluation being done - the government, the institution, the supervisor(s) or the students? Are there existing practices in institutions that are working well?

Discussion

This session was attended by 24 conference participants. They wrestled with the matter of evaluating the postgraduate experience. Perspectives were presented from the standpoint of present and past students, academics, administrators, and postgraduate student organisation representatives.

A range of strategies was outlined but none, on its own, was recognised as fully adequate, particularly when the matter of protecting the interests of the student was taken into consideration. The 'power' of supervisors was recognised as extending well beyond the candidature as graduates were still dependant for references. This leads to an unacceptable 'conspiracy of silence'.

Evaluation strategies described included:

- an annual survey of all students covering all aspects of their experience from supervision to infrastructure

- meetings/interviews between students and staff from different faculties
- focus group meetings
- mentoring programs, particularly for students studying at a distance
- a range of integrated strategies including departmental structured programs to induct students, clarification of supervisor-student expectations based on responses to a variety of items on a rating scale, annual reviews, and student evaluation by questionnaire
- departmental audits of postgraduate supervision and provision.

The group recognised they were dealing with a difficult issue but one that required detailed attention nevertheless if the quality of the postgraduate experience is to be improved. The only generally satisfactory approach at this time seemed to be one that deployed a wide range of approaches to enhance the quality of the experience (through induction of new supervisors as one example) and to minimize the likelihood of difficulties, and which used several strategies to get feedback from students, recognising always that students were in a complex power relationship with their supervisor.